


WINNIPEG
**INFORMATION AND
COMMUNICATION
TECHNOLOGIES**

GROW SMARTER | WITH INNOVATION

WINNIPEG



Get connected to a dynamic cluster of information, communications and technology (ICT) innovators that include telecommunications firms, film and animation studios, computer system designers, electronic component manufacturers, computer equipment providers and wire/cable suppliers. Winnipeg's advanced fibre optics and digital switching platforms support geographic information systems, health informatics, consulting services and software development.

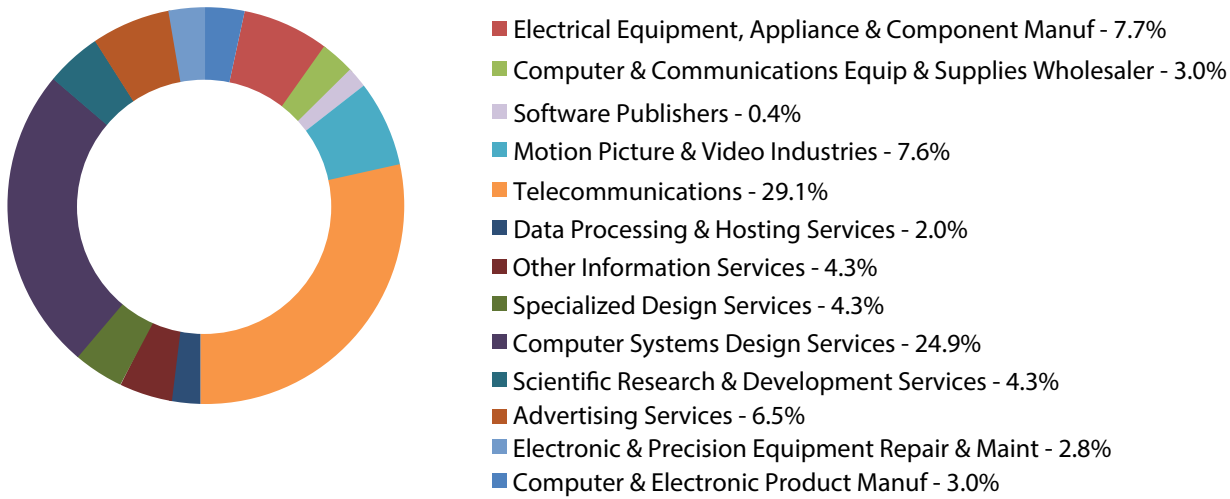
Innovation and creativity are plugged into every industry, supported by Winnipeg's economic advantages, talented professionals, and telecommunications infrastructure.

Winnipeg's ICT companies are competitive in global markets. The competitively low costs of doing business in Winnipeg help ICT companies achieve better profit margins, allowing them to reinvest more of their earning toward the development of new intellectual property assets or other growth strategies. The city's highly skilled labour force, well-connected and innovative developer community, and world-class education infrastructure strengthen the advantage ICT firms experience in Winnipeg. Major ICT firms—including IBM and HP Enterprise Services—have centres of operation in Winnipeg, and the city is the headquarters of one of Canada's largest telecommunications network providers: MTS Allstream. The ecosystem of large and small ICT firms in Winnipeg contributes to a vibrant, entrepreneurial and diverse ICT sector that serves growth markets throughout the world.

A GROWING SECTOR

Winnipeg is the centre of Manitoba's ICT Sector. Companies in the industry earn more than \$1.2 billion in annual revenues. Winnipeg's ICT industry is largely focused on exports, with Winnipeg's ICT firms exporting about \$294.9 million in ICT goods per year; this figure does not include service exports, which cannot be accurately measured. There are about 1,815 ICT companies in Winnipeg that employ 18,275 workers.

WINNIPEG'S ICT SUBSECTORS: SHARE OF EMPLOYMENT (2012)

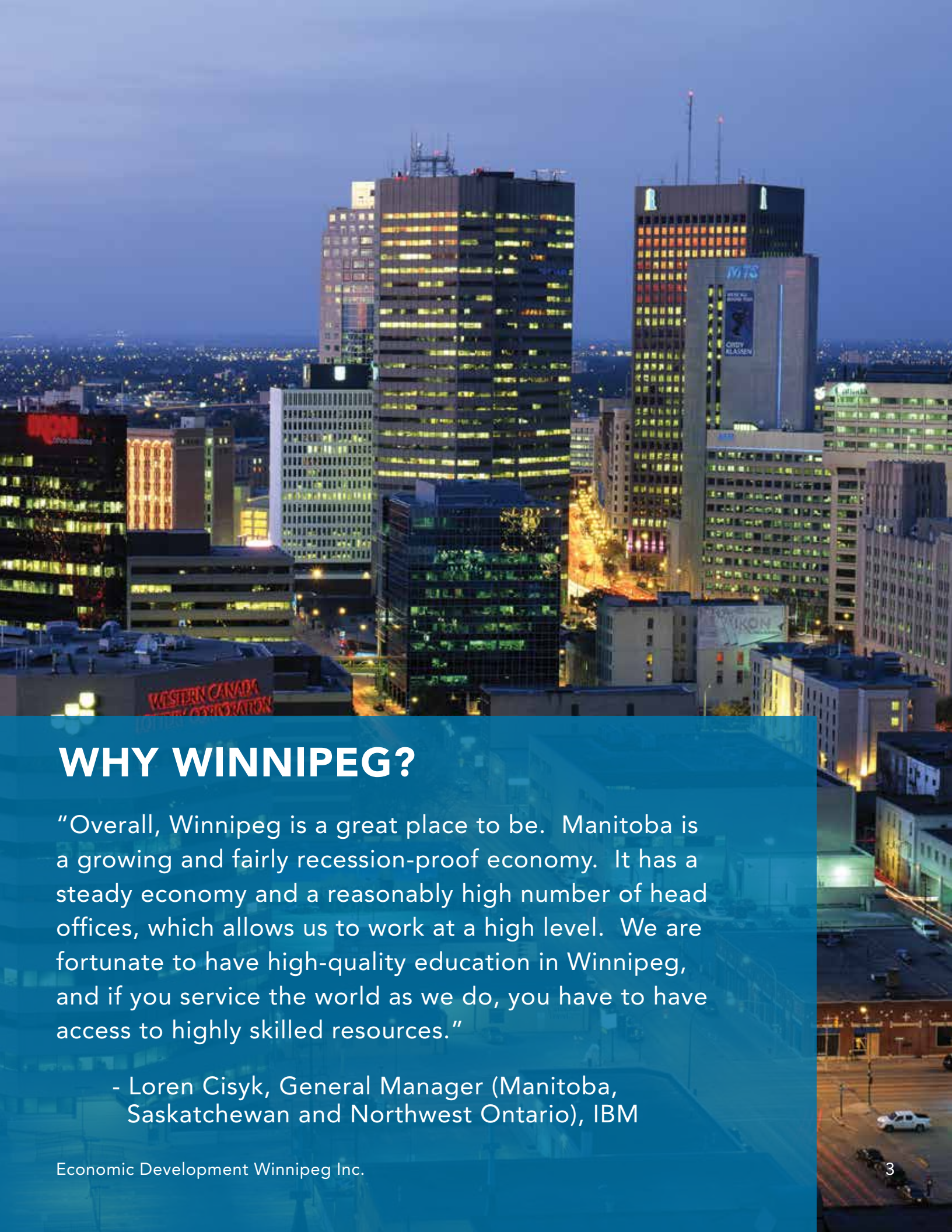


Total employment within the ICT sector increased by 10 per cent from 2007 to 2012.

This was most evident in the computer systems design, scientific research and development, and electrical manufacturing segments, where growth ranged from 30 to 40 per cent. Notable growth was also evident in telecommunications, where employment grew by 22 per cent.

Winnipeg's ICT community also includes a **highly innovative and rapidly growing** interactive digital media cluster, with firms active in the development of web apps, motion graphics, mobile apps and other such media. Many of the firms in this industry have historical roots in advertising or motion picture production and postproduction.

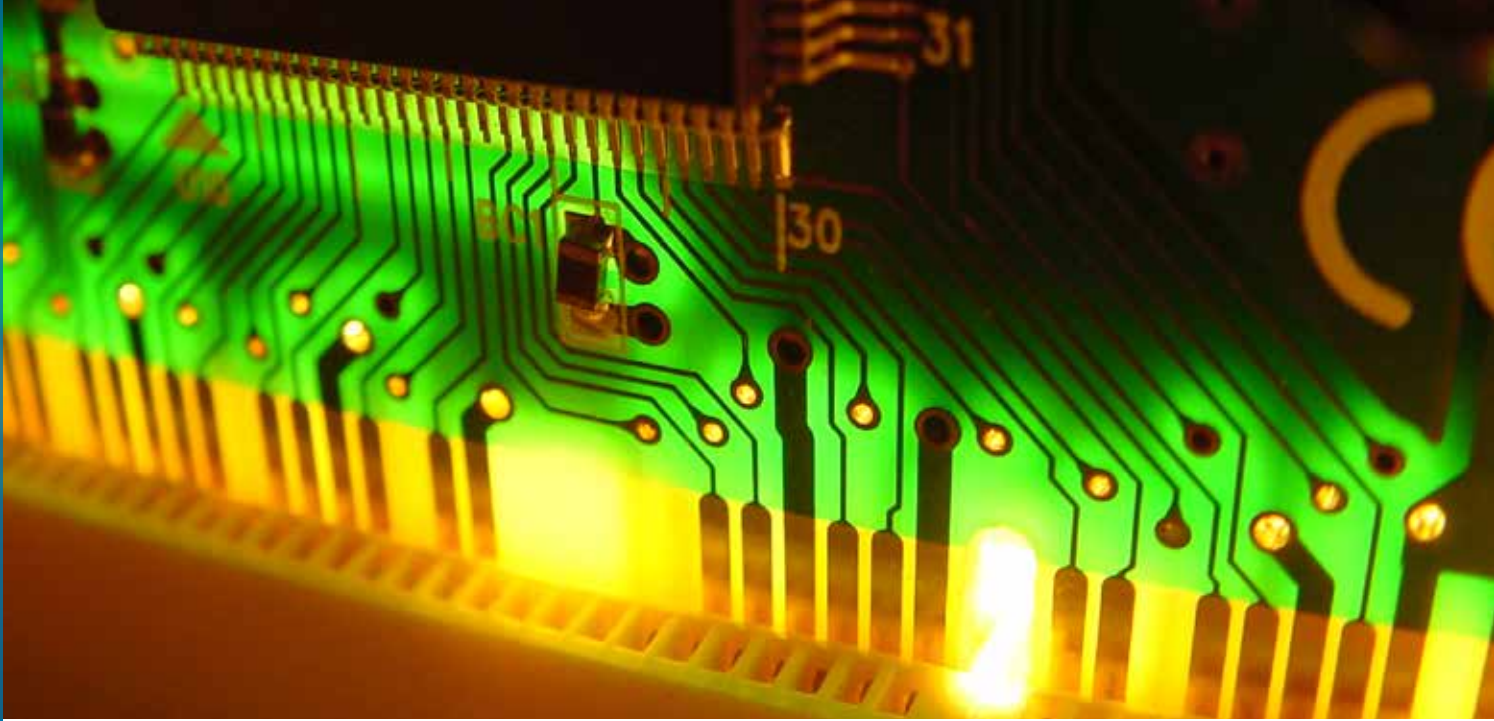
The size and growth of revenues within Winnipeg's ICT industry are difficult to estimate due to limitations in the statistical data available; however, 2011 **revenues in the sector of more than \$1.2 billion** signaled an impressive increase of 48 per cent over the previous five-year period.



WHY WINNIPEG?

"Overall, Winnipeg is a great place to be. Manitoba is a growing and fairly recession-proof economy. It has a steady economy and a reasonably high number of head offices, which allows us to work at a high level. We are fortunate to have high-quality education in Winnipeg, and if you service the world as we do, you have to have access to highly skilled resources."

- Loren Cisyk, General Manager (Manitoba, Saskatchewan and Northwest Ontario), IBM



IBM TOTAL WORKFORCE IN MANITOBA

400

IBM YEARS IN WINNIPEG

80+

IBM OPERATIONS IN WINNIPEG INCLUDE A FOCUS ON:

- » Cloud computing and data centre operations
 - » Business analytics
 - » A smarter planet that equips the world's systems, connects them and makes them intelligent
-

Winnipeg is the headquarters of several major national and international firms, as well as major institutions for post-secondary education, health care and government—all with information management needs.

Because of the city's size and supportive business community, it is easier to gain access to CEOs in Winnipeg than in larger metro areas.

Winnipeg offers a very high quality of education and access to a skilled workforce that helps IBM's local operations service the world.

Employee tenure in Manitoba is much longer than other locations, and this low turnover helps IBM reduce costs.

Lower costs for electricity in Manitoba help IBM to run a more efficient co-location data centre.



COMPUTER SYSTEM DESIGN AND RELATED SERVICES

Winnipeg is home to 637 computer system design establishments that employ a total of 4,557 workers. Major global software and services firms with a presence in Winnipeg include HP Enterprise Services, IBM and Oracle. The city is also home to a large community of software and systems developers with diverse capabilities that include specialization in health informatics, e-health, master data management, geomatics, security, financial software and other areas. Two of Winnipeg's thriving midsize systems design firms include:

EPIC Information Systems

Protegra

INTERACTIVE DIGITAL MEDIA

Winnipeg is home to a cutting-edge and highly creative interactive digital media (IDM) sector consisting of companies that are primarily Manitoba-controlled (94 per cent). **In 2011, this industry consisted of 436 full-time and 126 part-time employees earning an average salary of \$44,419 per year.** On average, these companies are seven years old, so businesses tend to be legitimately stable. Web design and web application development is the most prominent primary activity for the majority (43 per cent) of these companies in Winnipeg. Game development (12 per cent) as well as advertising and promotional content development and publishing (11 per cent) are the second and third most prominent primary activities. In terms of secondary business activities, Winnipeg's IDM companies are principally active in mobile application development, advertising and promotional content, and social media marketing.

In the fiscal year ending in 2011, **digital interactive companies in Winnipeg produced an average of 23.6 new media projects per company and generated \$38.8 million in revenue.**

Approximately half of these projects were service projects (54 per cent), while the other half were content-owned projects (44 per cent), where the content (intellectual property) is owned by the company.

Many of Winnipeg's interactive digital media firms have traditionally offered advertising, marketing and promotion services, while others have historically offered services in corporate information technology development. Some developers have a historical background in film postproduction. Collaboration among and within this multi-disciplinary and converging segment has resulted in award-winning advertising, gaming and online application products that reflect the high level of expertise and the impressive knowledge base present in Winnipeg.

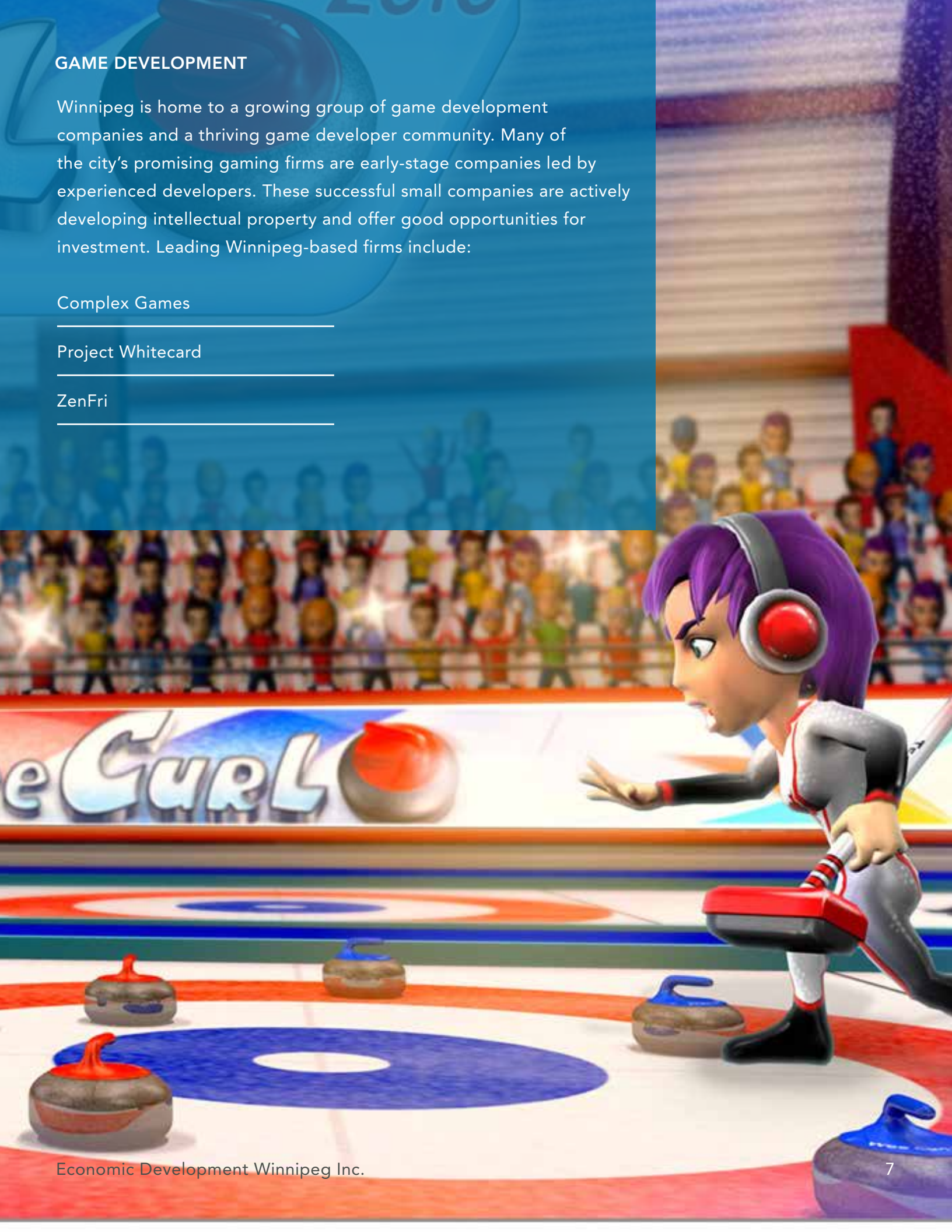
GAME DEVELOPMENT

Winnipeg is home to a growing group of game development companies and a thriving game developer community. Many of the city's promising gaming firms are early-stage companies led by experienced developers. These successful small companies are actively developing intellectual property and offer good opportunities for investment. Leading Winnipeg-based firms include:

Complex Games

Project Whitecard

ZenFri





WEB APPS

Winnipeg boasts approximately 30 to 40 firms currently active in the development of web applications. Leading firms include IC Group (icgrouplp.com), Protegra (protegra.com), Modern Earth (modernearth.net), Visual Lizard (visuallizard.com) and Velocity Branding (velocitybranding.com). Many of these firms offer creative services, branding, design, marketing, promotion and other related services.

IC GROUP: WINNIPEG'S LEADING WEB APP DEVELOPER



Key Stats:

Year Founded:

1989

Employees:

100+

People Registered on
IC Platforms:

100 Million

IC Group LP is a leading provider of marketing and data solutions that leverage promotions, loyalty programs and social media campaigns to acquire consumer data. By understanding consumer data, the firm is able to significantly improve marketing results by providing digital solutions across various online communication channels.

Headquartered in Winnipeg, with offices in Toronto, Chicago and Milwaukee, IC Group has launched more than 5,000 projects in over 20 countries, with more than \$100 million in cash and prizes awarded. IC Group LP began as a niche insurance provider supporting brands with promotions like hole-in-one and scratch cards. In 1995, an interactive services division was created to support the future needs of clients moving away from physical promotions to digital/online games and promotions. The company currently provides promotions for over 30 per cent of the world's top brands and advertising agencies.

www.icgroupinc.com



MOBILE APPS

The global and North American markets for mobile applications have grown tremendously over the past few years. In-Stat, one of the world's leading firms for analyzing the mobile application market, estimates that the size of the market for mobile applications will reach \$29 billion by 2015, with more than 48 billion downloads of mobile apps in that year. Smartphone sales that run mobile apps are expected to increase from 23 per cent in 2010 to more than 45 per cent in 2015.

Winnipeg firms are active in addressing this growing global market. New Media Manitoba estimates that about 18 firms in Winnipeg are active in the development of mobile applications, with a strong interest among many new media developers to expand into this growing market. Winnipeg leaders in the development of mobile applications include Tactica (tactica.ca) and Freshcode (madefresh.ca), among others.

VISUAL EFFECTS AND MOTION GRAPHICS

Winnipeg is home to firms with world-leading expertise in visual effects and motion graphics. Opus Visual Effects, Coelement (formerly Elemental Motion Media) and Systematic Design are among Winnipeg's premier players, all with experience in developing motion graphics and visual effects for major clients and feature films throughout the world.

WINNIPEG'S WORLD-CLASS VISUAL EFFECTS AND MOTION GRAPHICS FIRMS



Opus Visual Effects is a leading visual effects company based in Winnipeg. With more than a decade of experience, the Opus team has been instrumental in the realization of numerous CG effects in projects ranging from large Hollywood productions (Avatar, Superman Returns, X-Men, Swordfish) to independent films and TV miniseries (Storm of the Century, The Big Empty). Specializing in 3D animation, digital compositing, green screen integration, SFX animation/particle work, pre-visualization and stereoscopy, the Opus team brings a vision to life on time and on budget. Skilled artists at Opus are leaders in the VFX industry who employ cutting-edge software to suit all needs.

www.opusvfx.com



Coelement provides expertise in branded content and experiences focusing on video, interactive and emerging platforms and motion design. Major clients include McDonalds, UnitedHealthcare, Manitoba Hydro and many others across North America.

www.elementalmotionmedia.com



Systematic Design is a multiple award-winning studio specializing in broadcast design. From concept development to final on-air implementation, Systematic Design creates a spectrum of broadcast design productions, such as network branding, station IDs, show openings, promos and commercials. Major clients have included Super Bowl 2003 and 2006, ABC News, CBC, CTV, KTSF, NBA on ABC, NBC Sports, Global TV and MBC in United Arab Emirates.

www.systematicdesign.net



HEALTH INFORMATICS

Winnipeg is home to a cluster of firms that develop products and solutions for eHealth and health informatics. Health informatics includes information technology products or services that capture, transport, convert, analyze and deliver information related to health care. Manitoba is home to companies producing high quality, robust and technically sophisticated health informatics products and support services.

Monteris Medical, Momentum Healthware, Maxim Software Systems and IMT are among some of Winnipeg's most successful health informatics firms.



WINNIPEG'S LEADING HEALTH INFORMATICS FIRMS



Founded in 1995, Momentum Healthware specializes in the development, delivery, integration and support of seamless information technology software for the health-care industry. Its solutions serve the information systems requirements of small- to medium-sized hospitals, the continuum of long-term care facilities and the home-care segment in Canada—as well as the continuum of long-term care organizations in the U.S. Momentum's industry-compliant applications include electronic health records, assessments, registration, clinical systems, clinical portals, dietary, pharmacy, real-time location, billing, financials, human resources and decision-support systems.

www.momentumhealthware.com



Maxim Software System's main product is dental-practice management software (with its exclusive Dental One-Write Design). Maxim sells directly to users and provides ongoing annual support contracts. Its product, MaxiDENT, has many attributes highly desired by dental professionals, such as a clickable ledger card, an exclusive never-lose-a-patient recall and appointment system, and MaxiCHART (an electronic dental-charting program). Another software program developed by Maxim is eDex, an electronic address book.

www.maximsoftware.com



Intelligent Hospital Systems (IH Systems) is a medical-device company that designs and develops automated solutions for the hospital environment. The firm's first product is RIVA, the Robotic IV Automation system. Developed from research conducted by a team at the St. Boniface Research Centre in Winnipeg in the mid 1990s, RIVA is used by hospital pharmacies to automatically and accurately prepare IV syringes and IV bags. By automating the admixture preparation, RIVA addresses the issues of safety for the patient and the pharmacy technician, efficiency and effectiveness in the pharmacy, and the challenges of a changing regulatory environment.

www.intelligenthospitals.com



Monteris Medical Inc. is a medical-device venture dedicated to developing new technologies for the treatment of cancers. Monteris' proprietary AutoLITT® technology employs MRI-guided, focused laser-induced interstitial thermal therapy ("the AutoLITT System") to coagulate and kill tumours.

www.monteris.com

CYBER SECURITY

Winnipeg offers tremendous research capacity to support firms in the security field. Manitoba boasts the highest worldwide concentration of certified information security system professionals, as reported by ISC2. Manitoba also has a number of world-class research centres involved in R&D in the area of cybersecurity. R&D facilities are operated by agencies at both levels of government and by the universities (particularly the University of Manitoba). All have strong linkages to the private sector at all levels—from board representation to joint ventures and fee-for-service contracts.

SECCURIS: WINNIPEG'S LEADING CYBERSECURITY FIRM

Seccuris is an information assurance solution provider. The company offers a variety of services, including enterprise security architecture, threat and risk assessments, forensics, vulnerability assessments, custom software development and managed security monitoring through a Winnipeg-based 24-7 security operations centre and world-leading OneStone service. The firm helps enable risk management in IT systems and environments for midsized and large enterprises throughout Canada.

Seccuris helps support and enable businesses by addressing their particular information security needs. The company has achieved customer successes in vertical markets that include health care, energy, gaming and government institutions.

The company was founded in 1999 and is headquartered in Winnipeg. There are currently more than 100 employees at Seccuris, of which 70 are dedicated to security research and development.

www.seccuris.com

WINNIPEG'S COMPETITIVE ICT SECTOR

ICT firms in Winnipeg are able to address multiple vertical markets because of the rich diversity of experience, expertise and skills in Winnipeg's ICT workforce. There are a variety of high-tech employers in Winnipeg in the finance, insurance, manufacturing, life sciences and health-care sectors. Winnipeg is home to a highly innovative and entrepreneurial developer community, with many high-tech start-up firms that have been recognized for their world-class products and quality of service. Winnipeg offers some of the lowest factor costs in North America for human capital, commercial real estate, electricity and overall cost of living. Savings due to low factor costs help Winnipeg's companies achieve higher margins than competitors based in other cities.

Winnipeg is one of the most cost-competitive locations for an ICT business in North America.

According to the KPMG Competitive Alternatives study, the costs of operating in Winnipeg are lower than many locations in Canada or the U.S. Low factor costs mean ICT businesses can invest more in developing new intellectual property, reduce their cash-burn rate and remain competitive in a dynamic and competitive global ICT industry.

ICT companies in Winnipeg benefit from a concentration of head offices of public- and private-sector organizations. Winnipeg is the capital of Manitoba, and the government, health care and education industry verticals are all major consumers of ICT services. The Winnipeg Capital Region is home to the corporate headquarters of 34 of Canada's largest public companies, all with revenues in excess of \$100 million per year and boasting combined revenues of nearly \$40 billion per year.

Winnipeg's ICT firms include leaders in many areas, including health informatics, cybersecurity, e-learning, mobile app development, financial software, and wired and wireless communications.



WINNIPEG'S COMPETITIVE ICT SECTOR

OVERALL INDEX OF LOCATION-INTENSIVE COSTS FOR INFORMATION TECHNOLOGY FIRMS IN SELECTED CITIES (2012)

MANITOBA GEOTHERMAL SYSTEM INSTALLATIONS

City	Software Development	Rank	Telecom	Rank	Video Game Development	Rank
Halifax	91.8	1	96.1	1	77.7	1
Winnipeg	92.4	3	96.6	2	87.3	5
Saskatoon	92.2	2	96.7	3	88.7	6
Edmonton	94.1	6	97.3	5	91.6	7
Billings	93.2	5	97.3	4	94.4	11
Quebec City	92.7	4	97.4	6	82.7	2
Montreal	94.7	7	97.5	7	84.5	4
Calgary	97.0	10	98.0	9	95.3	12
Oklahoma City	94.8	8	98.0	8	96.0	13
Toronto	97.7	13	98.2	10	83.5	3
Atlanta	97.8	14	98.5	11	93.2	9
Raleigh	98.2	16	98.5	12	98.5	17
Vancouver	97.3	12	98.6	14	93.1	8
Nashville	96.5	9	98.6	13	97.6	14
Austin	97.0	11	99.1	15	97.9	16
Houston	100.6	21	99.2	16	101.3	21
Miami	98.1	15	99.4	17	93.2	10
Denver	99.5	18	99.7	19	97.6	15
Buffalo	98.7	17	99.7	18	99.7	18
Minneapolis	99.8	19	99.7	20	100.2	19
Chicago	103.5	23	100.7	21	104.4	23
Detroit	99.8	20	101.0	22	100.8	20
Los Angeles	104.2	24	101.4	23	104.5	24
Seattle	102.3	22	102.0	24	103.3	22
New York City	107.8	25	103.6	25	108.9	26
San Francisco	108.3	26	103.7	26	108.5	25

“Investors Group provides financial advice and services to nearly one million Canadians and is committed to comprehensive financial planning delivered through long-term client relationships.”
- Murray Taylor, President & CEO, Investors Group

WHY WINNIPEG?

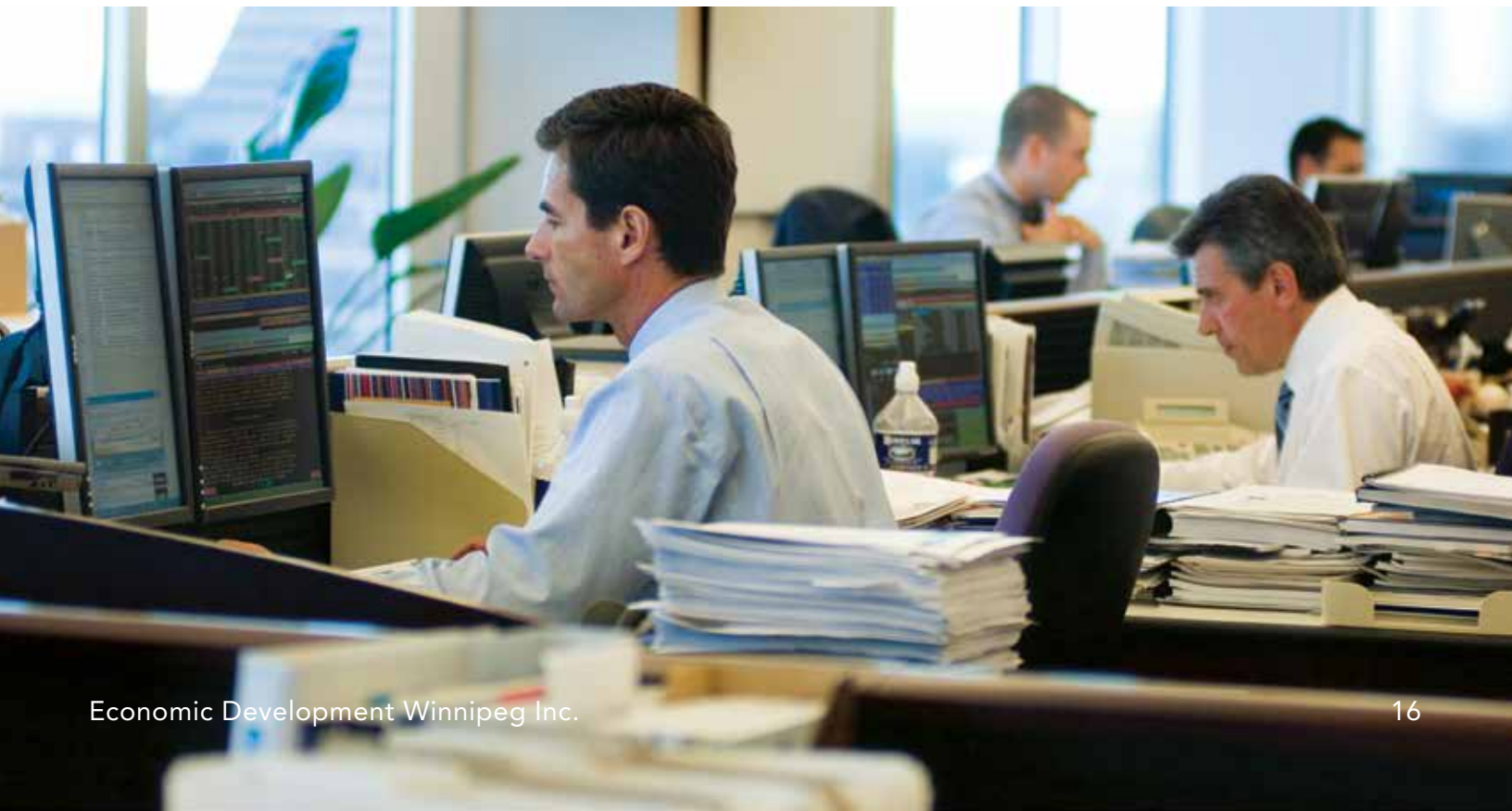
Headquartered in Winnipeg, Investors Group is one of Canada’s leading financial services companies. The firm is among the country’s largest managers and distributors of mutual funds and other managed asset products, with \$60.6 billion in total assets under management. Benefits of locating in Winnipeg include:

Winnipeg’s stable and hardworking labour force, with access to professionals in business and finance occupations

Access to state-of-the-art information and communications infrastructure and support

For a national company, Winnipeg’s central location and time zone facilitate connections with company operations spanning from coast to coast

Winnipeg’s lower cost of living means resources can go further



“We established Complex Games here because we’re from Winnipeg, but we’ve stayed because it’s a great place to run a game development company. We have a lot of advantages here over our competition.”

- Noah Decter-Jackson, Co-Founder and President, Complex Games

WHY WINNIPEG?

Lower operating costs have helped Complex Games allocate more resources toward investment in the firm’s own intellectual property. Currently, about 25 per cent of the studio’s resources are allocated to internal projects that build the company’s own products.

Complex Games benefits from the development of talent in Manitoba, hiring graduates from the 3D DMD program at Red River College and computer science students from the University of Manitoba.

Since 2006, Complex Games has grown from a studio of two developers to a studio of 40 full-time employees.

The firm also benefits from Manitoba’s Digital Media Tax Incentive.

Based in Winnipeg and launched in 2002, Complex Games is Manitoba’s first and largest game development firm that creates top-selling and award-winning free-to-play mobile games for the world’s largest game developers and publishers.

WINNIPEG'S ICT LABOUR SUPPLY

Winnipeg offers a diverse supply of more than 12,000 workers in specialized ICT occupations; more than 76,000 workers in business, finance and administrative occupations; and more than 1,100 technical sales specialists. The city has a labour force of nearly 400,000 workers.

A Productive, Stable and Cost-Effective Labour Force

Winnipeg offers a supply of hardworking and stable professionals, technicians and other manufacturing workers. Low attrition rates help Winnipeg's ICT firms reduce costs related to workforce turnover and knowledge loss. Job tenure, as measured by the number of consecutive months a person has worked for his or her current employer, has been steadily rising in Winnipeg. In 2012, Winnipeggers in the professional, scientific and technical services boasted the highest average job tenure rates in Canada.

Because of Winnipeg's lower costs of living, wages are among the most competitive of any major city in Canada. On average, wages for ICT companies in Winnipeg are typically on par with the Canadian average.

TELECOMMUNICATIONS

Winnipeg's telecommunications and related subsector is comprised of 66 firms in wired and wireless communication, data processing, hosting, Internet publishing and related activities. There are 6,486 workers employed in the segment. Winnipeg's telecommunications cluster is anchored by MTS Allstream, one of Canada's largest telecommunications firms, which is headquartered in Winnipeg.

Telecommunications companies active in the Winnipeg area include:

MTS ALLSTREAM is one of Canada's largest business telecommunications providers by market share, employing more than 5,500 workers across Canada—including 3,000 workers in Manitoba. The company has invested more than \$200 million over the past 10 years to ensure that Manitoba's broadband networks are second-to-none in North America. The Allstream business unit works exclusively with businesses of all sizes and currently has a customer base of more than 65,000 businesses (large, midsize and small) across Canada. The company's extensive national fibre-optic network spans more than 30,000 kilometres.

SHAW COMMUNICATIONS INC. services Manitoba, including Winnipeg, Brandon, Selkirk, Steinbach and Portage la Prairie. Business services include high-speed Internet (close to two terabits per second); business phone and data services, which include transparent LAN, VPLS and EVLP; and private line and Ethernet private line options. Shaw's business services are supported by a 625,000-kilometre fibre-optic network spanning Canada and the U.S.

BELL CANADA – Bell's portfolio of value-added network and business applications offers a full spectrum of information and communications technology solutions for Manitoba businesses.

TELUS – Telus provides flexible bandwidth solutions, from national private line to managed wavelength services, via its national fibre Internet Protocol (IP) backbone network.

WIBAND COMMUNICATIONS – WiBand provides wireless broadband capability in Steinbach, Winkler, Altona and Carman that ranges from one to three Mbps.

DIRECTPC (TELESAT) – DirectPC offers wireless services in many areas of Manitoba (in the range of 400 Kbps for download).

WORLD-CLASS HIGH-SPEED NETWORK CONNECTIVITY 24-7

Winnipeg companies have access to a variety of high quality, fully redundant high-speed networks. MTS Allstream, headquartered in Winnipeg, is one of Canada's largest high-speed business network providers by market share. In addition to MTS, there are a variety of local high-speed wired and wireless network providers in Winnipeg. For ultra-high-speed requirements, the Canadian Advanced Networks for the Advancement of Research in Industry and Education (CANARIE), through its Manitoba affiliate MRnet, offers members access to a Canada-wide high-speed optical network delivering unrivalled network capability for broadband research.

ALLSTREAM IP NETWORK



ALLSTREAM NETWORK CAPACITY:

+30,000-kilometre national fibre-optic network combines IP connectivity, Ethernet-featured services, cloud enablement, and the most advanced managed and security capabilities

100G capable DWDM transport network for enterprise requirements

Service-guaranteed wavelength solutions via pre-built, cross-border intercity routes, including Toronto-Buffalo, Vancouver-Seattle and Toronto-Chicago

MANITOBA REGIONAL ADVANCED NETWORK (MRnet)

The Manitoba Regional Advanced Network (MRnet) offers a reliable, high-speed communications network to its member institutions, with no costs associated to the amount of traffic generated by an institution. MRnet was founded in 1995 as an incorporated not-for-profit consortium of private- and public-sector research and development organizations dedicated to the development and advancement of research- and education-based high-speed networking and network applications.

MRnet receives in-kind contributions and annual fees from its members, as well as funding provided by the Government of Manitoba and the Canadian Network for the Advancement of Research, Industry and Education (CANARIE), which is a not-for-profit corporation supported by its members, project partners and the federal government.

MRnet's role and mandate is to facilitate the advancement of high-speed research and education networking infrastructure and applications in Manitoba.

www.mrnet.mb.ca

SUPPORTING INSTITUTIONS FOR RESEARCH, DEVELOPMENT AND COMMERCIALIZATION

Winnipeg's ICT industry is supported by world-class R&D facilities providing ICT innovation and technology diffusion. Major ICT applied research organizations in Winnipeg include:

THE UNIVERSITY OF MANITOBA regularly undertakes research collaborations with industry, government and other academic institutions. The university is at the forefront of R&D in a number of ICT areas. The university's Internet Innovation Centre partners with Winnipeg ICT companies to develop cutting-edge Internet applications and technologies. This centre is actively working with Winnipeg companies on projects for health informatics, tele-robotics, wireless sensor networks, Internet security and other topics. The university's Industrial Technology Centre (www.itc.mb.ca) includes a Virtual Reality Centre that provides easy access to the most advanced 3D visualization tools and expertise. The university's Scanning Probe Microscopy and Nanofabrication Laboratory is a leading facility in Canada, with R&D capacity in probe microscopy, micromachining and nanofabrication, semiconductor manufacturing, and high-frequency microelectronics and microwave-circuit testing.

RED RIVER COLLEGE'S APPLIED RESEARCH AND COMMERCIALIZATION (AR&C)

DEPARTMENT supports applied research, knowledge transfer, prototyping, product development, testing and commercialization. The department helps business and industry access RRC's expertise in order to arrive at practical, innovative solutions that deliver results. Digital technology is one of the applied research focus areas for the college.

THE UNIVERSITY OF WINNIPEG has two departments conducting ICT research: the applied computer science department and the geography department. Within the applied computer science department, there are several active research groups, including the Quantitative Software Engineering Group and the Distributed Computing Systems organization. The GIS laboratory within the geography department focuses on analyzing the socioeconomic impacts of climate change in central Canada.



ORGANIZATIONS SUPPORTING ICT COMMERCIALIZATION IN WINNIPEG INCLUDE:

TRTECH established in 1986, is an industry-driven, not-for-profit technology commercialization company that fast-tracks innovation to market by working with its 80 industry, government, and academic partners and clients to discover, develop and commercialize technology. Providing business with talent, connections and innovation process savings, TRTech's market-pull commercialization service offerings to industry include market requirements identification, technology assessments, applied research, proof of concept, prototyping/integration and take-to-market services. www.trtech.ca

THE EUREKA PROJECT is a leading high-tech business incubator located at Smartpark on the University of Manitoba campus. This business incubator exists to help technology companies accelerate their growth by increasing their sales. It provides management expertise to innovators and small to mid-sized companies with the desire to succeed on a global scale. The centre has helped establish more than 40 high-tech start-ups and recently completed a \$3.2-million expansion of its office space to accommodate additional companies. www.eurekaproject.ca

THE MANITOBA TECHNOLOGY ACCELERATOR is a private sector, not-for-profit business incubation program for entrepreneurs, start-ups or emerging businesses in the science and technology industry. It receives funding from the Government of Manitoba to provide business incubation services. This organization provides business mentoring, coaching, active participation, networking, infrastructure, and finance and investment services. Its incubation program is focused on helping member companies enter the market, secure investment or get acquired. www.mbtechaccelerator.com

ASSENTWORKS is a non-profit workshop dedicated to providing hands-on access to fabrication and prototyping equipment, knowledge and a community of support for entrepreneurs, inventors, tinkerers, artists and innovators. It is completely staffed by volunteers whose passion is to help entrepreneurs, inventors and makers get their ideas off the ground; to grow businesses; and to support our community. www.assentworks.ca



KEY RESEARCH INSTITUTIONS SUPPORTING CYBER SECURITY

UNIVERSITY OF MANITOBA

The University of Manitoba has a long tradition of research excellence in the fields of engineering and information technology/sciences. The university operates six research labs that perform research related to security:

- » Advance Network Research Laboratory
- » Autonomous Agents Laboratory
- » Human Computer Interaction Laboratory
- » Advance Radio Frequency Systems Laboratory
- » Applied Electromagnetics Laboratory
- » Robert Allen Kennedy Laboratory for Communications Systems Research

These labs are part of two departments at the University of Manitoba: computer science and engineering. The university also hosts the Internet Innovation Centre.

THE MANITOBA INFORMATION PROTECTION CENTRE

The Manitoba Information Protection Centre (IPC) represents a national model for public-sector information protection. Manitoba was the first provincial government to establish an organization dedicated to information protection. Launched in 1999, Manitoba's IPC ensures that government networks remain open, secure, accessible and reliable. The IPC provides leadership in the area of information protection both within the government and to the private sector through its supporting role with the Information Protection Association of Manitoba (IPAM), now part of ISACA Winnipeg, an organization whose goal is to foster the sharing of security-related information amongst business and government organizations.

WINNIPEG'S HIGHLY INNOVATIVE AND ENTREPRENEURIAL ENVIRONMENT

Winnipeg's ICT firms have been recognized for their creativity, quality of technical execution and entrepreneurial success. For 2014, Winnipeg was chosen as one of world's 'Top7 Intelligent Communities' in the annual awards cycle presented by the Intelligent Community Forum. These communities are those which have, whether through crisis or foresight, come to understand the enormous challenges of the broadband economy and have taken conscious steps to create an economy capable of prospering within it. Indicators of this intelligence are evidenced by Winnipeg developers active in the fields of energy management, cybersecurity, mobile medical imaging, e-learning and other areas.

Some of Winnipeg's leading innovators include:

INVENIA was recently recognized with a national award for Most Innovative Business in Canada as part of the CYBF's chairman's award program. Invenia has created an energy intelligence system (EIS) with the potential to make sources of renewable energy more affordable, while significantly reducing CO2 emissions worldwide. The unique, self-learning, artificial intelligence software has exceptional capabilities in forecasting, pattern recognition and optimization, particularly for the electric power industry, where it has been applied to wind operations and other renewable energy sources. www.invenia.ca

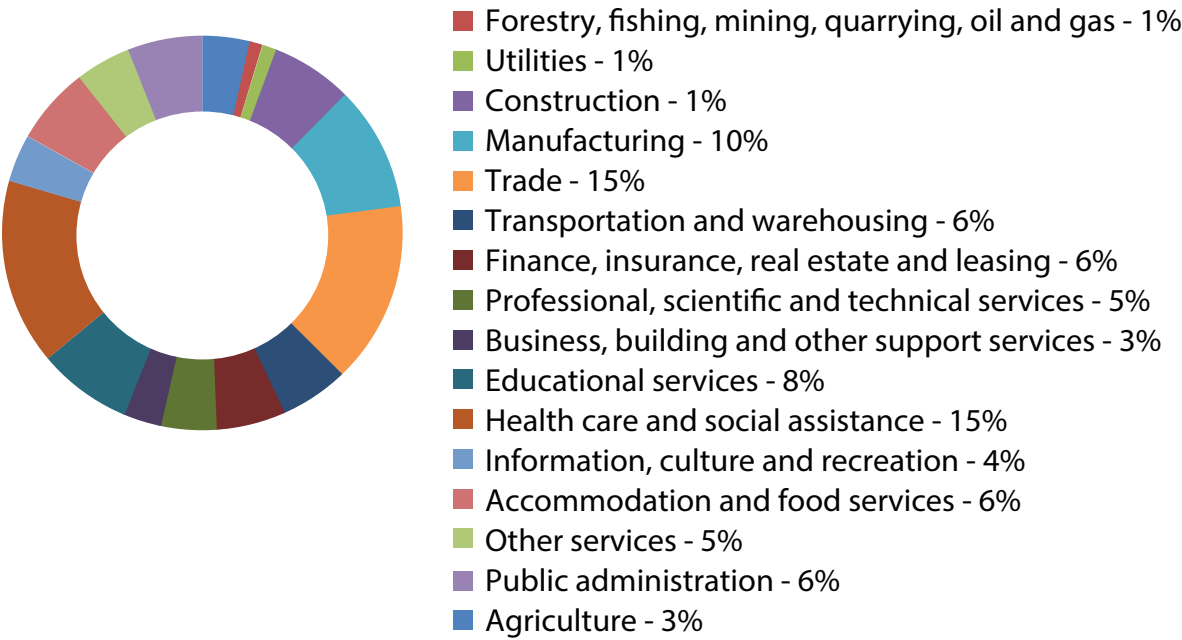
The founder of Winnipeg's leading cybersecurity firm **SECCURIS** was awarded Ernst & Young's Entrepreneur of the Year® (2010 Prairies). The firm has grown from just a few to more than 100 employees since its founding in 1999, and it features a 24-7 Winnipeg-based security operations centre. Seccuris' OneStone service monitors roughly one-third of Canadian Internet traffic and boasts world-leading technologies created in Manitoba. www.seccuris.com

TECHNOLOGIES FOR LEARNING GROUP (TLG) is a full-service e-Learning company providing learning management software, content development solutions, and technology and systems design and integration. TLG integrates technologies and traditional learning principles to create innovative learner-centred systems and applications spanning more than 20 industrial and commercial sectors throughout the world. www.tlg.ca

DIVERSIFIED ECONOMIC GROWTH SUPPORTS ICT

Winnipeg’s diverse economic base and stable growth make the city an ideal place for growing ICT companies. Winnipeg has one of the most diversified economies in the world. The city’s well-balanced economy has experienced stable growth over the past several decades, and Winnipeg’s location in the central time cone, the city’s bilingual workforce, and access to the Mid-Continent Trade and Transportation Corridor has long made the city an attractive place for investment.

INDUSTRY SHARE OF EMPLOYMENT IN MANITOBA (2012)



The diversity of the local economy is a benefit for smaller and mid-sized ICT companies. It offers a diversity of customers and opportunities to serve a variety of industry verticals. In Winnipeg, employers have access to an IT workforce with a depth of experience within a large number of industry verticals.

LOWEST ELECTRICITY RATES IN NORTH AMERICA

Companies that are large- and medium-sized consumers of electricity can experience significant savings by establishing their operations in Winnipeg. Winnipeg offers the lowest published electricity rates in North America.

Winnipeg offers the most cost-competitive published rates for large electricity consumers in North America. According to the 2012 annual *Comparison of Electricity Prices in Major North American Cities*, published by Hydro-Québec, Winnipeg offers among the lowest electricity rates of major metro areas in North America. Compared to Winnipeg, the cost of electricity for a midsized electricity user (2,500 kW of power demand, 1,170,000 kWh consumption and 65 per cent load factor) is 31 per cent higher in Montreal, 40 per cent higher in Vancouver, 71 per cent higher in Calgary and more than twice as expensive in Edmonton, Toronto, Halifax, Moncton and Charlottetown. Compared to U.S. cities, the cost of electricity for a midsized user is 14 per cent higher in Seattle, 27 per cent higher in Houston, 79 per cent higher in Nashville, 81 per cent higher in Detroit and even higher in other cities.

A FRIENDLY AND CONNECTED COMMUNITY

Winnipeg's size is an advantage. The city is large enough to offer a critical mass of world-class talent and small enough to support a highly connected community. Winnipeg is known for its friendly and helpful people. The city's small-town charm is a benefit to ICT companies in Winnipeg because they can easily gain access to top decision-makers and network with clients, partners and suppliers.





WORLD-CLASS EDUCATION AND TRAINING

Winnipeg is home to two world-class universities, the University of Manitoba and the University of Winnipeg, as well as the province's leading applied sciences college, Red River College. More than 42,000 full-time students are currently enrolled at the city's post-secondary learning institutions, giving Winnipeg a diverse supply of young, highly educated and highly skilled workers. In addition to formal post-secondary education, ongoing training is offered through the Information and Communication Technologies Association of Manitoba (ICTAM) and New Media Manitoba.




UNIVERSITY OF MANITOBA

THE UNIVERSITY OF MANITOBA is the province's largest university and only research-intensive university. It has more than 20 faculties that educate students in the areas of **business, science, engineering, applied mathematics, and other ICT-related programs**. The university is comprised of a faculty and staff of more than 8,400 and offers educational programs to more than 27,000 students.

COMPREHENSIVE ICT EDUCATION PROGRAMS

The university's faculty of science offers degree programs in areas such as computer science, computer science with an emphasis on mathematics, applied mathematics and actuarial mathematics. Computer science degrees at the university are accredited by the Canadian Information Processing Society's (CIPS) Computer Science Accreditation Council (CSAC).



The faculty of engineering's electrical and computer engineering department is responsible for two undergraduate programs in computer engineering and electrical engineering, with more than 200 students in each program. The department is also very active in graduate-level education and research, with more than 80 PhD candidates and over 90 students pursuing a master of science degree. Co-op options allow students to gain work experience prior to graduation. Enhanced by partnerships and guided by world-renowned researchers, there are many research opportunities for University of Manitoba graduate students.

The Asper School of Business is a full-service business school educating undergraduate students in the fields of management information systems (MIS), accounting, management, finance, statistics, economics, actuarial mathematics, human resources and many other areas critical to functioning in today's business environment. Students completing undergraduate studies at the Asper School of Business receive a bachelor of commerce degree in their chosen field of study. The school also offers postgraduate master of business administration and master of science in management options, as well as a PhD program.

The University of Manitoba offers the ICT industry creative talent through the School of Art, Western Canada's oldest art institution. Founded in 1913 as the Winnipeg School of Art, in 2012 the school moved into the new ART Lab, a 70,000-square-foot stand-alone facility that gives students and faculty access to digital technologies and upgraded space for collaboration, experimentation and research.

To learn more, visit: www.umanitoba.ca

UNIVERSITY OF WINNIPEG

Consistently recognized by both *Maclean's* magazine and *The Globe and Mail* newspaper, the **UNIVERSITY OF WINNIPEG** is a leader in academic excellence. More than 10,000 undergraduate and graduate students attend courses at the University of Winnipeg, which employs a faculty and staff of more than 700 people.

APPLIED COMPUTER SCIENCE

The University of Winnipeg's faculty of science offers programs in applied computer science, engineering and other physical and life science fields. The applied computer science degree is available with emphasis in two streams: information systems and health informatics. The information systems stream is aimed at students interested in focusing on the information and business needs of the IT industry, while the health informatics stream provides students with more focused courses in health information needs, infrastructure, standards and jurisdictional issues. The university also offers undergraduate business programs through the faculty of business and economics, and additionally offers several master's degree programs that lead to a master of science in applied computer science and society and a master of science in technology.

The faculty of business and economics recently moved into the Buhler Centre, an innovative, eco-friendly, four-storey building that includes state-of-the-art classrooms, computer labs and meeting spaces. This facility also supports business students via special scholarships.

For more information, visit: www.uwinnipeg.ca





RED RIVER COLLEGE

RED RIVER COLLEGE (RRC) is Manitoba's largest institute of applied learning, with 12,000 full-time enrollments across more than 100 programs. RRC works closely with industry and employers to ensure that graduates have the right skills and knowledge to contribute effectively in the workplace. Successful partnerships have helped graduates to achieve a 95 per cent graduate employment rate.

RED RIVER COLLEGE NEW MEDIA DESIGN PROGRAM

RRC offers a two-year diploma and a one-year postgraduate diploma in new media design. The program offers three majors: web design, 3D animation and video and motion graphics. The program provides up-to-date training in web design and development, digital video, 3D animation, motion graphics and graphic design. It teaches both design fundamentals and technical skills, and it encourages creativity, imagination, professionalism and a strong work ethic. Graduates from the program can design and build websites, shoot and edit digital video, create professional motion graphics, and construct complex 3D models and animation.

RRC offers several options for students that help them gain a fundamental understanding of business principles and concepts, and it offers many business-related degree programs—business information technology, computer accounting, computer applications for business, business administration and international business. The business information technology program offers students an opportunity to specialize in one of four fields: application development, database management, network management and web development. The program is accredited by the Canadian Information Processing Society's (CIPS) College Program Accreditation Council (CPAC). CPAC works with academic institutions to ensure that educational programs prepare students for the demands of the information system profession.

For more information, visit: www.rrc.mb.ca



SUPPORTING PROFESSIONAL AND INDUSTRY ASSOCIATIONS

Winnipeg is home to a number of professional associations and industry groups that have an interest in growing the ICT sector in Manitoba. As the capital of Manitoba, Winnipeg is also home to several government organizations that play an integral role.

THE INFORMATION AND COMMUNICATION TECHNOLOGIES ASSOCIATION OF MANITOBA

(ICTAM) is an industry-focused association representing Manitoba's ICT sector. With more than 100 corporate members and a network of approximately 5,000 ICT professionals, ICTAM collaborates with the ICT community to accelerate the growth, prosperity and sustainability of the industry through relevant programming, advocacy and collaboration.

www.ictam.ca

NEW MEDIA MANITOBA (NMM) is a professional industry association that provides support and economic opportunities to interactive digital media businesses and individuals. NMM helps companies grow their business, with an emphasis on assisting with mentorship, business and talent matchmaking services, and support with securing funding and investment. Training events include social media, convergence media, digital media workflow, mobile applications, visual effects, business training, search engine marketing and video game development. NMM fosters an environment of innovation, where people make connections and collaborate on digital interactive projects and educational pursuits. NMM has more than 1,000 individual members and 100 SMEs, which consist primarily of innovative video game developers, mobile app developers and web developers.

www.newmediamanitoba.com

THE CANADIAN INFORMATION PROCESSING SOCIETY (CIPS), Canada's association of information technology professionals, works to establish IT standards and IT best practices that will benefit Canada, the Canadian IT industry and the Canadian IT professional. CIPS Manitoba is the provincial chapter of this organization, which provides networking opportunities and resources for local IT professionals. CIPS is recognized by most Canadian provinces as the regulating body for IT Professionals.

www.mb.cips.ca

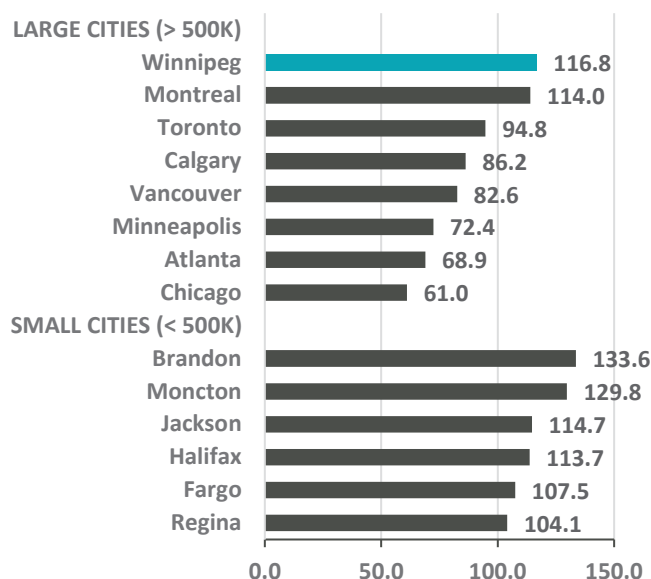
THE MANITOBA CUSTOMER CONTACT ASSOCIATION (MCCA) is an association consisting of companies, organizations and agencies that are engaged in the operation of a customer contact centre or have an interest in this type of business. MCCA offers benefits such as information and knowledge about industry trends and challenges, shares best practices, creates opportunities for partnering and networking, delivers high-quality training (including industry certification), and recognizes and rewards excellence within the contact centre industry. Members of MCCA are active participants who regularly network and dialogue at stakeholder meetings, giving them a voice with their association to address future needs.

www.mcca.mb.ca

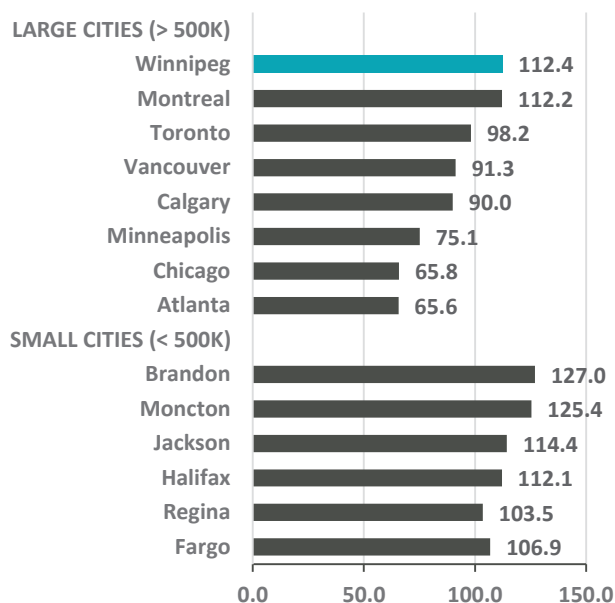
OVERALL COMPETITIVENESS

Overall competitiveness is compared by calculating internal rates of return, which are commonly used by businesses in making investment and location decisions. A higher internal rate of return indicates that a city is more competitive than others. Internal rates of return for each city are calculated using start-up costs and cash flow over a 20-year period, specific to a smaller and a larger manufacturing firm, then discounted using applicable Canadian and U.S. commercial interest rates. The following charts illustrate the combined impact of taxes and costs on the internal rates of return for the representative smaller and larger manufacturing corporations in the selected jurisdictions.

**Internal Rate of Return,
Small Manufacturing Firm**



**Internal Rate of Return,
Large Manufacturing Firm**



Winnipeg maintains a **highly competitive overall business cost and tax environment** for both smaller and larger firms engaged in manufacturing and processing. The internal rates of return for Winnipeg are above the overall average for cities included in the study. Among cities with populations greater than 500,000, **Winnipeg has the highest internal rates of return** for both smaller and larger manufacturing firms.

R&D TAX INCENTIVES AND FINANCIAL SUPPORT

The Government of Manitoba offers a variety of financial support products to businesses. More information about these initiatives is available at: www.manitoba.ca/business

In addition, the Government of Manitoba has a history of helping businesses in Manitoba gain access to capital through grants, loans, loan guarantees, refundable tax credits, equity investments and other similar forms of support.

The tax environment in Manitoba encourages industry to continuously develop new and innovative products and processes. The Manitoba Research and Development Tax Credit and the federal Scientific Research and Experimental Development Tax Credit (SR&ED) provide Manitoba companies with considerable leverage for their R&D investments. Studies by the Conference Board of Canada comparing Canada's R&D tax incentives with the world's other industrialized countries have repeatedly found that combined federal and provincial R&D tax incentives in Canada are the "most generous and stable offerings in the industrialized world."

MANITOBA RESEARCH AND DEVELOPMENT TAX CREDIT

The Manitoba Research and Development Tax Credit targets scientific research and experimental development (as defined for federal purposes) carried on in Manitoba. Qualified expenditures must be incurred after March 11, 1992. **Corporations earn a 20 per cent tax credit**, which can be applied against Manitoba corporate income tax payable in the year earned, with unused credits available to be carried forward for 10 years or carried back for three years. This income tax credit is administered by the Canada Revenue Agency on behalf of Manitoba.

The credit is refundable for eligible expenditures incurred after 2009 by a corporation with a permanent establishment in Manitoba, and where the research and experimental development is carried on in Manitoba under an eligible contract with a qualifying research institute. **Currently, 50 per cent of the credit for in-house R&D is refundable.**

For more information on the Manitoba Research and Development Tax Credit, please visit Manitoba Finance at: www.gov.mb.ca/finance/ccredits.html

NATIONAL RESEARCH COUNCIL'S INDUSTRIAL RESEARCH ASSISTANCE PROGRAM The National Research Council's Industrial Research Assistance Program (NRC-IRAP) provides cost-shared financial support to qualified small and mid-sized enterprises in Canada to help them develop technologies for competitive advantage. The program provides technical and business advisory services related to research and development, including strategic intelligence and customized solutions.

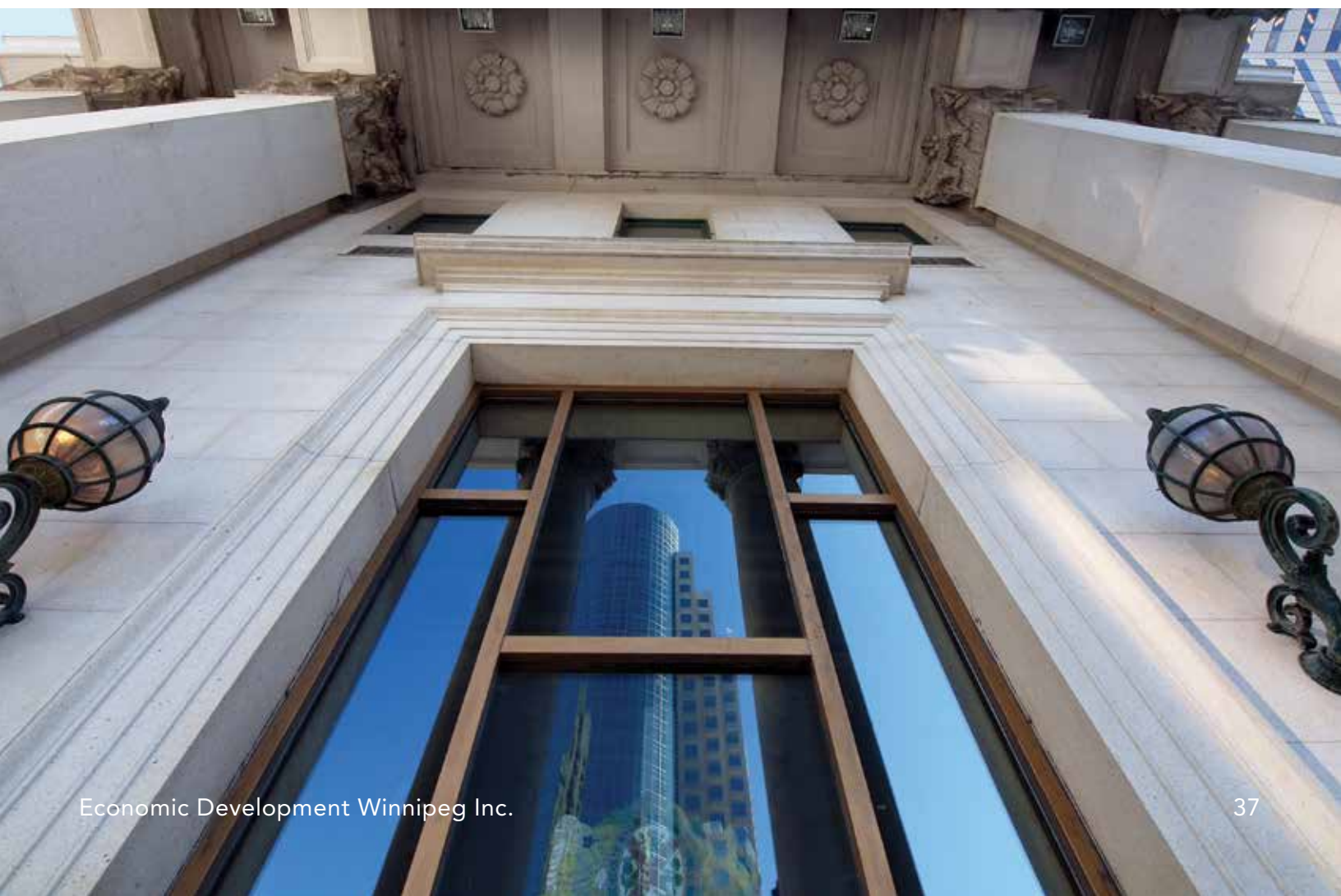
As part of the Government of Canada's digital economy strategy, NRC-IRAP is delivering the Digital Technology Adoption Pilot Program (DTAPP). DTAPP represents a significant investment into the Canadian economy in an effort to increase the productivity growth of small- and medium-sized enterprises (SMEs) in Canada across all sectors through the adoption of digital technologies.

To learn more, please visit: www.nrc-cnrc.gc.ca/eng/index.html

SCIENTIFIC RESEARCH & EXPERIMENTAL DEVELOPMENT TAX AND FINANCE CENTRE

Canada offers some of the world's richest R&D tax incentives, but many businesses are not taking advantage of them as a valuable source of capital. The finance centre offers the expertise needed to identify and manage R&D tax claims.

For more information, please visit: <http://www.cra-arc.gc.ca/txcrdt/sred-rsde/menu-eng.html>



THE MANITOBA COMMERCIALIZATION SUPPORT FOR BUSINESS PROGRAM

The Manitoba Commercialization Support for Business Program supports entrepreneurship, commercialization and business development by offering a comprehensive suite of financial assistance and services across the business life cycle. The program targets entrepreneurs and businesses seeking to start-up, expand or modernize a business in Manitoba.

The program provides financial assistance to cost-share arms-length, third-party expenses up to a maximum of 50 per cent. The Government of Manitoba's total contribution to funded projects will not exceed 50 per cent of eligible/approved costs. Total government support from all levels of government (federal, provincial, municipal), including tax rebates, cannot exceed 75 per cent of total project costs.

Funding streams include:

Concept Development (up to \$25,000) – Assists business entities or individuals in developing their product or process idea to the stage where it can be determined if there is sufficient commercial potential to pursue additional investment of time and money.

Product Development (up to \$40,000) – Assists business entities with pre-commercialization activities needed to prove that the concept is technically and financially feasible.

Product Commercialization (up to \$200,000, software development up to \$20,000) – Assists business entities with moving their product from the pre-commercialization stage to full-scale commercial production or implementing the new process into new full-scale use or integration with existing systems.

Market Development (up to \$30,000) – Assists business entities in preparing materials and engaging in activities that will enable them to enter new markets outside of Manitoba.

Certification Assistance (up to \$15,000) – Assists business entities in obtaining plant or product certification. Certification will be limited to new product and process developments.

Intellectual Property (up to \$25,000) – Assists business entities or individuals with legal fees associated with securing intellectual property rights relating to their product or process. Applicants may seek assistance under this funding stream at any time in the development process.

MANITOBA INTERACTIVE DIGITAL MEDIA TAX CREDIT

The Manitoba Interactive Digital Media Tax Credit (MIDMTC) is a refundable corporate income tax credit for companies that develop and produce interactive digital media projects in Manitoba. **The tax credit will be equal to 40 per cent of the remuneration paid to Manitobans** on approved projects. The maximum tax credit on an eligible project is \$500,000.

MANITOBA MANUFACTURING INVESTMENT TAX CREDIT The Government of Manitoba's Manufacturing Investment Tax Credit (MITC) targets manufacturing plant and equipment purchased for first-time use in manufacturing or processing in Manitoba. Qualified investments must have been made after March 11, 1992. Corporations earn a 10 per cent tax credit (70 per cent refundable and 30 per cent nonrefundable), which can be applied against Manitoba corporate income tax payable in the year earned, with unused credits available to be carried forward for 10 years or carried back for three years (to taxation years ending after March 11, 1992, or after April 22, 2003, for class 43.1 property). This program is administered by Canada Revenue Agency on behalf of Manitoba.

The MITC includes equipment under class 43.1 purchased after April 22, 2003. Class 43.1 includes (for a firm's own consumption) equipment used to produce energy from renewable sources and equipment that uses energy more efficiently. Class 43.2 assets also qualify for the credit.

TELECOMMUNICATIONS RESEARCH LABORATORIES (TRLABS)

TRLabs is a not-for-profit applied R&D consortium supported by industry, government and academia whose mission is to foster information and communication technology innovations to benefit industry. TRLabs (and in particular its Winnipeg-based lab) has an active research group in network security leveraging six key professors at the University of Manitoba's electrical and computer engineering department as well as its computer science department.





WINNIPEG INFORMATION AND COMMUNICATION TECHNOLOGIES

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