

UNLEASHING THE POTENTIAL

PROJECT REPORT

Canada 

Alberta 

 **APEX**
Southeast Alberta
Regional Innovation Network
www.apexalberta.ca

 **Town of BASSANO**

 **ROCKY VIEW COUNTY**
Cultivating Communities



 **Community Futures**
Entre-Comp. Business Development

 **WHEATLAND COUNTY**
Where There's Room to Grow



 **Community Futures**
Wild Rose

 **OLDS COLLEGE**
1913

 **Skill Metal**
Fabricators Inc.

 **BOW VALLEY COLLEGE**

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TABLE of contents

EXECUTIVE SUMMARY	5
INTRODUCTION	6
Phase 1: Fabricating Workforce	8
Phase 2: Unleashing the Potential	10
REGIONAL ADVANTAGES	12
METAL FABRICATION: SNAPSHOT	14
A BUSINESS CASE	16
CLUSTERING	18
NEXT STEPS	27
APPENDIX A	28
APPENDIX B	34

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“I’m
excited
about
this
project
leading
to **real**
action!”

EXECUTIVE SUMMARY

Metal fabricators are crucial to building a new economy for Alberta

Metal fabrications is the cornerstone of the Alberta economy, and critical to the economic diversification and prosperity of the Wild Rose region. “Unleashing the Potential of Metal Fabrication” is a regional project aimed at leveraging strategic advantages to diversify and expand the industry. Through the project, metal shops from across the region have come together to identify key challenges that hold the industry back from its full potential. By working collaboratively with the province, municipalities and post-secondary institutions, metal fabricators have identified specific opportunities to work together in the region to drive innovation and growth.

Over the past two years the project team has conducted industrial research and engaged a wide range of small medium and large businesses, as well as entrepreneurs and individual metal fabricators. Based on site visits, surveys and the results of an industry roundtable, here is a clear business case to build the first ever Canadian metal manufacturing cluster in the rural region between Calgary and Medicine Hat.

The opportunity to develop a metal manufacturing cluster in this region is due to the unique strategic advantages that the region offers to this industry. The region has the required businesses, transportation and logistics, (specifically the high load corridor), available land, services, labour and educational and skills training opportunities.

The key component to leveraging these strengths is the creation of a collaborative ecosystem focused on improving the bottom lines of businesses through three industry priorities;

- » Workforce Development
- » Trade and Export
- » Entrepreneurship and Innovation

Such an endeavor would be the first of its kind in the metal fabrication industry in Canada, requiring strategic support from partners who can provide the early stage capacity to build on the momentum generated by the first two phases of this project.

The following report provides an overview of the project, an outline of the methodology and key findings, a business case for developing a Metal Fabrication Regional Cluster, and recommended next steps.

INTRODUCTION

Unleashing the Potential of Metal Fabrication is phase 2 of a workforce development project aimed at supporting innovation and growth in the sector to create employment opportunities, investment and high quality of life for Albertans.

The project region is between Calgary and Medicine Hat in southwestern Alberta, including counties, villages, towns and small cities. The metal fabrication sector contributes to the capacity of key economic drivers in the region and province, including oil and gas, agriculture, clean technology and renewable energy.



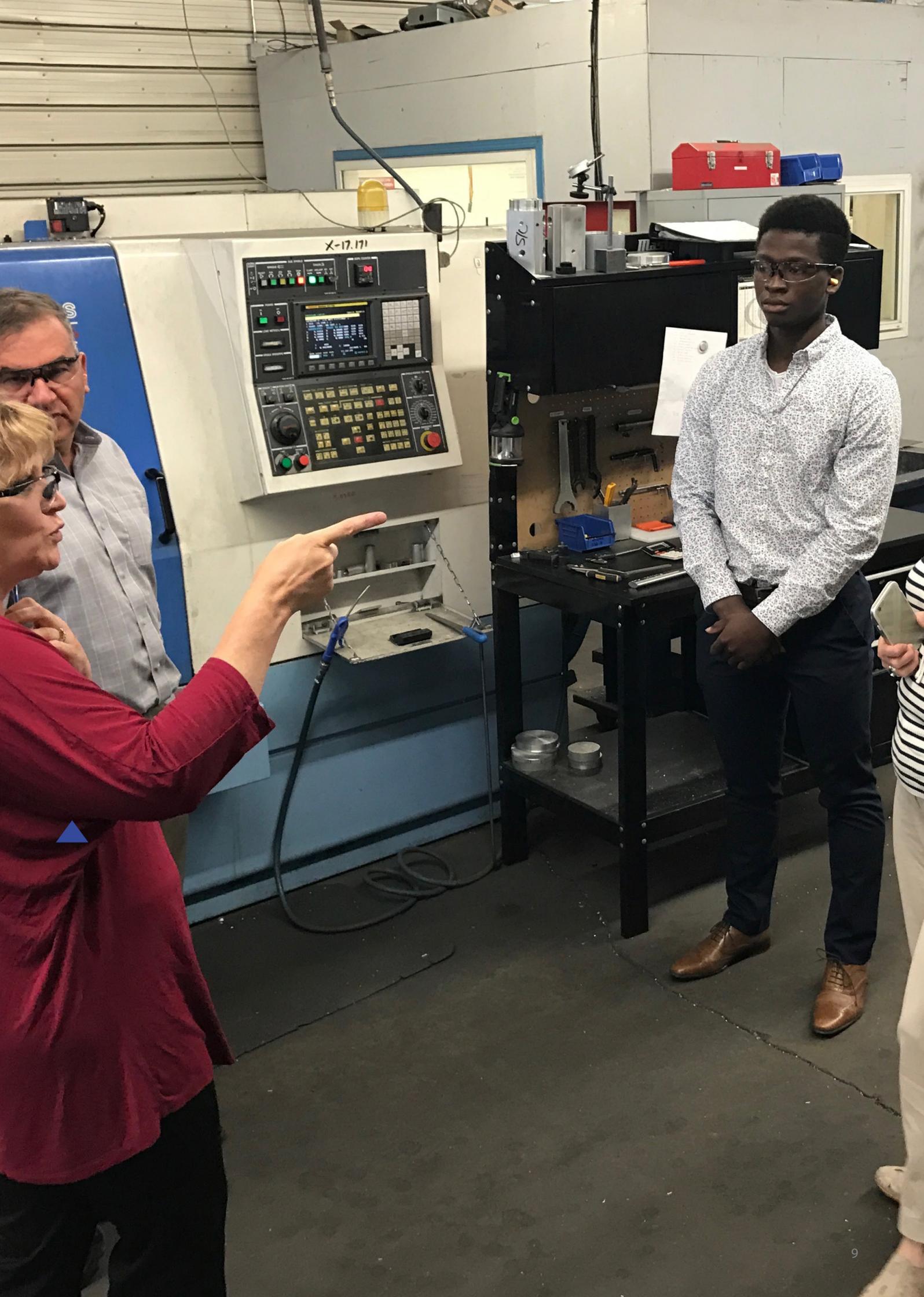
Project Background: Phase I - Fabricating Workforce

In 2017, Community Futures Wildrose partnered with the government of Alberta, metal fabrication shops, municipalities, and post secondaries in the region to support the growth and expansion of the metal manufacturing sector through an innovation and workforce development project. The project, entitled Fabricating Workforce was designed to help anticipate challenges, strategize with stakeholders and ultimately ensure that the region has the labour force required to support value-added growth and innovation in the metal fabrication sector.

The project combined research and analysis with significant community engagement, resulting in the mobilization of community and industry stakeholders through a series of follow up strategy sessions that have deepened the region's commitment to advancing this high growth potential industry. While the profile uncovered general information, and confirmed from target stakeholders that employee training was one of the industry's top challenge, the follow up sessions began the process of identifying specific skill training needed in the workplace. As part of this process, stakeholders mapped the internal value chain of a single business, and pinpointed specific human resource and training challenges. As a result, community and industry stakeholders have begun collaborating to replicate this analysis process on a larger scale to quantify specific human resource training needs to develop a business case for the delivery of human resource support in the region.

The project helped stakeholders identify strategic geographic assets, develop a workforce profile and engage the industry in identifying strategic challenges and opportunities. Ultimately, the project identified workforce development as the crucial issue facing the industry and in particular businesses in the region.

The key outcome of phase I was the anecdotal identification of specific workforce development needs by businesses in the region.



The Project: Phase II - Unleashing the Potential

Phase 2 of the project was designed to qualify and quantify the specific needs of phase one and build a business case for regional collaboration. To undertake this project key partners were engaged that would be able to support this sectors growth. Partners included the Government of Canada, The Government of Alberta, Rocky View County, Wheatland County, the County of Newell, the City of Brooks, The Town of Bassano, Community Futures Entre Corp, Bow Valley College, Olds College, Skills Metal Fabricators Inc. and the Southeast Alberta Regional Innovation Network (APEX).

The project team conducted 20 surveys, interviews, and site visits where specific sector needs across the region were identified. Survey findings can be found in Appendix B of this Report. Key findings include the need for industry specific training for unskilled workers entering the metal fabrication sector, upgrading the skills of current employees, raising the profile of the industry to youth in the region, access to financial and business supports, and improved permitting by municipalities. Potential workforce development initiatives that were identified by metal fabricators include a pre-employment program to screen new entrants into the industry to ensure a basic level of skill and interest in working in a shop environment. Overall, three key need emerged: workforce access and training, trade and export development, and entrepreneurship and development.

A key issue that continued to emerge was the long term threat to stability / immediate impact on the bottom line of every business, felt from trade tensions with the United States. On one hand, the price of metal has risen three times in recent months, immediately impacting the competitiveness and viability of businesses across the region, and threatening to put Albertans out of work. On the other hand, complex and changing dynamics relating to international market access is crippling the capacity of businesses to plan and strategize business expansion and diversification opportunities: all in a sector that is acutely aware of its need to diversify its markets.

An industry round table was organized in order to engage businesses in developing collaborative solutions based on the findings. Given the timeliness of trade talks and the immediate impacts on rural and small urban businesses, it was determined that bringing in a trade expert as a keynote speaker for the industry roundtable to address current trade tensions and explore regional business responses was key to supporting the industry and mobilizing businesses.

Throughout phase I&II a variety of high impact data was collected and the following business case was created for the delivery of workforce development training that will support and grow the industry.



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REGIONAL ADVANTAGES

According to a survey conducted in 2018, metal fabricators feel that the top regional advantages in the Wildrose are available land, businesses, educational institutions and transportation. This reflects the findings of the environmental scan conducted in 2017.

Available Land

The region currently has an abundance of vacant industrial zoned land both serviced and unserviced.

Businesses

There are over 45 metal fabricating businesses and entrepreneurs in the region, ranging from metal parts manufacturers to sheet metal workers. The metal fabricating businesses of the Wildrose supply the oil and gas industry as well as agriculture, and value added agriculture specifically.

Educational Institutions

The region is home to several colleges and universities including Bow Valley College, Old College, Lethbridge College, SAIT, NAIT, the university of Calgary and the university of Alberta. Currently, businesses and residents have access to industry specific training through SAIT.

Transportation

The Wildrose has easy access to rail and air transport as well as major highways, but the major feature is access to the High Load Corridor. The corridor is a strategic asset to the metal fabrication industry because it has overhead utility lines raised to accommodate loads up to 9 metres high. The corridor accommodates both public transportation as well as oversized load moving vehicles from the United States through Fort McMurray, to the oil sands plants in the north.

A close-up photograph of a metal component, possibly a mold or a part of a machine. The metal has a textured, slightly grainy surface. Embossed on the metal are the words "DEFINITIVE" and "MINI-STEP" in a sans-serif font. The lighting is dramatic, with strong highlights and deep shadows, emphasizing the texture and the embossed text. The background is dark and out of focus.

Metal Fabricators

are crucial

to building

a New Economy

for Alberta

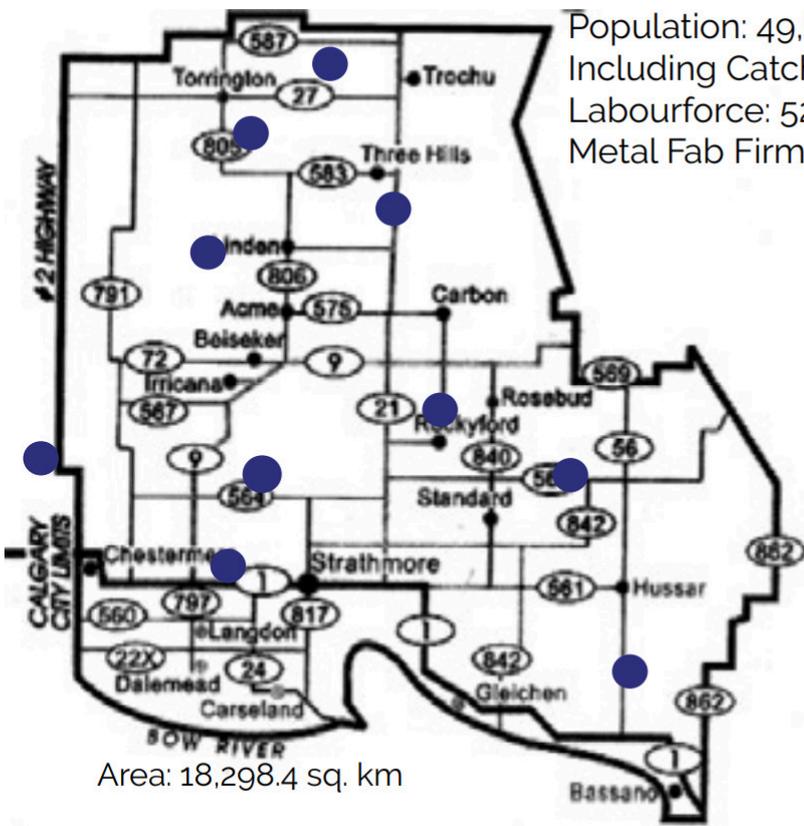
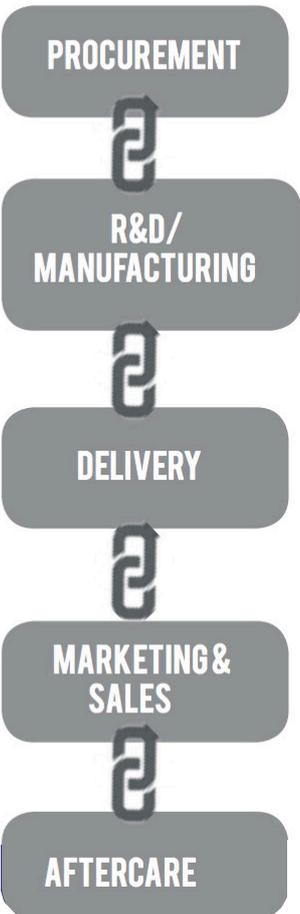
Metal Fabrication: A Snapshot

ALBERTA OVERTIME

Alberta's metal manufacturing industry in brief

INDICATOR	2012	2013	2014	2015	2016
Employment (SEPH)	22,966	23,534	25,343	23,854	20,587
GDP (Basic) (\$ B)	2.94	3.05	3.11	2.77	2.20
Manufacturing Sales (\$B)	6.47	5.71	5.75	5.29	4.28
Exports (\$CAD)	\$782,265,186	\$684,586,542	\$806,145,936	\$629,776,661	\$503,272,106

VALUE CHAIN



72% of metal fabrication businesses in the region want to grow



Regional advantages:

- » Available Land
- » Business
- » Educational institutions
- » Transportation
- » Labour
- » Industry
- » Quality of life

Top Metal fabrication training needs (in order of replies):

- » Blueprint reading 33%
- » Solidworks/Autocad 28%
- » Lean manufacturing 11%

Anecdotal Needs Identified in Interviews

- » Imperial measurement use
- » Basic Tooling
- » Pre-employment Training
- » Business and Marketing Training
- » Trade and Export Expertise

Average companies spending on training:

- » \$0 22%
- » \$0-\$500 36%
- » \$2,000-\$5,000 21%
- » \$5,000-\$10,000 21%

Top needs of metal fabrication businesses:

- » Workforce
- » Trade and export development
- » Entrepreneurship and innovation

100% of metal fabrication businesses in the region are interested in collaboration



METAL FABRICATION

A Business Case

Problem

The overarching problem identified throughout the project was the decline in the oil sector, and its structural impact on the economy.

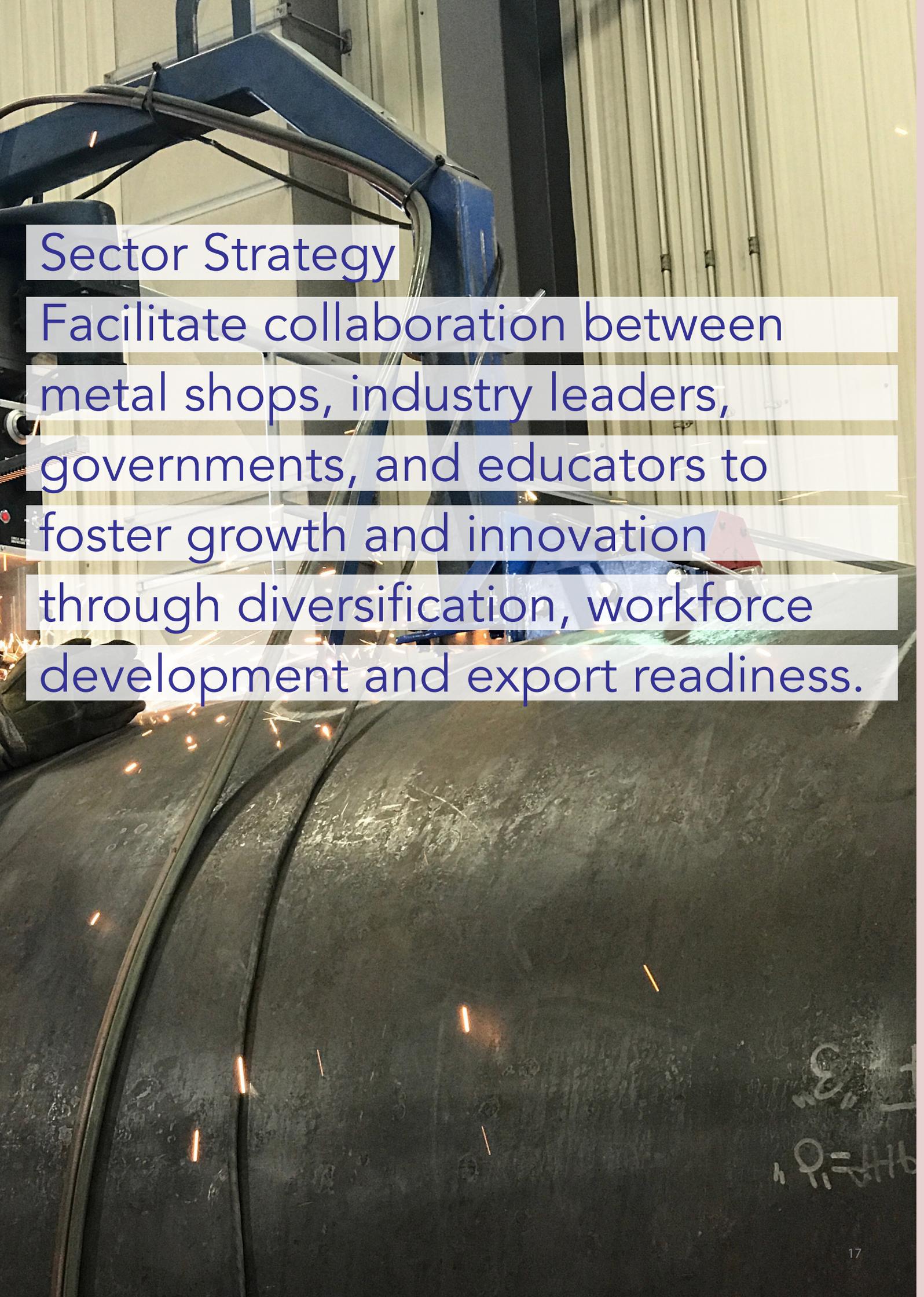
One key consideration in growing this sector is access to a skilled and semi-skilled labour market. Businesses identify workforce requirements as being critical to business expansion and the number one need of metal fabrication businesses. If not addressed, weakness in the labour market can restrict the economic potential of the industry in the region. In 2015-16, Rocky View County commissioned a Labour Market Study that included a Location Quotient Analysis. The findings show that the number of people currently employed in the manufacturing sector is significantly low on a per capita basis compared to the province as a whole. This raises a concern regarding the regions capacity to support this high growth potential sector. Metal fabricators are the backbone of the sector, but could potentially be the backbone of other sectors. Workforce development is a very important component to healthy economic development.

Metal fabricators are critical to building a new economy for Alberta

During the site visits, one key issue emerged that threatens the stability of the industry long-term, individual businesses short term, was trade tensions with the United States. On one hand, the price of metal has risen three times in recent months, immediately impacting the competitiveness and viability of businesses across the region, and threatening to put Albertans out of work. On the other hand, complex and changing dynamics relating to international market access is crippling the capacity of businesses to plan and strategize business expansion and diversification opportunities: all in a sector that is acutely aware of its need to diversify its markets.

By working together, metal fabrication businesses can identify new opportunities by drawing on their own strengths, diversifying the broader economy by focusing on their own bottom lines.





Sector Strategy

Facilitate collaboration between metal shops, industry leaders, governments, and educators to foster growth and innovation through diversification, workforce development and export readiness.



SOLUTION

**DEVELOP A METAL
FABRICATION CLUSTER
IN THE REGION**

Solution: Develop a Regional Metal Fabrication Cluster

PRIMARY INDUSTRIES



CONSTRUCTION



OIL & GAS



AGRICULTURE



RESEARCH & INNOVATION



BUSINESS DEVELOPMENT

METAL FABRICATORS

WORKFORCE DEVELOPMENT



PUBLIC POLICY



EDUCATION & TRAINING



SKILLED

SEMI-SKILLED

UN-SKILLED

LABOUR MARKET



ATTRACTION & RETENTION

Activities:

1 Networking

- Build critical mass of metal fab businesses in the region
- Explore opportunities to collaborate with other industries
- Facilitate links between metal fab sector and post secondary institutions

2 Innovation

- Encourage entrepreneurship
- Help fill competency gaps
- Support commercialization
- Incubate new businesses
- Provide supports for prototype development and product R&D

3 Promotion

- Promote cluster
- Attract investment

4 Finance

- Share opportunities for financing
- Match companies with private investors

5 Projects

- Design, develop and manage sector based projects

6 Knowledge

- Forecast economic impacts and develop sector based strategy

A close-up photograph of several large, white, cylindrical metal rollers arranged in a row. The rollers are part of a manufacturing process, likely for metal sheets. The lighting is bright, highlighting the smooth, reflective surfaces of the rollers. The background is slightly blurred, showing more of the industrial environment.

Clustering

Clustering is all about the interaction of businesses within a sector, healthy competition, networking and collaboration between them. Clusters emphasize the role of networks and relationships between the various parts of a cluster rather than individual companies, and help spur on innovation and healthy competition.

The purpose of building a metal manufacturing cluster in the region, is to develop individual metal companies and improve the competitiveness of the sector as a whole, as well as the region. At the company level, the cluster will help take advantage of market opportunities that they could not achieve alone.

A cluster will enable business resources to be concentrated in one area and allow manufacturers to reduce operational and logistical costs by shortening supply chains. Clustering also increases the flow of shared information regarding opportunities, and strengthens relationships among companies that are members of the same supply chain.

In brief, clustering will:

- » Help isolated companies overcome barriers to growth
- » Foster linkages
- » Encourage collective efficiencies
- » Strengthen and deepen supply chains

The focus of Unleashing the Potential has been identifying opportunity to leverage workforce development as a driver of innovation and growth in the metal fabrication industry. As additional key components of industry competitiveness including trade and business development have been identified, workforce development remains the single largest determinant of business success and resilience.

The strategy to develop an industry cluster will start with the development of the labour market to support metal fabricators. This is a shared strategic priority that can build the collaborative capacity of the industry in the region, leading to collaboration in other key areas such as export and business development. As the capacity of the regional cluster grows, it will be able to leverage partnerships to support research and innovation, and articulate the needs of sector businesses to support public policy that enhances the industry's competitiveness and vitality. Therefore, for the cluster to be viable and successful, it needs to be centred on the needs of metal fabrication business, with support from industry stakeholders including government, post secondaries and community organizations.

Regional Metal Fabrication Cluster Objectives

1. **Collaboration** Identify challenges facing metal shops in the region and develop solutions in collaboration with public and non-profit partners
2. **Programs** Develop and implement programs that reduce operating costs to individual businesses and expand capacity to access new markets
3. **Promotion** work with businesses to promote careers in metal fabrication to residents and youth in the region

Regional Metal Fabrication Cluster Outcomes

Employments Growth and employment in the sector

Markets Diversification of businesses into emerging markets

Trade Advocacy and action to improve export opportunities and readiness

Regional Metal Fabrication Cluster Organization

Clusters can be fragile because they are interwoven ecosystems, and depend on connectivity. Therefore everyone within the cluster, (large companies, small and medium-sized enterprises and post-secondaries), will all benefit from being well organized.

This can be simply achieved by developing a strong overarching organization that is responsible for the management of the cluster.

Qualitative and Quantitative Advantages to a Metal Manufacturing Cluster

- » The cluster will bring together key resources and facilitate resource sharing
- » Pieces of the value chain are linked through partnerships, relationships and transactions making it more sustainable
- » A cluster will improve productivity as the manufacturers have faster access to customers, suppliers, and to sector specific information
- » Businesses will be closely connected to new breakthroughs and opportunities in the sector
- » A cluster helps individual businesses and the collective become more adaptable
- » A cluster will create opportunities to attract and potentially share talent
- » The cluster will foster collaboration in logistics, warehousing, services, purchasing and sales
- » There is potential for shared sector lobbying efforts gov relations
- » Marketing and promotions
- » Instant feedback from partners and customers, which allows modifications
- » The cluster will host training in collaboration with other businesses in the cluster, (ie: blueprint reading)
- » There will be improved availability of skilled workforce by influencing training and educational programs and curriculum in the region
- » Opportunities to advertise job vacancies

Metal Fabrication Phase II Metal Industry Roundtable

Nov. 9, 2018, 10 am – 3:00 pm
Strathmore Municipal Library, 85 Lakeside Blvd, Strathmore



Potential Risks of a Regional Metal Fabrication Cluster

- » Lack of Financial Capacity
- » Weak cluster brand identity
- » Low cluster buy-in
- » Narrow networks (inability to connect within and outside of cluster)
- » Inability to foster innovation
- » Lack of talent
- » Infrastructure
- » Ineffectiveness of the cluster to positively impact the bottom line of regional businesses

Risk	Activity
Lack of Financial Capacity	<ol style="list-style-type: none"> 1. Leverage financial resources through broad based collaboration 2. Develop a market-based business model
Weak cluster Brand identity	<ol style="list-style-type: none"> 1. Develop strong name, brand and identity 2. Develop a strong online presence 3. Have one key point of access to cluster 4. Strong promotion - well developed marketing material 5. Regular outreach
Narrow networks/low buy-in	<ol style="list-style-type: none"> 1. Organize regular face-to-face events featuring attractive elements of membership (sector intel, investor access etc.), to strengthen cluster network 2. Implement a mentorship program to bring in entrepreneurs and startups 3. Host an annual event for a membership drive
Inability to foster innovation	<ol style="list-style-type: none"> 1. Develop makerspace/innovation lab in partnership with educational institutions 2. Run pitch events
Lack of talent	<ol style="list-style-type: none"> 1. Promote skills training opportunities on central website 2. Host courses within cluster/on job site 3. Design curriculums jointly between cluster businesses and educational institutions 4. Develop a workforce plan 5. Promote careers in metal manufacturing sector
Infrastructure	<ol style="list-style-type: none"> 1. Identify collective infrastructure priorities and develop a project plan
Ineffectiveness	<ol style="list-style-type: none"> 1. Fill positions with experienced professionals 2. Develop and implement key performance indicators

Partners and Key Stakeholders

Partner/key stakeholder	Supports
Metal Fabricators of the Wild Rose and Entre-Corp region	Core cluster
Government of Canada	Industry research & development
Government of Alberta	Industry and regional economic development expertise; grant funding
Community Futures Wild Rose	Business supports
Communities of the Wild Rose region	Financial and administrative supports, marketing and promotions
Community Futures Entre-Corp	Business supports
Communities of the Entre-Corp region	Financial and administrative supports, marketing and promotions
Rocky View County	Financial and administrative supports, marketing and promotions
Wheatland County	Financial and administrative supports, marketing and promotions
APEX Southeast Alberta Regional Innovation Network	Business development and support
Military: Forces @ work program	Workforce
Military: Base to Business program	Workforce
Careers Next Gen	Workforce
Bow Valley College	Education/training, Curriculum development and administration
SAIT	Education/training, Curriculum development and administration
Mount Royal University	Education/training, Curriculum development and administration
Olds College	Education/training, Curriculum development and administration

NEXT STEPS

STEP 1

Establish a working group to lead development of an industry-led organization

STEP 2

Develop a strategic plan

STEP 3

Conduct a pre-launch marketing campaign to engage prospective membership

STEP 4

Incorporate and launch Industry led organization

APPENDIX A: DOCUMENT REVIEW/ENVIRONMENTAL SCAN

Metal Fabrication Procurement for Development and Operations of Alberta's Ollsands
<https://open.alberta.ca/dataset/9662ff30-c3a0-47d9-8148-4e664aaa22ef/resource/56425cb4-34fd-496b-9d74-94865d4d165f/download/6112426-2011-Unlocking-the-Prize.pdf>

Overcoming the commodity management challenges in metals & mining
<https://www.slideshare.net/ekamarketing/overcoming-the-commodity-management-challenges-inmetals-mining>

<https://www.slideshare.net/ekamarketing/overcoming-the-commodity-managementchallenges-In-metals-mining>

Alberta Industrial Sector Market Opportunities Report
http://www.albertacanada.com/Alberta_Industrial_Sector_Market_Opportunities_Report--June_2010.pdf

https://www.albertacanada.com/files/albertacanada/SP-Commentary_10-18-16.pdf

Metal fabrication Canada
Alberta Metal Fabrication
<https://work.alberta.ca/documents/workforstrategy-manufacturing-industry.pdf>

<http://www.albertacanada.com/business/industries/im-about-the-industry.aspx>

Metal Fabrication Central Alberta
<http://www.edmontonindustrial.ca/manufacturing-metal-fabrication-andmachinery.aspx>

<http://www.albertasteelmanufacturers.com/>

http://www.edmontonindustrial.ca/documents/Metal_Fab_Brochure_2015.pdf

<http://www.albertacanada.com/files/albertacanada/Industrial-Manufacturingprofile.pdf>

<http://www.albertasteelmanufacturers.com/vision-mission>

Alberta Learning Information Service (ALIS)
<http://www.alis.alberta.ca/>

<http://www.cwa-acis.org/about.html>

<http://www.cme.engineering.ualberta.ca/Research/ResearchCentres/CCWJ.aspx>

<http://www.cisc-icca.ca/>

Manufacturing Alberta
<http://goproductivity.ca/workshops/innovating-for-productivity-workshop/>

Metal Fabrication Alberta
<http://www.cme-mec.ca/download.php?file=h8q5gph6.pdf>

<https://www.albertacanada.com/files/albertacanada/Industrial-Manufacturingprofile.pdf>

http://www.albertacanada.com/AIS_MF_metalfab_overview.pdf

http://www.albertacanada.com/AIS_MF_pvbenchmark_report.pdf

<https://open.alberta.ca/dataset/b53bd698-d950-4546-bbd4-b5896c3caae9/>

<https://tradesecrets.alberta.ca/trades-occupations/profiles/011/>

http://www.albertacanada.com/Alberta_Industrial_Sector_Market_Opportunities_Report--June_2010.pdf

<http://www.albertacanada.com/business/industries/im-opportunities.aspx>

<http://www.apvma.ca/>

<http://www.jwnenergy.com/>

<https://oilsandstradeshows.com/>

Calgary Region Economy + Metal Fabrication
TD Economics: Alberta recession not like the others
<https://www.td.com/document/PDF/economics/special/AlbertaRecession2016.pdf>

Economic Indicators <http://www.calgaryeconomicdevelopment.com/researchand-reports/economic-indicators/more-economic-indicators/>

Alberta Economy: Indicators at a Glance <http://www.finance.alberta.ca/aboutalberta/at-a-glance/current-economy-indicators-at-a-glance.pdf>

RBC Provincial Outlook
<http://www.rbc.com/economics/economic-reports/pdf/provincial-forecasts/alta.pdf>

Highlights of the Alberta Economy 2017

APPENDIX A: DOCUMENT REVIEW/ENVIRONMENTAL SCAN

http://www.albertacanada.com/files/albertacanada/SP-EH_highlightsABEconomyPresentation.pdf
Exports/Imports
<https://www.industrie2030.ca/download.php?id=71>
<http://www.cme-mec.ca/>
<http://www.albertacanada.com/business/export-your-products.aspx>

<http://www.albertacanada.com/business/export/international-market-profiles.aspx>
http://www.international.gc.ca/trade-agreements-accords-commerciaux/assets/pdfs/ceta-aecg/final_sectors_content-eng_v11.pdf
<https://open.alberta.ca/dataset/b53bd698-d950-4546-bbd4-b5896c3caae9/resource/ed3fceb0-40eb-4a13-8f91-887d648efe59/download/SP-AlbertaInternationalExportsIndustry-10YearReview-2004-2014.pdf>
Education and Training
NAIT <http://www.nait.ca/>
SAIT <http://www.sait.ca/>
University of Calgary <http://www.ucalgary.ca/>
University of Alberta <https://www.ualberta.ca/>
Olds College <https://www.oldscollege.ca/index.html>
Certification <http://www.albertacanada.com/business/industries/industrial-manufacturing.aspx>
Reports
The Talented Mr. Robot The impact of automation on Canada's Workforce
<http://brookfieldinstitute.ca/wp-content/uploads/2016/06/TalentedMrRobot.pdf>
Alberta Jobs Taskforce Report An Alberta Made Plan for Job Creation
<http://albertajobstaskforce.ca/wp-content/uploads/2017/02/English-Report-FINAL.pdf>
Alberta's Short Term Employment Forecast
<https://work.alberta.ca/documents/short-term-employment-forecast.pdf>
Job Growth in Clean Energy Employment in Alberta's Emerging Renewables and Energy Efficiency Sector
<https://www.pembina.org/reports/job-growth-in-clean-energy.pdf>
Pembina Institute: Portrait of Canada's Labourforce
The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis
Economic Co-operation and Development (OECD)
<http://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-012-x/99-012-x2011002-eng.cfm>
Industry Profile: Construction, GOA 2017
<https://work.alberta.ca/documents/industry-profile-construction.pdf>
Strengthening Canada's Manufacturing Sector Strengthening Canada's Manufacturing Sector
How CETA will Benefit Canada's Key Economic Sectors
http://www.international.gc.ca/trade-agreements-accords-commerciaux/assets/pdfs/ceta-aecg/final_sectors_content-eng_v11.pdf

Industry Sector Profile: Industrial Manufacturing <http://www.albertacanada.com/files/albertacanada/Industrial-Manufacturing-profile.pdf>
Canadian Apprenticeship Forum
<http://caf-fca.org/wp-content/uploads/2017/01/Member11-Exam-Supports-2.pdf>
<http://occupations.esdc.gc.ca/sppc-cops/w.2lc.4m.2@-eng.jsp>
Workforce + Metal Fabrication
Future of Manufacturing Labourforce in Canada <http://www.cme-mec.ca/download.php?file=55wlrkala.pdf>
<http://www.statcan.gc.ca/pub/11-621-m/11-621-m2016100-eng.htm>
<http://www.calgary.ca/cfod/hr/Documents/Union/UnionAgreement-CUPE-Local-709.pdf>
<http://caf-fca.org/wp-content/uploads/2014/08/Investigating-Apprenticeship-Completion-in-Canada.pdf>
News
<http://www.macleans.ca/education/how-to-be-an-apprentice/>
<https://www.google.ca/search?q=how+many+metal+apprentices+in+canada%3F&ei=lsMGWcLuMYy-2jwOEmK7wCQ&start=20&sa=N&biw=1280&bih=682>
Labour Market
<https://work.alberta.ca/labour/labour-market-information.html>

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<https://work.alberta.ca/labour/2016-monthly-labour-force-statistics.html>
<https://work.alberta.ca/labour/labour-market-forecasts.html>
<https://work.alberta.ca/documents/supply-outlook-model-visible-minorities-aboriginals-And-persons-with-disabilities.pdf> - programs and incentives
<https://work.alberta.ca/labour/occupational-demand-and-supply-forecast.html>
<https://work.alberta.ca/documents/oil-sands-construction-maintenance-and-operations-labour-demand-outlook.pdf>
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<http://www.calgaryeconomicdevelopment.com/workforce/labour-market-overview/overview/>
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<http://work.alberta.ca/department/betw.html>
[http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agp14322](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agp14322)
<http://www.acr-alberta.com/ProgramsProjects/AboriginalProgramsProject/ProgramSummaries/WorkforceDevelopment/tabid/236/Default.aspx>
<https://www.ualberta.ca/executive-education/programs/strategic-workforce-development>

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Steel Fabricators + Wildrose Region
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Steel Fabrication + Alberta
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<http://absteel.ca/>
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<http://www.thefabricator.com/>
<https://www.youtube.com/watch?v=DqDUJbZV5Bo>
<https://abas-erp.com/en/news/innovation-vital-metal-fabricators-face-new-challenges>
<http://blog.swantonweld.com/innovation-in-the-metal-fabrication-industry>
<http://www.fabtechexpo.com/>
<http://ntmetals.com/>
<https://www.metaltechindustries.ca/>
<http://www.meptec.com/>
<http://www.core77.com/posts/25163/fords-new-freeform-fabrication-technology-produces-metal-stamped-parts-without-any-stamping-or-dies-25163>
<http://www.supermetal.com/metal-structure/technology/quick-facts.aspx>
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<http://goproductivity.ca/blog/304/alberta-metal-fab-innovation-amfi-program/>
<http://ab.cme-mec.ca/?action=show&lid=UFTAL-PQ7LG-1F62R&comaction=show&cid=WXFLE-1LP-TA-3QMBB>
<http://albertatechfutures.ca/amfi/Home.aspx>
<http://innovativefab.com/>
<http://innovativemetalfab.com/>
<https://www.youtube.com/watch?v=E8U4djNtl1I>
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APPENDIX A: DOCUMENT REVIEW/ENVIRONMENTAL SCAN

Metal Fabrication + Agriculture

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<https://www.mecinc.com/markets/agriculture-construction>
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<http://www.canadianmetalworking.com/?author=1&page=463>
<https://www.albertaoilmagazine.com/2013/09/our-home-and-native-sands/>
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<http://www.onealmfgservices.com/renewable-energy.html>

<http://www.evsmetal.com/2015/08/metal-fabrication-for-alternative.html>

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<http://www.meetingscalgary.com/why-calgary/business-sectors/>
https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/www/pdf/publications/emmc/15-0177%20EM-MC-Strong%20Cdn%20EMS_e_acc.pdf
<https://www.desjardins.com/ressources/pdf/per0114e.pdf?resVer=1390922069000>

Metal Fabrication Training

<https://tradesecrets.alberta.ca/trades-occupations/profiles/026/>
<http://www.sait.ca/programs-and-courses/full-time-studies/diplomas/welding-engineering-technology>
<http://goproductivity.ca/blog/304/alberta-metal-fab-innovation-amfi-program/>
<http://www.metalfab.ca/>
<https://www.oldscollege.ca/programs/apprenticeship/apprenticeship-programs/welder/index.html>
<http://schools.cbe.ab.ca/ct-centre/welding.html>
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APPENDIX A: DOCUMENT REVIEW/ENVIRONMENTAL SCAN

Metal Fabricators + Unions & Associations

<http://www.local8.ca/>
<http://www.albertasteelmanufacturers.com/>
<http://usw6673.webs.com/home.htm>
<http://www.apvma.ca/>
<http://www.cisc-icca.ca/>
<http://www.cme-mec.ca/>
<http://cssbi.ca/>
<http://www.cwa-ac.org/index.html>
<https://www.cwbgroup.org/>
<http://ssoci.org/>
<http://www.nace.org/home.aspx>
<http://www.pma.org/home/default.asp?>
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Metal Fabricators + Jobs

<https://ca.indeed.com/Steel-Fabrication-jobs-in-Alberta>
<http://www.eluta.ca/Metal-Fabrication-jobs-in-Alberta>
<http://www.simplyhired.ca/search?q=metal+fabrication&l=alberta>
<http://www.kijiji.ca/b-jobs/alberta/metal-fabrication/k0c4519003>
<http://www.wowjobs.ca/careers-metal+fabrication-jobs-in-Calgary+AB>
<https://www.jobbank.gc.ca/report-eng.do?area=25411&lang=eng&noc=9612>
<https://www.monster.ca/jobs/q-metal-fabrication-jobs-l-alberta.aspx>
https://www.guichetemplois.gc.ca/search_location-eng.do?mid=22312&area=25349&lang=eng&noc=9612&ln=n&s=0
<https://www.linkedin.com/jobs/metal-fabrication-jobs/?country=ca>

Metal Fabrication + Employment (Media)

<http://thenelsondaily.com/news/selkirk-college%E2%80%99s-pathways-employmentexplores-opportunities-44197#.WQeHcFMrLVo>
<http://www.lvb.com/article/20170501/LVB01/170429854/steel-fabricators-growthgalvanizes-move-to-allen-town>
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<http://www.canadianmanufacturing.com/financing/alberta-trades-union-negotiateslower-rate-maintenance-jobs-176352/>
<http://www.canadianmetalworking.com/article/fabricating/fabtech-2016-closing-the-loop-for-manufacturing-perfection>
<http://calgaryherald.com/business/local-business/varcoe-alberta-gives-500m-carrotto-kick-start-petrochemical-project>
<http://thestarphoenix.com/business/local-business/local-steel-manufacturing-company-thrilled-to-help-build-the-traffic-bridge>
<http://thechronicleherald.ca/novascotia/1316796-back-from-fort-mac-workers-have-themettle-for-the-job>

Metal Fabrication + Economic Outlook

<http://www.thefabricator.com/article/shopmanagement/2017-metal-fabricationforecast-voyage-into-the-un->

APPENDIX A: DOCUMENT REVIEW/ENVIRONMENTAL SCAN

known

<http://www.thefabricator.com/article/shopmanagement/2016-capital-spendingforecast-in-metal-fabrication-the-growth-continues>

<http://www.transparencymarketresearch.com/metal-fabrication-market.html>

http://study.com/articles/Metal_Fabricator_Job_Outlook_and_Requirements_for_Starting_a_Career_in_Metal_Fabrication.html

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[Metal_Fabricator_Job_Outlook_and_Requirements_for_Starting_a_Career_in_Metal_Fabrication.html](http://study.com/articles/Metal_Fabricator_Job_Outlook_and_Requirements_for_Starting_a_Career_in_Metal_Fabrication.html)

<https://www.jobbank.gc.ca/report-eng.do;jsessionid=91CDDE5FC342F4B15DA7B0A45583FB4F.imnav4?action=final&area=0236&noc=9612&s=2&source=6>

<http://www.prnewswire.com/news-releases/metal-fabrication-market---global-industryanalysis-size-share-growth-trends-and-forecast-2016---2024-300388066.html>

<http://www.marketwatch.com/story/metal-fabrication-market-set-to-be-worth-us2138-billion-by-2024-global-industry-analysis-revenue-share-trends-and-forecast-up-to-2024---tmr-2016-09-15-92033115>

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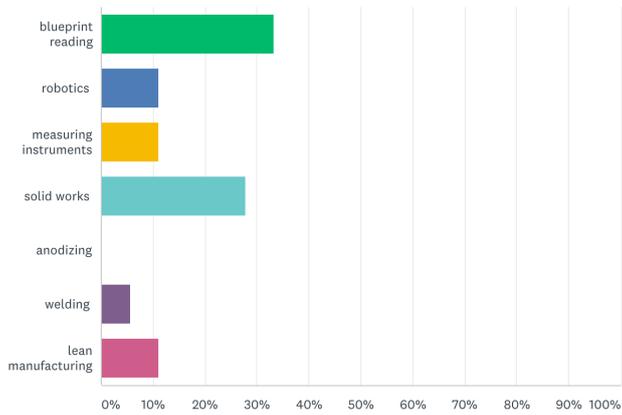
<http://money.ca/news/2017/01/09/metal-fabrication-market-global-industryanalysis-size-share-growth-trends-and-forecast-2016-2024-2/>

<https://www.linkedin.com/pulse/global-bending-sheet-metal-fabrication-market-2017-worldwide-john>

APPENDIX B: SURVEY RESULTS

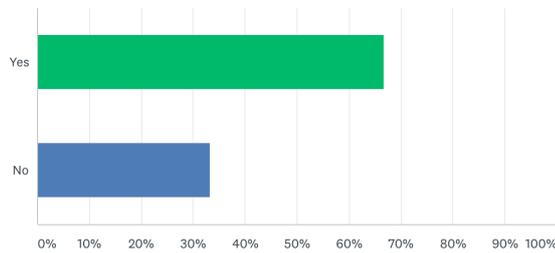
Q1

What are your current training needs?



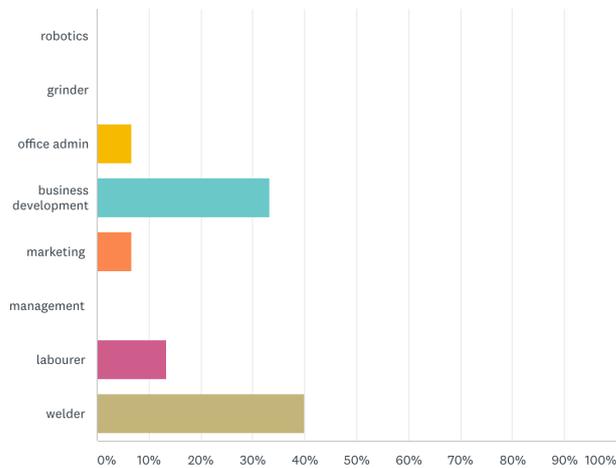
Q2

Do you have current hiring needs?



Q3

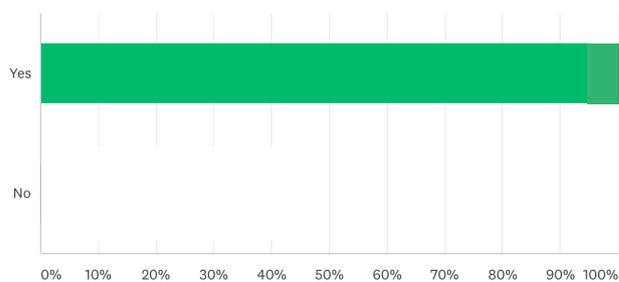
If yes, what positions?



APPENDIX B: SURVEY RESULTS

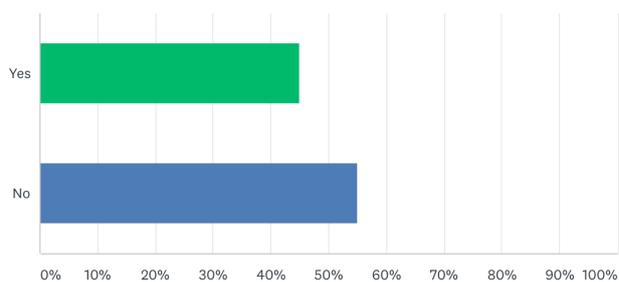
Q4

Do you have an Interest in building collaborative solutions?



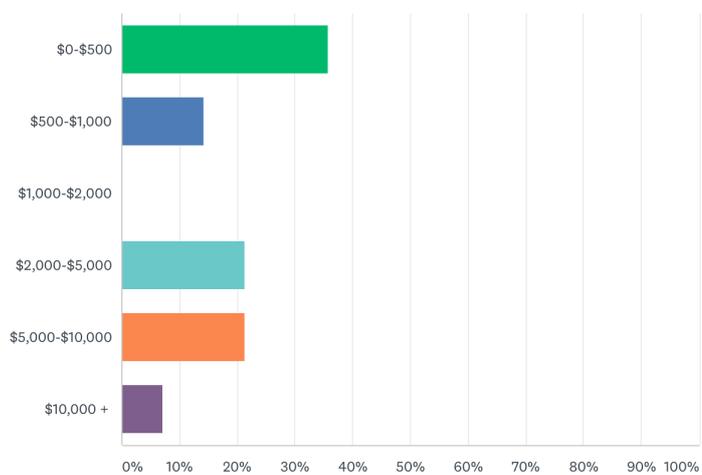
Q5

Do you train or provide professional development?



Q6

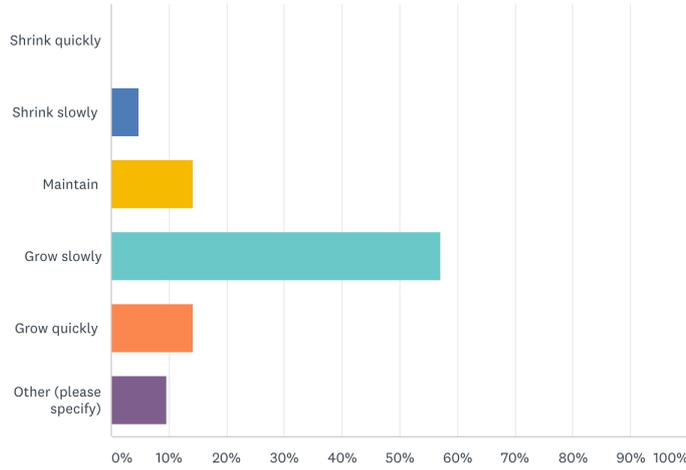
If so, how much per year?



APPENDIX B: SURVEY RESULTS

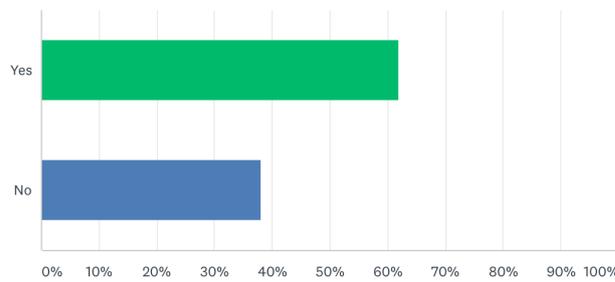
Q7

Do you plan to:



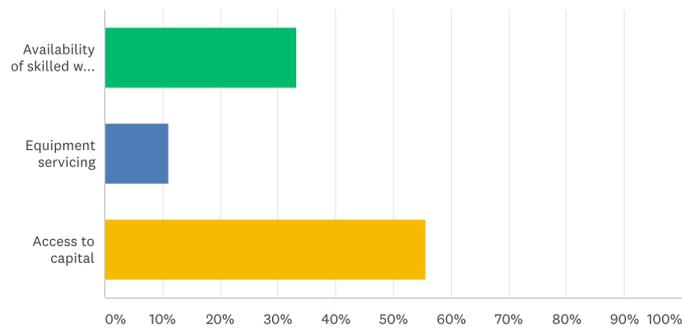
Q8

Are there barriers to adopting new technology?



Q9

If so, what?



Q 10: What can local, provincial or federal governments do to remove barriers to success?

Taxes, trade tariffs.

9/17/2018 3:23 PM

Trade within North America is causing growth pain,

9/13/2018 3:09 PM

Give financial assistance to those who want to start a small business.

8/11/2018 10:44 AM

Outdoor advertising is impossible in MD foothills.

8/7/2018 3:21 PM

Provide business training

8/3/2018 2:27 PM

Make acquiring start up capital easier for small single person outfits

8/1/2018 6:39 PM

lower taxes.. more money in my pocket means more money to invest back into growth

8/1/2018 5:32 PM

Give financial assistance to those who want to start a small business.

8/1/2018 12:59 PM

Unsure.

7/10/2018 11:16 AM

Pre-employment program

6/15/2018 1:02 PM

Provide business planning support, innovation support, funding

6/15/2018 12:29 PM

New OHS assistance to train to new regulations. Under 10 employees - onerous to meet demands. Identifies safety person, worksite inspections. This training was not provided when they went to school.

5/7/2018 11:48 AM

Change laws to allow me to bring in skilled workers.

3/27/2018 1:34 PM

This project was made possible through the support of The Government of Canada, the Government of Alberta, and our partnering communities, organizations and businesses.



The Province of Alberta is working in partnership with the Government of Canada to provide employment support programs and services.

