

Attracting Foreign Investment to Northern Saskatchewan

Two Approaches for the 21st Century

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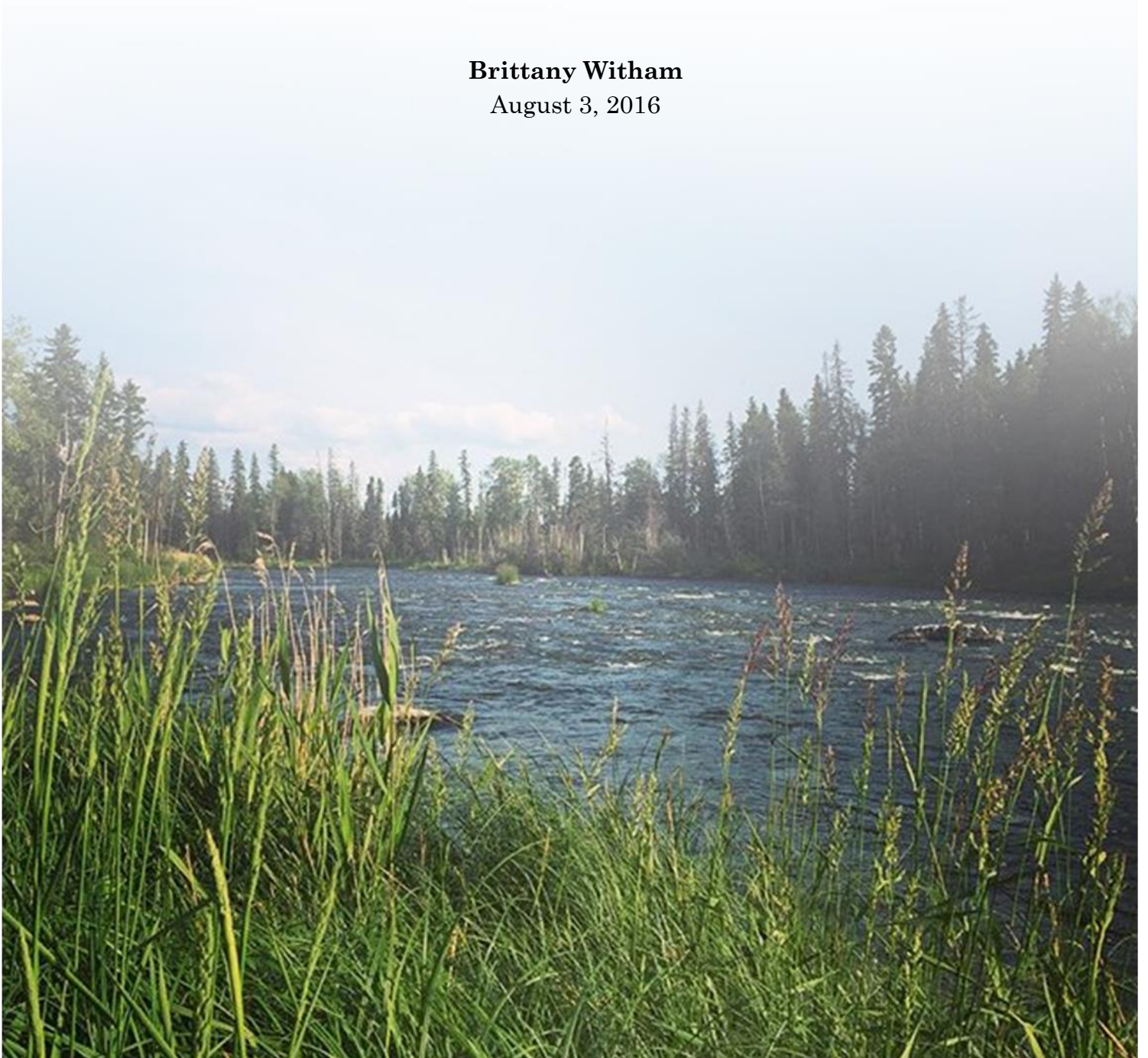


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Introduction

Northern Saskatchewan's great economic potential disproportionately outweighs the little attention it receives. The region's current economic conditions have meant that attracting foreign investment to Northern Saskatchewan is often dismissed as too difficult, too expensive, or simply impossible. However, the future direction of the world economy will make the opportunities in Northern Saskatchewan more promising over coming decades, and therefore, a change in strategy must be made now.

This analysis takes a long-term view, assuming that global market conditions will transition away from fossil fuels and heavy manufacturing towards renewable energy and high-tech industries over coming decades. While Northern Saskatchewan faces severe diseconomies of scale to attract conventional industry, its potential could be met with investment in more modern industries. As such, this report outlines two investment attraction strategies available to Northern Saskatchewan: industrialization, and modernization.

Additionally, Norway, Sweden and Finland (together termed "Fennoscandia"), and the US state of Alaska are recommended as partners for these ventures. The economies and policies of these regions will be contrasted with that of the Northern Administrative District of Saskatchewan (also termed "Northern Saskatchewan" or simply, the "North"), containing 45 communities and 37,000 residents located north of Prince Albert.¹ The key findings of the report are summarized below.

Figure 1: Summary of Report Findings

Key Findings

1. Northern Saskatchewan operates as a separate and severely underdeveloped economy than Southern Saskatchewan despite its great potential, warranting it an alternative investment attraction strategy.
2. Companies from Norway, Sweden, Finland and Alaska are ideal inbound investors for Northern Saskatchewan based on similarities in climate, population, distances, and indigenous peoples as articulated in their successful Arctic policies.
3. The Ministry of Economy can choose to either:
 - a. Continue with the industrialized approach to value-added manufacturing outlined in the *Vision 2020: Plan for Growth*
 - b. Pioneer a modernized investment attraction strategy emulating Fennoscandian development policies to build high-tech, knowledge based industries
4. It is in Northern Saskatchewan's best interest to transition out of industrialization towards modernization, to capitalize on its high youth population, existing digital infrastructure, and improvements made in advanced education.
5. Successful development through high-tech modernization would lead to greater long-term benefits for the Northern population, achieved through incremental improvements to the business climate

Saskatchewan's Two Economies

“Northern Saskatchewan operates as a separate and severely underdeveloped economy than Southern Saskatchewan despite its great potential, warranting it an alternative investment attraction strategy.”

Development

Gross Domestic Product (GDP) per capita, though typically used to measure the development of a region, does not fully evaluate the standard of living in Saskatchewan’s North. GDP per capita in both Northern and Southern Saskatchewan lies somewhere around \$32,000.² But in Northern Saskatchewan, this better reflects the booming mining industry and sparse population. The wealth of its residents, on the other hand, tends to lie around \$21,000.³ To mitigate this issue, the United Nations created the Human Development Index (HDI) to evaluate life expectancy, educational attainment and GDP per capita to give a more holistic view of a region’s quality of health, education and economy. In Southern Saskatchewan, when these factors are combined, it gives an HDI value of 0.844. If Southern Saskatchewan were a country, this index would rank it 35th-best in the world, comparable to Slovakia. However, when the same values are calculated for Northern Saskatchewan, the quality of life drops 50 places to 85th. This would make the development of Northern Saskatchewan similar to Algeria. This fact is made starker because a large part of this measure (GDP per capita) is about the same for each. If it were removed, the differences in health and education would be even more pronounced.

Human Development Index	Rank	Similar
Northern Sask.	0.739	85 th Algeria
South Sask.	0.844	35 th Slovakia

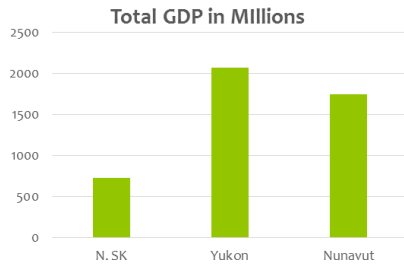
Figure 2: Human Development Index for Northern and Southern Saskatchewan

Northern Saskatchewan’s HDI index reflects real-life struggles. A study released by the International Center for Northern Governance and Development (ICNGD) at the University of Saskatchewan found that many Aboriginal residents of the North “continue to struggle with significant socio-cultural problems, while making significant efforts towards overcoming systematic barriers to economic, social, and political participation.”⁴ Unfortunately, the systemic barriers often include inadequate housing, problems with addiction, and widespread poverty. This contrasts greatly to Southern residents’ high quality of life. In sum, Southern Saskatchewan classifies as a first-world economy, while Northern Saskatchewan teeters on third-world.

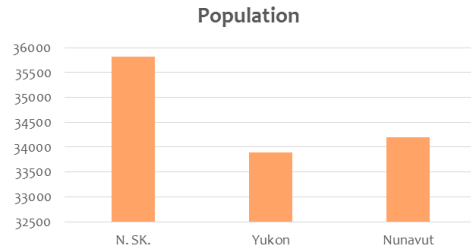
Challenges

The economic challenges Northern residents face help to explain these circumstances. To begin, more than 60% of the working-age population is unemployed, a figure that has worsened since 2006.⁵ Secondly, 46% of Northern residents did not finish high school.⁶ It is unclear in which year these students dropped out, leaving the question of educational attainment in Northern Saskatchewan wide open.

These circumstances become bleaker when compared to Nunavut and Yukon. As illustrated on the graphs below, the value of Northern Saskatchewan's economy is less than half of either of these territories, despite having a population that exceeds either jurisdiction.⁷



N. SK. – 729.3
 Yukon - 2063.9
 Nunavut – 1741.9



N. SK – 35,819
 Yukon – 33,897
 Nunavut – 34,196

Source: KCDC

Outside of economic statistics, Northern Saskatchewan has unusually deficient infrastructure, limited to no natural gas, inefficient energy consumption, and poorly insulated houses.⁸ At their worst, these factors contribute to third-world living conditions on some First Nations reserves.



A well-worn trail beside Highway 2 between Air Ronge and La Ronge serves as a popular summer route for residents of the surrounding area without access to a car.



A typical house on-reserve.

Improvements

Despite these challenges, positive changes are taking place. For example, SaskTel is improving telecommunications in the North. Figure 3 illustrates SaskTel's wireless cell phone service for Northern Saskatchewan, of which the coverage for communities like Wollaston Lake has greatly improved in recent years.⁹ These improvements are complemented by advances in high-speed wireless internet connection as far north as Stony Rapids. Access to these technologies places Northern residents on a more even playing field to Southern residents, with equal access to social media, online classes, and research and knowledge-sharing.

Education and apprenticeship rates are also improving. This means that a higher proportion of the North's large youth population is realizing their potential. This is significant because 40.6% of northern residents are under age 15.¹⁰ As a result, institutions such as Northlands College in La Ronge are expanding into higher-level courses that award university qualifications, as these programs tend to quickly reach enrollment capacity.

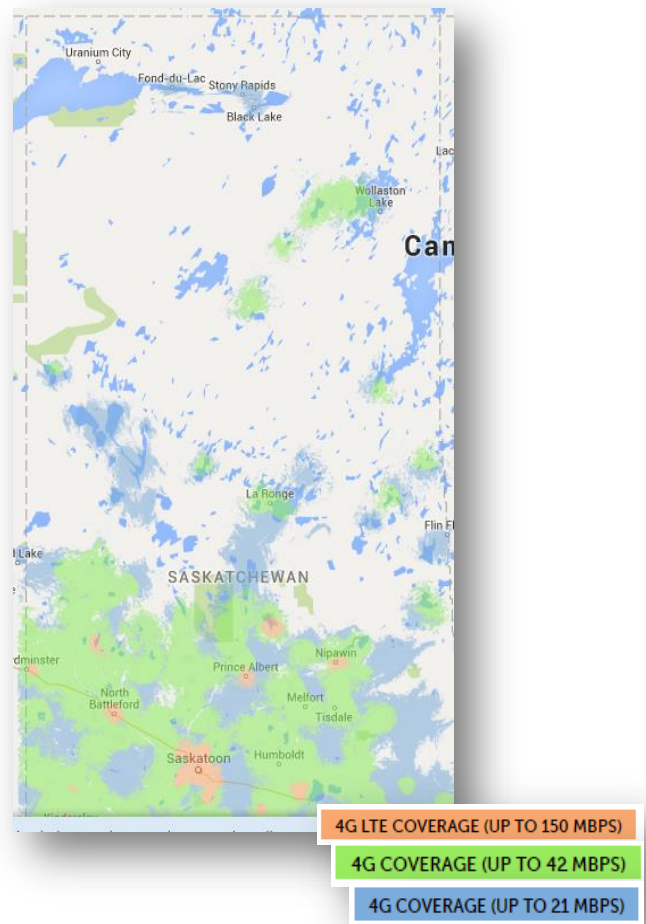
These improvements hint that Northern Saskatchewan's greatest drawbacks are starting to be reversed. Though systemic barriers such as housing, addiction, and poverty often lie outside the scope of the Ministry of Economy, improving educational attainment and providing up-to-date telecommunications will help improve the regions' development.

Arctic Inbound Investors

"Companies from Norway, Sweden, Finland and Alaska are ideal inbound investors for Northern Saskatchewan based on similarities in climate, population, distances, and indigenous peoples as articulated in their successful Arctic policies."

This section answers the question, "why partner with Arctic countries?". Many of the countries bordering the Arctic Circle encounter similar challenges to Northern Saskatchewan, but have come up with more innovative solutions to solve them.

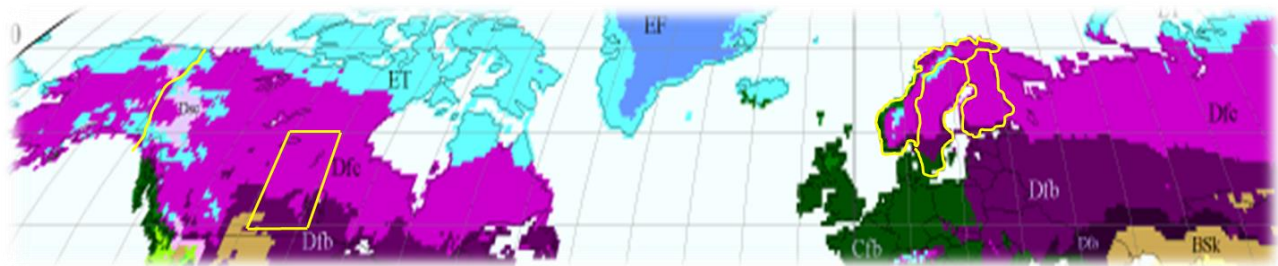
Figure 3: Wireless Cell Coverage in Northern Saskatchewan



Similarities to Arctic Climates

Despite conventional thinking, the climates of far Northern Europe and Northern Saskatchewan are quite similar. A popular method of climate classification developed by Koeppen and Geiger explains these similarities, as illustrated below.¹¹ Norway, Sweden, Finland, and our province share snowy winters, humid precipitation, and cool summers, or a “Dfc” climate. Southern Saskatchewan’s climate is somewhat similar to Southern Sweden’s but overall shares more in common with the Eastern US. Therefore, the challenges associated with climate are likely to be more familiar for US investors for Southern Saskatchewan, but Fennoscandian investors may identify better with Northern Saskatchewan’s climate.

Figure 4: Koeppen-Geiger Climate Map Highlighting Saskatchewan and Fennoscandia



Alaska:

Dfc: Snowy winters, humid precipitation, cool summer
 ET: Polar tundra

Saskatchewan:

Dfc: Snowy winters, humid precipitation, cool summer
 Dfb: Snowy winters, humid precipitation, warm summer
 BSk: Cold arid steppe

Norway:

Dfc: Snowy winters, humid precipitation, cool summer
 Cfb: Warm, humid, warm summer
 ET: Polar tundra

Sweden:

Dfc: Snowy winters, humid precipitation, cool summer
 Dfb: Snowy winters, humid precipitation, warm summer
 Cfb: Warm, humid, warm summer

Finland:

Dfc: Snowy winters, humid precipitation, cool summer
 Dfb: Snowy winters, humid precipitation, warm summer

The second component is the importance of the Arctic for this analysis. The Arctic Circle begins at the 66th parallel, a full six degrees of latitude further north than Saskatchewan’s border. However, whereas the Canadian arctic is characterized by vast, largely inaccessible polar tundra; Fennoscandia’s Arctic is moderated by its surrounding seas and relatively small land area. This is why the Norwegian city of Tromsø, which lies at 70° north, enjoys an average January temperature of -4.4°C.¹²

Arctic Development Policies

With this in mind, we can further analyze how the European Arctic is planning to develop. The following table summarizes the top policy priorities for Norway, Sweden, and Finland. The European Union (EU) also contributes investment funds to the Arctic, which are accessible to Sweden and Finland, but Norway is excluded as a non-member of the EU. Phrases like ‘international cooperation’, ‘sustainable’, ‘science and industry’, and ‘environment’ come up several times, which illustrates these regions’ long-term commitment to modern development.

Table 1: Priorities of Selected Arctic Development Policies

Norway ¹³	Sweden ¹⁴	Finland ¹⁵	EU ¹⁶
International cooperation	Sustainable resource extraction using renewable energy	Develop infrastructure to utilize natural resources of the Arctic	Advancing international cooperation
Knowledge-based development & business sector	Improving transport infrastructure	Regulate development in cooperation with EU and IOs	Responding to climate change
Continue to develop high-quality infrastructure	Gather expertise from other Arctic regions (inc. Canada)	Promote international investment through Arctic expertise	Contribute to sustainable development
Emergency and environmental protection	Collaborate with researchers to monitor environment	Develop centers to promote cooperation between business and research	Develop green and blue economies

Alaska’s state-level policies also reflect this approach, though it can conflict with Washington DC’s intentions for the state. A White House policy outlining its goals for Alaska’s development focuses on the military and resource advantages the state gives the US, with little mention of the indigenous peoples or sustainable development in a fragile ecosystem.¹⁷ But the state of Alaska itself is far more involved in renewable energy, growing indigenous cooperatives and diversifying away from oil. For example, the state-funded Alaska Industrial Development and Export Authority has a diversified portfolio of investments that span tourism, commercial office buildings, utilities, and other infrastructure.¹⁸ In doing so, Alaska acts more like the Nordic countries in terms of development values. These form an excellent basis for an ongoing investment relationship with Saskatchewan.

To exemplify how these goals are implemented, we can take the example of the NORDSATSING Initiative, led by the Research Council of Norway. There, it is a federal priority for the Northern population to have “good educational opportunities at all levels ... developed in cooperation between the public authorities, the business sector, knowledge institutions, and educational and research institutions”.¹⁹ A series of infrastructure projects have been planned along the Norwegian coastline to implement this, which reaches above the Arctic Circle and skims Sweden and Finland’s northern borders.²⁰ Its funding structure reflects the SINED investments the Federal Government of Canada provides for projects in the territories.²¹ The EU has a similar allocation of funds through the European Investment Bank (EIB), based in Luxembourg but accessible by Swedes and Finns living in the Arctic.²² These funds are crucial for infrastructure investments and special projects that may not fall in other budgets.

Industrialization

“The Ministry of Economy can choose to continue with the industrialized approach to value-added manufacturing outlined in the Saskatchewan Plan for Growth: Vision 2020 and Beyond.”

With the development of Northern Saskatchewan and the applicability of Canada's Arctic partners established, the first of two approaches to foreign investment attraction is presented in the following section. The term "industrialization" will be used to define the manufacturing activities that add value to Saskatchewan's existing strengths in mining, agri-value and oil & gas. This approach reflects Saskatchewan's investment attraction approach as outlined in the *Plan for Growth*, and is in line with the Ministry's existing strengths and activities.²³ While industrialization can lead to progress for Northern Saskatchewan, the current barriers to investment will be significant to overcome.

Value-added Opportunities in Northern Saskatchewan

1. Mineral Exploration & Production

Exploring and developing the mineral resources of Northern Saskatchewan should continue to be a priority for investment attraction. The mining sector and its supporting industries are the largest employer in Saskatchewan's North.²⁴ Ongoing development was recently exemplified by De Beers announcement to spend \$20 million exploring Saskatchewan's kimberlite fields for diamonds.²⁵ Saskatchewan's existing regulations, such as the Mine Surface Lease Agreement, means that development in this area can be undertaken sustainably and in cooperation with local First Nations.²⁶ The employment and wealth circulation that large mining operations can produce is significant enough to garner further activity in this area.

2. Mining Supply Chain

Northern Saskatchewan's mining supply chain industry is made up of competitive companies that operate with little interaction with the South. Cameco sources 72% of its supplies from Northern providers, making investment in this area over the long-term quite sustainable, given the lengthy lifespan of a uranium mine. French company Sodexo has already expressed interest in getting involved in areas such as catering for mine workers.²⁷ This international interest is encouraging for the mining supply chain industry to continue growing with foreign investment.

3. Forestry

Saskatchewan's forestry sector is mainly concentrated around the Prince Albert area, but the commercial forestry zone extends far enough to warrant value-added operations further north. These could range from custom log cutting to furniture manufacturing, all on a small scale. Investment in these areas could be attractive to foreign investors based on the easy access to input supply, financing small-scale operations, and easy access to the North American market.

4. Fisheries

Successes in commercial fishing cooperatives are an encouraging further investment in value-added fishing. After several troubled years for commercial fishing in Saskatchewan, plans for a new processing plant are gaining traction, which is poised to revitalize the industry.²⁸ Some estimate the new venture in Île-la-Crosse could double freshwater fish production in the province.²⁹ The long

history of fishing in the region and positive community buy-in make investing in commercial fisheries in Saskatchewan a unique opportunity for foreign businesses.

5. Non-Timber Forest Products

The non-timber forest products industry is growing, and experts in Fennoscandia are evaluating the market for further expansion. These products include nature-based services, tourism, foraging, and non-industrial hunting and fishing.³⁰ Traditional methods can be modernized into micro-economies, and establishing a network amongst them could develop the industry and promote entrepreneurial success.

6. P3s in infrastructure

Despite these opportunities, infrastructure does not currently exist in most Northern communities to meaningfully support industrial activity. The problem is two-fold. First, investment in infrastructure is slated as the first goal of the Saskatchewan *Plan for Growth*.³¹ Despite its prominence in the plan, very little investment in critical infrastructure has taken place beyond Prince Albert. Secondly, the federal government is encouraging the use of public-private-partnerships (P3s) to develop infrastructure for industry using private sector funds.³² Despite the support from the federal government, none of the current projects are located in Northern Saskatchewan. The idea of using private money to develop the formerly public realm of infrastructure is relatively new, but increasingly popular. The Organization for Economic Cooperation and Development (OECD) has acknowledged that the costly infrastructure requirements for rapid economic growth in many developing countries are prohibitively expensive given the financial limitations of their governments. The organization therefore calls for private investment in infrastructure to make up the gap in funds for the following reason:

“ From an economic growth perspective, infrastructure is not only an enabling factor for development and for facilitating private investments and competitiveness across all sectors of national and regional economies, but can also be an attractive investment opportunity in itself.”³³

Modernization

“The Ministry of Economy can choose to ... pioneer a modernized investment attraction strategy emulating Fennoscandian development policies to build high-tech, knowledge-based industries”

The second approach to foreign investment attraction to Northern Saskatchewan will be described using the term “modernization”. This represents an entirely different approach to investment attraction, focusing on building industries that will better serve Northern Saskatchewan over the long-term. It is inspired by the regional development policies of Norway and the Arctic EU, which are using innovation and renewable energy to develop Europe’s Northern reaches.

Successful Investments

In the next four years, approximately €50 billion (about \$72 billion CAD) will be invested in the Northern jurisdictions of Norway, Sweden, Finland, and the Murmansk and Arkhangelsk regions of Russia. Though much of it still revolves around resource extraction, particularly in the Russian regions, the fastest-growing sectors are those in knowledge-based business, renewable energies, and tourism. Finland alone will see about €16 billion invested in its northern provinces of Lapland, Oulu and Kainuu.³⁴ Russia, on the other hand, is pursuing a strategy to build up mining and oil & gas extraction, a venture warranting about half this amount of investment in the regions bordering Finland.³⁵

European High North investments 2016–2020 by Regions
Regions /million €

Lapland	3.246
Oulu Region	11.716
Kainuu Region	1.210
Norrbotten	8.495
Västerbotten	4.045
North of Norway	12.465
Murmansk Region	2.635
Arkhangelsk Region	5.925
Total	49.737

Figure 5: Selected Investments in European Arctic, 2016-2020

Modernized Opportunities in Northern Saskatchewan

Saskatchewan can emulate the same goals as the European Arctic in sustainable, knowledge-based technology by focusing on the following sub-sectors. By building a base of **efficient** and **renewable energy**, industry can transition into areas like **biofuels** and **internet communication technologies**. Once a basis is established for the development of technology, the province could attract research institutions and private companies to invest in the development of **cold climate and environmental technologies**, at which point Northern Saskatchewan could compete with Norway and Sweden. Successes in these areas would make the foray into **robotics** more feasible.

Though competitiveness would have to be established at each stage of this progression, all of these sub-sectors are based off existing industries in Fennoscandia and Alaska, making these regions ideal partners for investment attraction. European companies such as Novozymes and ABB have a presence in Saskatchewan and are already getting involved in upcoming industries like biofuels and industrial robotics. Saskatchewan should capitalize on these connections to foster further targeted investment in the province.

1. Liquefied Natural gas

Efficient energy consumption is a prerequisite for more advanced industry to take root in Northern Saskatchewan. In order to have even small-scale, low-energy operations active in the North, natural gas supplies will need to be strengthened. A report released by the Saskatchewan Research Council outlined a strategy to develop a “virtual pipeline” to supply Northern communities and the mining industry with liquefied natural gas.³⁶ This will help ease the current dependency on oil, wood and electricity many households depend on for heat in the North.³⁷

2. Renewable Energy

The most promising forms of renewable energy investment for coming decades are wind power and solar power. In Sweden, wind power will garner more investment than resource extraction over the next few years.³⁸ This is mobilizing investors to get involved in renewable forms of energy, and Northern Saskatchewan would be an ideal place to locate. Secondly, solar power has been proven to be more efficient in snowy climates. Scientists at Michigan Technological University discovered that the efficiency of solar panels increases in areas where the snow reflects the sun.³⁹ These advantages can help position Saskatchewan as an ideal place to make these investments.

3. Biofuels

Biofuels are another booming industry for the 21st century, and Finland is already a leader. The country aims to be at the forefront of developing biofuels using wood inputs, thereby maintaining its existing forestry industry as the market transforms.⁴⁰ Novozymes, a Danish company with a presence in Saskatchewan, pioneered technology to turn sawdust into biofuel in Finland.⁴¹ Biofuels using sawdust inputs would be well-placed in the North. Saskatchewan companies are already active in biofuel, with Milligan Biofuels producing fuels from damaged canola in Foam Lake. Diversifying into wood-based and canola inputs would strengthen Saskatchewan's position in this upcoming industry. Finnish expertise and investment would therefore be a great asset.

4. ICT

Information Communication Technology (ICT) characterizes future digital industry. As computers transition away from individual hard drives towards "cloud"-based online servers, demand will grow to house datacenters. The most expensive component of running a datacenter is the cost of cooling the thousands of servers contained inside one.⁴² However, a solution can be found by locating datacenters in places that rarely get high temperatures. As a result, Google and Facebook are leading the way by investing billions of dollars in datacenters in Arctic regions of Europe, and pairing them with wind farms to supply green power. According to the Globe and Mail, more datacenters are being located in Canada to take advantage of the cold winters, but no mention of Saskatchewan was made.⁴³ These operations are the backbone of digital industry, and will become more important in the future. Saskatchewan ought to position itself as a leader.

5. Cold Climate Technologies

Norwegian and Swedish companies are monetizing advancements made in sub-zero technologies. These focus mainly around aspects of living and working in Arctic regions that are made more difficult by the very low temperatures: construction, housing, mechanics, etc. The National Research Council of Canada is involved at the scientific level of these developments, but so far, Canadian regions have not benefited by the large investments made by Royal Dutch Shell and Statkraft (among others) in these ventures.⁴⁴ Saskatchewan's climate and university connections would make advancements in this area possible, but no investment has been made.

6. Environmental Technologies

The high-Northern city of Tromsø in Norway houses the High North Research Centre for Climate and the Environment, otherwise known as the FRAM Center. It serves as a hub for Arctic researchers, and contact with academics from Saskatchewan has yet to extend to commercialization. If improvements in advanced education continued to be made in Saskatchewan's north, the province could partner with world-class companies to extend the discoveries of their research to Canada.

7. Robotics

Robotic manufacturing using these advancements could compete globally, while conventional manufacturing could not. In place likes South Korea and Japan, the ratio of robots to manufacturing workers is quickly rising, accredited to the high-quality products robots can produce with great efficiency.⁴⁵ But similar to the dilemma presented by datacenters, the high energy consumption of maintaining these operations can be a barrier to investment. Instead, Northern Saskatchewan could establish itself as a low-temperature business climate suitable to house these operations; especially when powered with renewable energy inputs.

Finding success in these areas may seem unattainable from where we stand in 2016. But the table below shows how many projects in these areas will be realized within the next four years in Finland (green) and Sweden (orange).

Company	Investment	Value (€)
Kaidi Finland OY	Biofuel Refinery	1,000,000,000
Boreal Bioref Oy	Bioproduct plant	800,000,00
Aurora project	Arctic testing ecosystem	35,000,000
Oulun DataCenter Oy	Datacenters & cloud services	400,000,000
ST1/ North European Biotech Oy	Biofuel refinery (using sawdust)	40,000,000
Facebook	Datacenters	1,000,000,000
Markbygden Wind Farm	Wind power projects	2,000,000,000
Google	Wind power projects	1,500,000,000

Some highlights include:

1. Oulun DataCenter Oy

This company runs a datacenter for cloud technology located in Oulu, notable as the same city that Nokia is headquartered. The project is converting job losses from manufacturing Nokia phones by transitioning into newer technology.⁴⁶

2. ST1/North European Biotech Oy

This major biofuel project uses sawdust as an input, in order to maintain Finland's forestry industry in 21st-century applications. Northern Saskatchewan has an interest in developing small-scale forestry operations, but without a viable market, its potential is limited. Biofuels provide a solution, and collaboration with Finland would be a great start.

3. Google

Google is investing in new wind farms in Sweden to power its Arctic datacenters. The company prides itself on having "the most efficient data centers in the world", citing that their operations typically use about 50% less energy than the average data center.⁴⁷ It is also a mandate of Google's to use renewable power, which has spurred on investments in a neighboring wind farm. The total cost of projects like these can top \$3 billion. This shows the long-term nature of investments, and commitment to high quality of life.

Analysis

"It is in Northern Saskatchewan's best interest to transition out of industrialization towards modernization, capitalizing on its high youth population, existing digital infrastructure, and improvements made in advanced education."

The investment opportunities in industrialization and modernization can be bolstered by international collaboration and investment. In the long-term, the modernized strategy provides Northern Saskatchewan with the best possible returns on investment – both economic, and social.

Evaluating Industrialization

Despite frequently negative evaluations, Northern Saskatchewan has significant comparative advantages. Its greatest business advantage is perhaps its **high youth population**. Because so many

Northern residents are preparing for the work force; businesses are able to access steadily increasing labor.⁴⁸ This goes hand-in-hand with an increasing **capacity to train the workforce** in trades and higher qualifications. Both Northlands College and the Gabriel Dumont Institute – the two leading post-secondary institutions in the North – are seeing record numbers of enrollments. Due to these factors, **Northern businesses are able to remain competitive** and thus supply Cameco and AREVA's Northern mining operations. This makes their suppliers world-class businesses, as these firms represent two of the largest mining companies in the world. As a result, Northern suppliers often expand into more work within their communities, which creates jobs.

Despite these advances, challenges remain. The foremost hindrance to business development in the North is the **lack of infrastructure**. To pursue medium- to heavy-industry in the north, requirements for utilities like water, electricity and natural gas are simply not met. This makes the prospect of developing a manufacturing plant up in Northern Saskatchewan unattractive, as the costs of installing the necessary utilities or supplying more costly alternatives (such as propane for natural gas), are too restrictive. For example, the town of La Ronge was only supplied with natural gas within the last three years.⁴⁹ Moreover, other Northern communities do not have this benefit.

Secondly, it is **difficult for businesses to acquire land**. The vast majority of the Northern Administration District's land is overseen by the Ministry of Environment rather than local municipalities, so securing plots of industrial land is often more difficult in the North than in the South.⁵⁰ *The Indian Act's* role in governing First Nations reserves is also a severe hindrance to investment on First Nations land. A lack of access to land is a severe impediment to investment, making large-scale industrial operations less feasible.

Third, **industry infrastructure investments are too inconsistent**. Cameco is often praised for giving back to communities in the North, but their Sustainable Development Reports from the past few years tell a different story. In 2013, no "investments in local community infrastructure" were made.⁵¹ In 2014, the company contributed \$90,000 to a highway and \$84,000 to improve a local hockey rink; but it spent 62% more than the combined value on these investments on projects in Saskatoon – an already highly-developed community.⁵² The combined \$400,000 the company spent on the Saskatoon Children's Hospital and Remai Art Gallery would have qualified for a sizeable tax benefit.⁵³ Therefore, the North cannot depend on government or industry to provide infrastructure consistently.

Evaluating Modernization

The advantages of modernization are significant – almost utopian – and present outcomes that are currently hard to visualize for the disadvantaged North. To begin, modernization has far **less impact on the environment** than 20th-century industry. It is typified by smaller operations relying primarily on digital infrastructure. This is a good fit for northern Saskatchewan, as many centers already have high-speed internet. Restrictions on purchasing crown land also make running smaller operations in Northern Saskatchewan municipalities more feasible. Furthermore, because the energy requirements of such operations are generally lower, running them entirely from renewable energy is more feasible. Even more energy-consuming operations like datacenters are already being run on renewables, as exemplified by Google.

Less environmental destruction associated with Ministry activities would mean for a greater chance at **indigenous community buy-in**. The Assembly of First Nations, based in Ottawa, focuses a policy area on Environmental Stewardship; emphasizing the First Nations' approach to the "holistic view that everything is interconnected [and] ... humanity is part of the ecosystem".⁵⁴ Digital industry may open pathways for intercultural learning in this area, which would benefit the long-term prospering of the Northern environment. This is an important consideration because over 85% of Northern residents are of First Nations descent.

The youthful Northern workforce is also likely to want to **train for digital jobs** requiring more advanced qualifications. Despite the large portion of Northern residents who failed to complete high school, 6.9% have bachelor's degrees and a 1.2% has a graduate or post-graduate degree.⁵⁵ Northlands College's fastest growing programs are not blue-collar, as demand has shifted towards high-tech expertise and university programs. This represents the seemingly natural progression from blue-collar to white-collar industries as an economy develops, or the belief that children will have a better future than their parents. Skipping this progression allows the province to save the environmental fallout of industry and accelerate the economy more quickly.

However, reaching these goals will be met with challenges. Firstly, advanced education in Northern Saskatchewan lags behind that of the territories, Alaska, and certainly the Nordic countries. High-level training is often required for high-tech jobs, but Northern Saskatchewan is only beginning to meet these challenges. Secondly, digital industries often require less people, so job creation is not as amplified. This means that two or three small-scale modernized industries might have to be attracted for every one industrial company, to match its job creation potential. However, forming a northern “hub” similar to Innovation Place in Saskatoon could encourage multiple companies to relocate.

But these industries will also depend on financial institutions that are currently few and far between in the North. La Ronge has two banks and Buffalo Narrows a credit union, making banking very difficult or informal outside of these areas. Despite the strides made in online banking, it does not necessarily represent an effective alternative to a physical branch for business transactions.

International Partners

Fortunately, current investment patterns in the European Arctic reflect both the industrial and modernized strategies. The table below summarizes the areas in which Sweden, Norway and Finland have expertise, and serve as an opportunity for investment in Saskatchewan.

	Industrialization	Modernization
Norway	Fisheries Mineral Exploration & Production Mining Supply Chain Forestry Non-Timber Forest Products P3s in infrastructure	Wind Power Datacenters
Sweden	Mining Mining Supply Chain P3s in infrastructure Furniture manufacturing	Tourism Car testing Wind Power Datacenters
Finland	Mining Mining Supply Chain Forestry	Bioenergy Wind Power Datacenters

Figure 6: Active industrial and modernized sub-sectors in Fennoscandia

Mining and its supply chain are common amongst industrialized sectors of the economy in all the Fennoscandian countries; whereas wind power and datacenters are bright spots in modernized sectors. For example, Sweden promoted itself as an ideal location for automotive manufacturers to test their cars in winter conditions.⁵⁶ Because so many companies are active in sectors Saskatchewan is already pursuing, or would be logical to pursue in future, making contact with businesses and economic development officials in these countries is essential.

Visualizing Modernization

Attracting high-value, knowledge-based investment is not a trait unique to Northern regions. Since 2008, Ireland has been the world leader in attracting high-value international investment. After seeing the movement of labour from formerly industrial Ireland to the Southern hemisphere, the Irish government built a new strategy to attract high-tech digital sector companies.⁵⁷ Their successes are exemplified by the presence of Microsoft and IBM in Dublin. As a result, 187,000 jobs have been created in Ireland from investment attraction.⁵⁸

Similarly, in recent years the Malaysian government realized it would struggle to compete with the low-value manufacturing of its Southeast Asian neighbours. Instead, it chose to start a national digital industry initiative and establish a digital business corridor in the capital, Kuala Lumpur.⁵⁹ As a result, the products of its modernized economy can compete with those from Singapore.

These developments tie into a larger movement taking place in the 21st century, termed by some as the “Second Machine Age”. In 2014, two MIT economists published a book under that title, which outlined the current progression from industrial economies to modern ones. As a result, they estimate that 25-50% of blue-collar manufacturing jobs will become obsolete by 2050.⁶⁰ This is a crucial factor to consider when planning long-term investment in education and infrastructure.

These examples make it clear that in the long term, Northern Saskatchewan must “skip” industrialization and focus its investment attraction efforts on these new industries. The region’s high youth population, existing digital infrastructure, and improved advanced education make this possible in coming years. Furthermore, failing to recognize these opportunities as global market conditions change means Saskatchewan could forego millions of dollars in investment in growing industries.

Social Aspects of Investment

Increased investment in Northern Saskatchewan’s societies is also being demanded by business. In 2014 the Saskatchewan Chamber of Commerce organized a task force of business leaders and crown corporation executives from Southern Saskatchewan to tour the Northern reaches of the province. Some of their recommendations included:

- Need to lower consumption through increased efficiency
- Create incentives for energy efficiency
- Improving transport routes
- Raising political awareness through visits

In its conclusion, the report urges these issues to become “politically palatable”.⁶¹ This observation explains the North’s underexposure in provincial politics – that contributing time and resources to a jurisdiction that is 100% NDP is not a politically favorable position for a government largely accountable to Saskatchewan Party voters.

Amending the North's social underdevelopment creates Social Return on Investment, or SROI. This measurement focuses on the value of a society, not just its economy. It promotes creating social value through:

- Increased community cohesion
- Improved education levels
- Improved quality of life
- Increased self-confidence
- Environmental improvement
- Increased job prospects
- Expanded social networks
- Increased social inclusion
- Improved health⁶²

Many of these aspects have already been outlined in this analysis, from shortfalls in education attainment and health levels as identified by economic development agencies, but also holding community and environment in high regard by First Nations. Traditionally, these values have not been assigned a monetary value to factor into cost-benefit or return-on-investment calculations made by most investors. This divergence can be used to explain why few businesses have approached Northern communities with profit-making ventures.

However, new technologies are emerging to help investors understand the SROI value of their investments. For example, Toronto-based Sametrica has developed software to monetize social investments (such as investing in educational institutions), and calculate the return on investment for each dollar spent.⁶³ It also provides an analysis of the non-monetary benefits of social investments, such as improved community cohesion and individual fulfillment.⁶⁴ These measurements inform boards and committees overseeing investment decisions, and better illustrate the long-term payoff of these investments.

Outcomes

“Successful development through high-tech modernization would lead to greater long-term benefits for the Northern population, achieved through incremental improvements to the business climate”

A dual-approach strategy would consolidate Northern Saskatchewan's successes in industry, but introduce modernized sectors into the North for the future. This would present the opportunity for companies to make long-term investments with high payoff, both micro-economically as market and labour force grow for the business; and macro-economically as the surrounding society improves the business climate.

Renewable energy exemplifies this transition. With SaskPower recently announcing to reach 50% renewable energy consumption by 2030, the stage is set for green technology investment in Saskatchewan. Renewable energy does not discriminate between industrial and modern sectors, and

provides a solution away from fossil fuels to power industry in the 21st century. But it also reflects a paradigm shift in the way we think about energy – sustainable, clean, and efficient. If this mentality could be extended to sectors outside of energy, such as internet technology or biofuels, modernization would become more appealing. Simultaneously, the continued popularity of uranium for highly efficient energy production will complement the development of a renewable energy industry.

Conclusions

In conclusion, foreign investment can and should be attracted to Northern Saskatchewan. This will ideally occur by moving from an industrialized strategy to a modernized strategy. It is clear that attracting investment to traditional industry is not a prerequisite to build a 21st-century economy, and doing so would bring only short-term benefits to residents until global market conditions changed.

The Arctic has many similar challenges to Northern Saskatchewan, but Arctic countries are developing faster and more sustainably than our province. Relationships can be formed at the diplomatic level as well as between economic development officials, in order to gain understanding of successes and collaborate on challenges. This would lay the groundwork of a fruitful long-term investment relationship between Saskatchewan and Arctic partners. This already exists amongst academics thanks to the acclaimed International Center of Northern Governance and Development in Saskatoon. It is time to extend these relationships beyond academia.

Lastly, Northern Saskatchewan's wealth of potential should complement the central activities of the provincial government. The Ministry of the Economy's international investment attraction activities focus overwhelmingly on Southern Saskatchewan, despite unfavorable market conditions for investment in oil & gas, mining, and manufacturing. We are currently the wake of the commodity boom that fuelled the most recent wave of investment. The next wave of investment ought to reflect the direction of the future global economy: renewable energy, white-collar jobs, knowledge-based digital industry, outgoing baby boomers, and incoming youth.

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