
ADVANCED EDUCATION

EDMONTON GLOBAL 
PARTNERS FOR REGIONAL PROSPERITY

Background

Introduction

The Edmonton Metropolitan Region has a comprehensive advanced education sector. The sector plays an important role in providing the region with a skilled, responsive labour force, while also leading research that contributes to industry expansion and increased productivity within key sectors in the region including energy, construction and manufacturing.

The advanced education sector in the region includes:

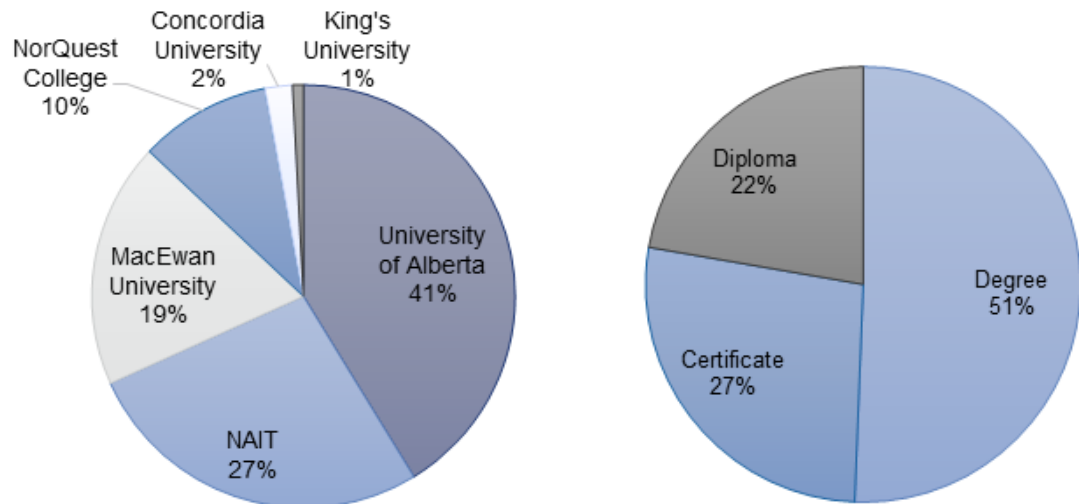
- four publicly funded post-secondary institutions: University of Alberta (U of A), MacEwan University, Northern Alberta Institute of Technology (NAIT), and NorQuest College
- two independent academic institutions: Concordia University of Edmonton and The King's University (Edmonton)
- fifty-eight private career colleges offering programs licensed by the Government of Alberta.
- a First Nations College, Yellowhead Tribal College, which is owned by four First Nations in the area

The focus of this analysis is on the four publicly funded post-secondary institutions and two independent academic institutions in the region. Each of these institutions contributes to the availability of education and training opportunities in the region, as well as the regional economy.

Enrolment in the Region

The region currently serves over 100,000 students in its post-secondary institutions. The U of A hosts the largest number of students, followed by NAIT, MacEwan University, and Norquest College, while enrolment at Concordia and King's is relatively small (Figure 1). About half of students in the region are taking undergraduate and graduate degree programs and half are enrolled in certificate and diploma programs.

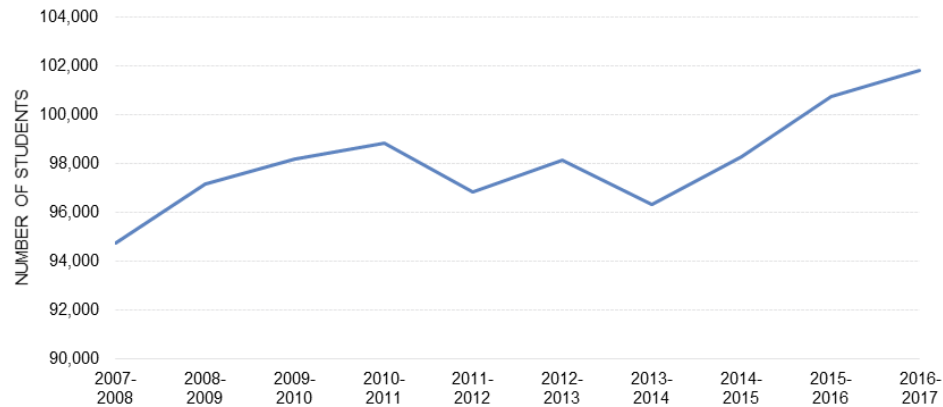
FIGURE 1 – Students by Institution and Credential Type (2016/2017)



Source: Alberta Advanced Education (2018)

Total student enrolment in the region has fluctuated over the past five years, linked to economic activity and in-migration in the region (Figure 2).

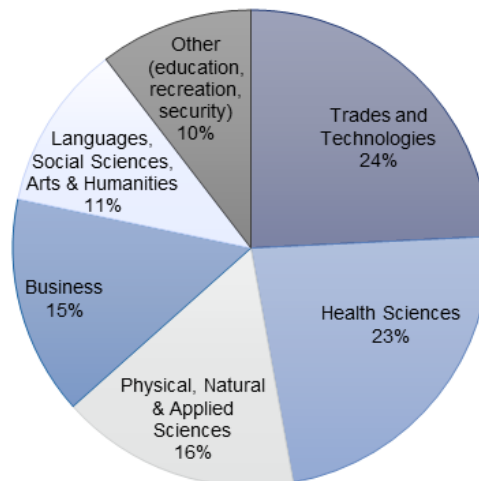
FIGURE 2 - Total Student Enrolment (2012-2017)



Source: Alberta Advanced Education (2018)

The program areas with the highest number of graduates in the region are trades and technologies and health sciences (Figure 3). Overall, the number of graduates has been relatively stable across program streams over the past five years. Notable shifts have included an increase in graduates in trades and technologies (18%) and a decrease in education (-13%).

FIGURE 3 - Graduates by Program Area (2016/2017)



Source: Alberta Advanced Education (2018)

Economic Impacts of Advanced Education

Post-secondary institutions in the region contribute to the economy directly through their operations. Some institutions in the region have undertaken economic impact studies to the regional economy, including:

- U of A: estimated \$12.3 billion impact
- NAIT: estimated \$1.7 billion impact
- NorQuest: estimated \$421.7 million impact

Overall, post-secondary institutions employ about 20,000 people in the region and contribute over \$14 billion to the regional economy annually. This is almost double the economic impact of the sector in the Calgary region (estimated impact of \$8.6 billion). The difference is reflective of some institutions in the region being larger than their counterparts in Calgary.

Institutions

	Enrolment and Revenue Data	
<p>University of Alberta (U of A)</p> <p>U of A is Alberta's largest comprehensive academic and research institution. Eighteen faculties offer 388 undergraduate and 500 graduate programs across five campuses. The university has about 15 thousand staff.¹ Particularly high global rankings have been achieved in Paleontology, Nursing, Forestry, and Petroleum Engineering, all ranked among the top five of their kind in the world.²</p> <p>There are 107 Canada Research Chairs at U of A and over 100 research institutes and centres. It is one of the top five universities in Canada³ and its research expertise and facilities are an integral part of Alberta's broader innovation system.</p>	Enrolment	42,000
	Change in enrolment (2007-2017)	4%
	International Students as % Total Enrolment	18%
	Revenue (\$M)	\$1,786
<p>NAIT</p> <p>NAIT is the larger of the province's two polytechnic institutions and is the largest provider of apprenticeship training in the country.⁴ The institute offers over 120 programs including certificates, diplomas, applied degrees, and degrees, and provides training for apprentices in 34 registered trade programs.⁵</p> <p>NAIT has the most well-established relationships with industry of all institutions in the region. The institute seeks guidance from over 1,000 employers who serve on about 100 Program Advisory Committees to ensure its programs remain responsive to industry needs. Furthermore, about 94% of the research done at NAIT is in partnership with industry.</p>	Enrolment	27,470
	Change in enrolment (2007-2017)	-3%
	International Students as % Total Enrolment	5%
	Revenue (\$M)	\$358
<p>MacEwan University</p> <p>After achieving university status in 2012, MacEwan has grown to become the province's largest baccalaureate and applied studies institution. MacEwan emphasizes its small class sizes and "learner-centred" approach to education as its competitive advantage. In the 2015 National Survey of Student Engagement, MacEwan ranked second-best in Canada for effective teaching practices.</p> <p>MacEwan offers eight bachelor programs, two applied degrees, and 43 diploma and certificate programs. Programs recognized as being particularly strong include social work, jazz and contemporary popular music, and nursing.⁶ Although not categorized as a research institution, MacEwan has been increasing its research activities in recent years and now has six research centres and institutes focusing on business, health (specifically nursing), and international studies.</p>	Enrolment	19,100
	Change in enrolment (2007-2017)	13%
	International Students as % Total Enrolment	7%
	Revenue (\$M)	\$242

¹ <https://www.ualberta.ca/about/facts/fast>

² <https://www.ualberta.ca/why-ualberta/rankings>

³ Ibid

⁴ <http://www.nait.ca/44315.htm>

⁵ <http://www.nait.ca/50198.htm>

⁶ <http://www.macleans.ca/schools/macewan-university/>

	Enrolment and Revenue Data	
<p>NorQuest College</p> <p>NorQuest is one of 11 comprehensive community institutions in Alberta providing foundational learning as well as certificate and diploma programs. NorQuest has experienced the strongest enrolment growth among institutions in the region in the last five years. NorQuest offers 21 career credentials and seven foundational programs. Specializing in health studies, it has the largest health care aide program and one of the largest practical nurse programs in the country.</p> <p>NorQuest's student body is highly diverse. In 2016/2017, 64% of students (mostly permanent residents) were born outside of Canada. Students originate from almost 140 countries and speak over 100 languages.⁷ NorQuest's student population also includes many Indigenous students and the college is committed to investing in the process of reconciliation. Additionally, NorQuest is a leader in serving learners with disabilities.⁸</p>	Enrolment	10,240
	Change in enrolment (2007-2017)	55%
	International Students as % Total Enrolment	5%
	Revenue (\$M)	\$91
<p>Concordia University of Edmonton</p> <p>Concordia is one of the two independent academic institutions in the region. It began with close ties to the Lutheran Church but is no longer promoted as a faith-based institution. Concordia offers over 45 baccalaureate majors and minors in the fields of arts, science, education, languages, and business; after-degree programs in education and environmental health; and master's degrees in education and information systems. It distinguishes itself in offering flexible, interdisciplinary programming and providing a positive learning environment for its students. Concordia ranks in the top ten in Canada for effective teaching practices and overall senior student satisfaction.⁹</p>	Enrolment	2,130
	Change in enrolment (2007-2017)	9%
	International Students as % Total Enrolment	11%
	Revenue (\$M)	\$29
<p>The King's University</p> <p>The King's University is a Christian liberal arts institution and the smallest institution in the region. It offers 24 undergraduate programs and a 2-year after degree in education. King's promotes its small class sizes and access to faculty as features of its learning environment. King's ranks within the top ten in Canada for providing a supportive environment, overall senior student satisfaction, and student-faculty interaction.¹⁰</p>	Enrolment	840
	Change in enrolment (2007-2017)	29%
	International Students as % Total Enrolment	8%
	Revenue (\$M)	\$19
<p>TOTAL</p>	Enrolment	101,780
	Change in enrolment (2007-2017)	7%
	International Student Enrolment	11%
	Revenue (\$M)	\$2,525

Note: Enrolment is based on individual student count.
Data are for the most recent academic year available.
Source: Alberta Advanced Education (2018); NAIT (2017); NorQuest (2017)

⁷ <https://www.norquest.ca/NorquestCollege/media/pdf/publications/norquest-by-the-numbers.pdf>

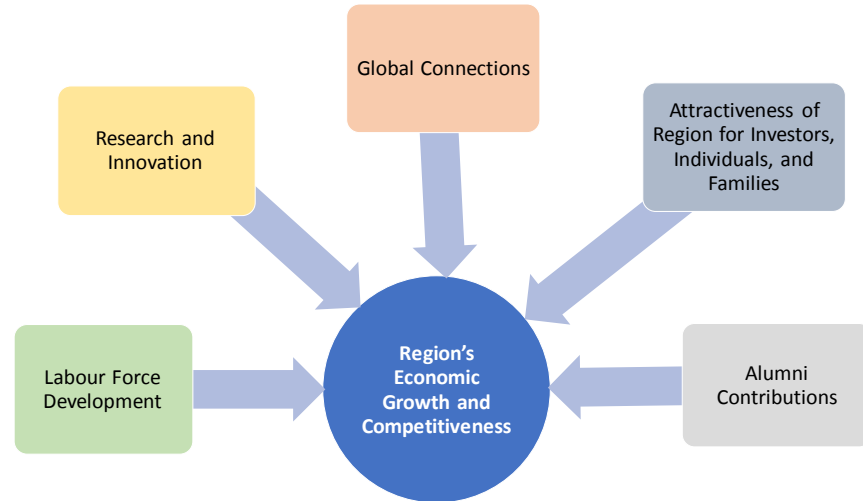
⁸ <https://www.norquest.ca/about-us/mandate.aspx>

⁹ National Survey of Student Engagement (NSSE)

^e Ibid

Contributing to the Region's Economy and Competitiveness

Post-secondary institutions contribute to the region's economic growth and competitiveness in a number of ways, including developing the region's labour force, conducting research that supports industry and advances innovation, building global connections, and enhancing the attractiveness of the region as a place to study, invest, live and work. Additionally, alumni of the post-secondary institutions in the region are committed leaders in the community and provide generous support to organizations that enhance the overall quality of life in the region.



Developing the Region's Labour Force

About 20,000 learners graduate from post-secondary institutions in the region each year.

According to the most recent Graduate Outcomes Survey¹¹, 90% of graduates in the region found employment after completing their programs. Of those employed, 83% described their current job as being related to their program, and 95% indicated they felt qualified for their current job. These survey findings suggest a relatively high degree of alignment between fields of study and employment.

On the employer side, employers in Alberta have indicated that they are highly satisfied with the skills and work quality of post-secondary graduates (89%), particularly when compared to high school graduates (67%). Employers are also very satisfied with apprenticeship training in the province, with overall satisfaction at 87% and on-the-job training satisfaction at 95%.¹²

Industry Connections to Support Learning

The region has among the strongest ties with industry of any jurisdiction in Canada for post-secondary learning. Some examples of academic-industry collaboration initiatives in the region that accelerate learner connections to the labour market include:

- **NAIT** is intentional about monitoring the employment success of its graduates and regularly seeks input from employers about whether programs are meeting their needs
- **U of A Engineering Cooperative (co-op)** program partners over 1,400 students each year with employers for placements both in and outside the region. Students gain real-world, full-time employment during their co-op terms and make important connections with potential future employers
- **Mitacs** is a non-profit organization that works with university, industry, and governments to build partnerships and support innovation. Since 1997, Mitacs has connected over 10,000 students with businesses for research internship opportunities

¹¹ Alberta Advanced Education (2018)

¹² 2017 Survey of Employer Satisfaction with Apprenticeship Training and Skilled Tradespersons

Research and Innovation

Research is carried out in all post-secondary institutions in the region to some degree. The two institutions most active in research and commercialization of research and innovation discoveries are the U of A and NAIT.

U of A

There are 107 Canada Research Chairs at the university and research on regional, national and international scales is undertaken across faculties in over 100 institutes and centres. Some of the major research institutes and initiatives at the U of A include:

- **National Institute for Nanotechnology (NINT)** – a collaboration between the National Research Council of Canada and the U of A focusing on nanotechnology development and commercialization
- **Mazankowski Alberta Heart institute** – a world leader in complex cardiac care, surgery, research and education
- **Alberta Machine Intelligence Institute** – an institute undertaking world-renowned research in artificial intelligence, human-machine interaction, robotics, and more
- **Future Energy Systems** – a recent initiative launched from a \$75 million investment from the federal government to develop clean energy technologies and determine how to integrate these technologies into Alberta's oil and gas energy infrastructure

Commercialization of research done at the U of A is supported by TEC Edmonton, a joint venture between the University of Alberta and Edmonton Economic Development Corporation (EEDC). TEC Edmonton acts as a business accelerator in the region to support the commercialization of technological innovations. In 2016-2017, TEC Edmonton supported the launch of almost 200 products and services.

Isobrine Solutions

One example of a U of A research spinoff supported by TEC Edmonton is Isobrine Solutions, an oil and gas service company specializing in isotopic fingerprinting of co-produced water and natural gas. The service helps oil and gas companies reduce costs and maximize hydrocarbon production.

NAIT

Applied research at NAIT aims to benefit the province's and region's key industries. Almost all research at NAIT is done in partnership with industry to ensure that innovation is relevant and can be quickly adopted. NAIT has four applied research centres:

NAIT Research Areas:

- Energy
- Environment and bio-economy
- Health and care
- Construction and trades
- Business and entrepreneurship

- **Centre for Oil Sands Sustainability** – a research centre funded from a \$1.5 million endowment from Ledcor Group (matched by the provincial government) that works with industry to develop technologies that improve the economic and environmental performance of Alberta oil sands operations
- **Centre for Sensors and System Integration** – an NSERC¹³-funded research centre partnering with small- and medium-sized enterprises to help develop prototype devices addressing sensor-based challenges in a variety of industries
- **Centre for Innovative Media** – another NSERC-funded centre that works with industry to research and develop technology across media platforms (e.g. software, film, games)
- **Boreal Research Institute** – a leader in applied research to address knowledge gaps in the management and reclamation of disturbed boreal environments

A major recent initiative of NAIT is the establishment of the Productivity and Innovation Centre which will focus on supporting industry in productivity enhancement, business acceleration, and applied research. Another area of research focus for NAIT is business and entrepreneurship. The JR Shaw School of Business has two applied research chairs in business and entrepreneurship.

¹³ Natural Sciences and Engineering Research Council of Canada

A particular highlight of research at NAIT is the institute's patent policy. All intellectual property (IP) developed through NAIT with industry partners is maintained by industry. Unlike other institutions that receive a significant portion of the revenues from commercialized inventions, those developed at NAIT go primarily to industry, with the institution receiving a nominal fee for its services. This helps ensure expedient and effective commercialization of the institute's applied research.

Building the Region's Global Connections

Post-secondary institutions make important contributions to the region's global profile and connections.

- The U of A is involved in more than 600 formal teaching, research, and student mobility agreements with governments, organizations and collaborating institutions in over 80 countries
- NAIT provides program development and training services for institutions and corporations in other parts of the world and for Canadian companies with overseas operations. It has two collaboration agreements with institutions in China that provide students with opportunities to complete some of the requirements for a credential through or at NAIT
- MacEwan University provides opportunities for students to complete some of their program requirements in another country. The university has formal partnerships with universities in Sweden, Lithuania, Germany and Mexico and can facilitate enrolment at other institutions that are not formal partners
- NorQuest College also has a role to play in strengthening the region's global connections, with almost two-thirds of its students originating from countries outside Canada

Sector Support

Together, the publicly funded institutions in the region receive over 50% of their revenue from the Government of Alberta, with tuition accounting for roughly 26% of revenues (Figure 4). The distribution of revenue sources differs slightly across institutions, with provincial funding and tuition accounting for higher proportions of revenue for MacEwan, NAIT and NorQuest, and federal funding, non-government grants, and donations being relatively more important for the U of A.

The two independent academic institutions receive some grants from the provincial government to offset their operating costs, but not capital funding. These institutions are comparatively more reliant on tuition and donation revenues than the publicly funded institutions.

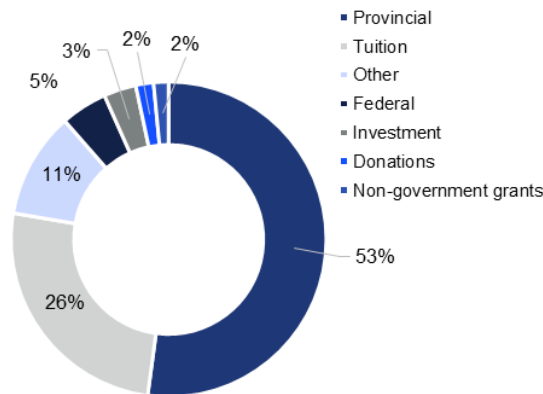
Provincial Support

The Government of Alberta provides a significant amount of operating and capital funding to the region's post-secondary institutions. Although provincial government funding has fluctuated in some years when the province experiences fiscal pressures, it is still the biggest source of revenue for the region's publicly funded institutions.

The provincial government also supports the sector by providing loans, grants, scholarships, and bursaries for students to allow them to pursue post-secondary education.

Other ways in which the provincial government supports the sector is through Alberta Innovates funding for research and the recently established Alberta Research and Innovation Advisory Committee (ARIAC)¹⁴. The committee works with innovation agencies, post-secondary institutions, industry, and government to advance research in the province and improve Alberta's economic competitiveness.

Figure 4 - Post-Secondary Revenue Sources



Source: The Canadian Association of Business Officers (2015-16 data)

¹⁴ <https://www.alberta.ca/alberta-research-innovation-advisory-committee.aspx>

Federal Support

Federal direct support for the sector is provided primarily through its tri-council agencies. Together, these agencies provide almost \$100M in funding to the region's institutions annually (mostly the U of A). Grants from tri-council agencies are highly competitive and are awarded based on the faculty applying as opposed to the institution.

Compared to NSERC and CIHR, SSHRC has much less funding. The federal government also provides over \$17 million to the University of Alberta's Canada Research Chairs, and through collaborations with Health Canada, the Canada Foundation for Innovation, and other funding sources.

Like the provincial government, the federal government offers financial aid through student loans and a variety of grants, scholarships, and bursaries.

Canada tri-council agencies:

- Natural Sciences and Engineering Council (NSERC)
- Social Sciences and Humanities Council (SSHRC)
- Canadian Institutes of Health Research (CIHR)

Industry Support

Industry in the region and the province provides significant financial resources to the region's post-secondary institutions by funding research and providing endowments for research chairs in specific fields. In some cases, industry partners with tri-council agencies to jointly fund research chairs in areas of particular importance to an industry.

The U of A has 104 endowed chairs (though not all endowments come from industry), and its engineering faculty has 16 NSERC Industrial Research Chairs in fields such as construction and oil and gas - more than any other engineering faculty in the country. NAIT has several industrial research chairs focusing on boreal forestry reclamation, oil and gas, business, and biotechnology.

Industry also provides funding for scholarships to support students in post-secondary institutions in the region.

Barriers to Growth

Revenue Challenges

Representatives from institutions in the region note several revenue challenges in the post-secondary sector, such as:

- recent economic conditions have resulted in funding cuts from the provincial government, the most significant revenue source for institutions in the region
- the Government of Alberta has frozen domestic student tuition to ensure advanced education in the province is financially accessible. But even with some compensation from the province, freezing tuition constrains an important revenue source for institutions
- international student enrolment and tuition are important revenue levers for institutions in the region, and both have been increasing in the last few years; however, institutions are being criticized for relying too heavily on international student revenues and many students are calling for a freeze on international tuition

Domestic student tuition has been frozen in Alberta since the 2015/2016 academic year and is fixed until the end of 2018/2019.

Program and System Responsiveness

Although institution-industry collaboration in the region is high, interview respondents note that institutions lack responsiveness to industry needs. Relative to other jurisdictions, the region is not as effective in adapting their programs and training to changes in the labour market. One issue is a lack of timely, relevant labour market information in the system. Some programs are also noted as being too theoretical and not enough programs focus on the skilled labour requirements of the region. Respondents specifically note a lack of training in areas of digital technologies and general employability skills such as project management.

At the provincial level, the responsiveness of the advanced education system is critical to ensure students can easily transition in and out of the system. The transfer system in Alberta allows students to move between programs and institutions in the province, but the system is complex, and students can struggle to move between, and even within, institutions without losing both time and money.

By 2020, across all types of occupations, on average, more than a third of the core skills needed to perform most jobs will be made up of skills currently not yet considered crucial to the job.

The Future of Jobs (2016)
The World Economic Forum

We risk falling behind if we can't learn to adapt more quickly and effectively to coming changes.

Edmonton Global
Advanced Education Sector Interviewee

Pace of Commercialization

A noted challenge with research commercialization at the U of A is the institution's patent policy. The policy applies to any faculty, staff, and student at the university. Though ownership of intellectual property is maintained by the inventor(s), the policy stipulates that net revenues from any intellectual property developed at the institution be distributed in thirds. One-third of revenues accrues to the inventor(s), one-third accrues to the university, and one-third is committed to TEC Edmonton for the commercialization process. Other research institutions, such as the University of Waterloo and NAIT, do not require revenue sharing with the institution itself, but instead leave that decision to the discretion of the inventor(s). Re-addressing the patent policy at U of A could improve the investment attractiveness of the region.

Global Connections

A history of competition between post-secondary institutions in Alberta and the region has resulted in a fragmented message from the sector. Collaboration between institutions has been improving, but the region lacks a coherent voice as to the strengths and opportunities in its advanced education sector.

Interview respondents highlight Australia as a prime example of effective regional marketing for advanced education. The country's post-secondary sector collaborates to market the sector as a region while ensuring all institutions are represented.

Global connections are also lacking in terms of international student engagement. Over 10% of the student population in the region are international students, yet interview respondents note that engagement for existing students and recruitment for new students is insufficient. As a result, many international students who return home lose their connection with the region and an opportunity to create or improve global relationships is missed.

Region Appeal

The region has the disadvantage of competing with other appealing jurisdictions in Canada that also host high-quality post-secondary institutions. Major urban centres such as Toronto, Vancouver, and Calgary may be more appealing for both domestic and international students.

Increasing Competitiveness

Institutions across Alberta are continuing to evolve, and the provincial landscape of the advanced education sector is changing. Recent announcements regarding institutional mandates in Alberta may increase competition for the region's schools. For example, it was recently announced that both Grande Prairie College and Red Deer College will soon receive degree granting authority and university status (specifically undergraduate universities). Grande Prairie and Central Alberta have historically provided the region with transfer students, but as universities it is likely that less students will transfer out of these institutions and they may even increase competition for post-secondary institutions in the region, particularly MacEwan.

International competition in post-secondary education is increasing as well. A significant portion of international students in the region are from China, but China is developing a strong post-secondary system of its own. Therefore, the region's institutions may need to rely less on Chinese student enrolment and look to recruit relatively more international students from other countries.

Some of the key trends influencing the region’s advanced education sector are summarized below.

Outlook and Risks

Category	Trend	Implications for Sector Support for Regional Economic Development and Growth
Demographic	Aging population	Need for ongoing skill development opportunities for those already employed
Social, Culture and Health	Increasing global connectivity	Increased importance of cultural awareness and competency development
	Increased focus on mental health	Increased importance of mental health awareness and supports in advanced education institutions to increase learner (and eventual worker) resiliency, productivity and potential for success
Economic and Labour Market	Increased focus on reconciliation between Indigenous and non-Indigenous peoples	Increased opportunities for Indigenous people to participate in education, training and research; initiatives to build cultural awareness and respect among non-Indigenous learners and workers
	Increasing global connectivity and competition	Cultural awareness and competency development; encourage/ foster creative thinking about ways of doing things to increase productivity; technological innovation to improve overall productivity
	Global labour market	Need to attract and retain top academic and research talent to regional institutions; opportunities for students and researchers from the region to have international learning and research collaboration experiences; need for bridging programs for internationally trained professionals; increased importance of foreign credential recognition and transferability across institutions
	New business models and the importance of entrepreneurial competencies to expand into global markets	Increased need for critical thinking, communication and collaboration competencies; increased need for entrepreneurial training and support for regional businesses that have the potential to expand into global markets
Education and Training	Shifting labour market needs	Highlights importance of foundational learning for the workforce (e.g. having the knowledge, skills and drive to learn) and access to reskilling opportunities throughout careers; institutions need have information about – and be able and willing to respond to – shifts
	Rapid technological change	Institutions need to provide learners with the knowledge and skills to work productively with new technologies
	Technology-supported learning	Enables more learner-centered and efficient responses to shifting labour market needs
	Work-integrated learning opportunities	Increases relevancy of post-secondary learning opportunities; helps students to develop the “softer” skills needed in the workplace; helps students transition into employment more quickly after graduation and be able to meet employer expectations more quickly; strengthens ties between post-secondary institutions and industry



Category	Trend	Implications for Sector Support for Regional Economic Development and Growth
Research and Innovation	Funding and sustainability pressures	Ability of the sector to meet regional economic and labour market development and research and innovation priorities is dependent on funding availability and predictability; need for stronger collaboration within the sector to reduce the potential for duplication and be more strategically focused on regional labour market development, and research and innovation priorities
	Global research networks	Help establish and sustain international research networks linked to priority economic growth and diversification sectors; promote importance of funding stability to building and maintaining confidence of potential partners
	Focus on productivity enhancement	Work with industry to identify areas where productivity lags internationally and collaborate on researching and applying solutions
	Global competition for top research talent	Strategic regional focus on research priorities and collaboration in promoting research opportunities in the region
	Connection between post-secondary institutions and industry	Need to understand and address potential barriers to post-secondary institution responsiveness in supporting industry economic development opportunities (e.g. patent policies)

Opportunities

The advanced education sector has tremendous potential to be both a driver and support for the region’s future economic diversification and growth. Several opportunities for strengthening the sector’s potential, generally, and for Edmonton Global and its member municipalities to bolster the sector have been identified.

Labour Force Development

The advanced education sector plays a central role in ensuring that industry has employees with the competencies (knowledge, skills and attitudes) needed for productivity gains, diversification, and confident growth in a more globally connected economy. This includes employees who are recent entrants into the labour market, and employees who may be well-advanced in their careers. The speed at which technology is advancing, skill requirements are shifting, and global competition is increasing, requires a highly responsive advanced education system.

Opportunities for increasing the system’s responsiveness include:

- **Better and more timely labour market information** - Post-secondary institutions need up-to-date information about the current and emerging requirements of industry for employee knowledge and skill development. This will require partnering between Alberta Labour and Advanced Education, Statistics Canada and industry
- **Improving transferability within Alberta’s post-secondary system** - Transfer opportunities among post-secondary programs and institutions facilitate efficient learning pathways for individuals eager to get a credential needed to get the job they want. Although there is currently some transferability within the system, it would be greatly enhanced to be less complex and frustrating for students
- **Providing learning opportunities in credential programs in “smaller bites” and broadening training outside**

traditional credential programs - Programs that are delivered in short modules, rather than over full terms, provide opportunities for those who are employed to obtain focused learning without being absent from their jobs for extended periods. These shorter modules can be “micro-credentials” or other learning that is recognized by employers

- **Increasing student-directed learning and making more use of technology-supported learning** - Learning in the region’s advanced education system continues to be predominantly instructor-led. With the growing need for ongoing learning throughout one’s career and the increased availability of technology-supported learning, more use could be made of self-directed, technology-supported learning to respond to the region’s shifting labour market needs and increase efficiency within the system. Technologies like artificial intelligence and virtual reality have the potential to change learning, both in and outside the classroom
- **Placing more emphasis on general employability skills and global competencies in programs** - There is increased need for critical thinking, communication, collaboration and creativity competencies in the workforce. Another area of needed competency in many businesses is global business and trade competencies
- **Increasing opportunities and funding for those currently employed to upskill or reskill** - The rate of change in the knowledge and skill requirements of jobs requires workers to be continually upskilling and if needed, reskilled. The region’s post-secondary institutions can accelerate needed knowledge and skill development through both structured learning opportunities and supporting informal learning. More use could be made of technology-supported learning to make learning more accessible for those already in the workforce. The availability of funding to support ongoing learning requires attention

- **Rethinking and strengthening entrepreneurial education** - Entrepreneurs have always played an important role in growing and diversifying the region's economy and will be even more important in the years ahead to lead businesses that are beyond the start-up phase and have the potential to extend their global reach. There is growing understanding of the attributes of "high-impact entrepreneurs", that is, entrepreneurs that launch and lead companies with above-average impact on job creation, wealth creation, and the development of entrepreneurial role models.¹⁵ Increased attention can be given to leveraging this understanding in designing programs to strengthen entrepreneur training and supports in the region. Entrepreneurs often have impacts that extend beyond their businesses through investing in other businesses and their communities
- **Increasing collaboration among post-secondary institutions, industry and government in developing regional strategic responses to labour force development priorities** - A key strength of the region's advanced education system is that it is comprehensive, providing learning opportunities extending from foundational and preparation for entry-level jobs, to advanced learning in highly technical fields. Stronger collaboration among institutions would help ensure comprehensive coverage of the labour force development needs in priority sectors and that system resources are efficiently applied in responding to needs

Research and Innovation

- **Increasing Collaboration** - Just as stronger collaboration among institutions would help the system in responding to labour market needs, it would also strengthen the ability of the sector to support research and innovation and the eventual commercialization of more discoveries. There are complementary

research strengths between the U of A and NAIT and each has established research partnerships with industry and the potential for more. There are opportunities for the two institutes to be part of larger collaborations with Edmonton Global and other economic development organizations, entrepreneurs, investors, and other partners in Alberta's research and innovation system to collaborate to pursue opportunities identified as having strong economic development potential for the region

- **Bringing all faculties within the U of A onboard in terms of inter-faculty collaboration and supporting industry with commercialization** - There are apparently differences in willingness and commitment to partner and support industry commercialization efforts across faculties at the U of A. Some other institutions (e.g. the University of Toronto) are intentional about partnerships between their business schools and other faculties to commercialize research
- **Leveraging strengths to support health research** - Alberta is well-positioned to become even more of a global leader in health research than it already is, with a single health delivery system (Alberta Health Services), Alberta Netcare, and the computing and health research strengths at the U of A
- **Extending research and innovation partnerships across the region** - There are opportunities to encourage businesses and municipalities across the region to take advantage of the technology and resources the region's post-secondary institutions have to offer

¹⁵ Centre for High-Impact Entrepreneurship, 2011 High-Impact Entrepreneurship Global Report.

Global Connections

- **Attracting and retaining international students** - International students can make strong contributions to the international profile of the region's advanced education sector and to the region's economic growth and competitiveness. These students contribute to the local economy, enrich the region's post-secondary learning environments, and can lead to valuable global connections within the advanced education sector and for businesses in other sectors

Again, the sector and the region could benefit from stronger collaboration among institutions in recruiting international students. Institutions could possibly aim to brand the region's comprehensive post-secondary system, rather than promoting their individual strengths in global markets. Another suggestion is to collaborate on even broader scales (e.g. with institutions across the province or Canada-wide) to market the system internationally

More could also be done to engage and support international students in the community while they are here and staying connected with them if they choose to return home or move elsewhere after their experience here. To counter the sensitivity about international students at regional post-secondary institutions, Edmonton Global could help increase public awareness of their value

- **Encouraging international exchange programs and increase collaborations with post-secondary institutions in other countries in areas of regional strength** - To strengthen the regional economic development potential of international learning and research exchanges, more emphasis could be placed on exchanges with institutions in emerging economies, such as Brazil, India, China and Indonesia

Attractiveness of Region

- **Increasing attention to the potential for post-secondary institutions to contribute to enhancing quality of life across the region** - Regions offering a high quality of life are more competitive in attracting new businesses and residents and retaining graduates

Alumni Contributions

- **Keeping connections with alumni strong** - Many alumni are committed leaders in the community and provide generous support to organizations that enhance the overall quality of life in the region (e.g. social and cultural organizations). They also contribute to the region's economy by investing in local businesses, supporting outstanding academic and research performance through scholarships and awards, and donating money for facilities and research equipment

EG Actions

- encourage initiatives to produce and share better and more timely regional labour market information
- encourage increased responsiveness and efficiency in meeting labour market development needs – both for new entrants and the current workforce
- advance discussion and initiatives in the region to strengthen and expand entrepreneurial education and supports
- actively strengthen collaboration within the region among post-secondary institutions, government, Alberta Innovates, and industry to identify and frame regional responses to:
 - labour market development needs
 - research, innovation and commercialization priorities and opportunities
 - global education and research opportunities
- facilitate discussions of – and solution-finding for – barriers to inter-faculty, inter-institutional and industry-institutional research and commercialization collaboration
- support post-secondary institutions in keeping connections with alumni strong – both here and abroad

Measuring Success

- graduate employment success in fields of study
- employer satisfaction with education and training – both for new graduates and existing workforce
- retention of international students
- government and industry investment in research
- industry satisfaction with research, innovation and commercialization support from post-secondary institutions
- number and type of patents relative to regional population
- commercialization of research and innovation involving the post-secondary institutions
- economic impacts and productivity gains through targeted projects
- entrepreneurship and growth of companies supported by the advanced education sector

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Organizations Interviewed

- University of Alberta
- NAIT
- NorQuest College
- MacEwan University
- Edmonton Global
- Alberta Economic Development and Trade
- Alberta Advanced Education
- Edmonton Metropolitan Region Board
- Municipal Members of the EMR