



Indsights

A Window into the Indigenous Economy

Case Study

ADC Engineering

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ADC Engineering

Meet Jamie & Denise



Meet Jamie & Denise

Jamie Goosney is the co-owner and co-founder of Aguathuna Drafting and Consulting Company Inc. (ADC), operating out of Newfoundland and Labrador. ADC offers a variety of engineering design and construction administration services, specializing in areas such as roadway design, water system design, sewer system design, storm drainage management system design, civil site works, and potable water and wastewater projects. ADC is a Certified Aboriginal Business member of the Canadian Council for Aboriginal Business (CCAB) and a proud member of the Qalipu First Nation. Jamie and his wife Denise Goosney, ADC president, run the business together.

Jamie has over 30 years of experience leading large infrastructure projects across numerous jurisdictions in the United States and Canada for both private and public sector clients. These range from civil and municipal engineering projects to construction, mines, quarries, oil and gas projects, environmental projects, and hydroelectric projects, to name a few. Along the way, he has obtained numerous state and provincial designations and accreditations. Currently, he is registered with the Professional Engineers and Geoscientists of Newfoundland and Labrador (PEGNL), which allows him to practice engineering in the province of Newfoundland and Labrador.

With a love and passion for technology and drones in particular, Jamie is also a licensed drone pilot with Transport Canada and a licensed Drone Flight reviewer and trainer.

As the co-founder of ADC, Denise serves as the president and administrative officer for the business. She is Mi'kmaq of the Qalipu First Nation and was born and raised in Newfoundland and Labrador. Denise has a passion for community service and volunteering, and she served as the committee chair for the Our Lady of Mercy Complex in Port du Port West in Newfoundland and Labrador for many years, as well as many other community-based organizations in the region.

Both Jamie and Denise believe that ADC's success is founded on the principles of quality, innovation, and the health and safety of their company's employees and the clients they serve. They try to ensure that these principles are reflected in the work they do and the communities that they serve.

Launching ADC

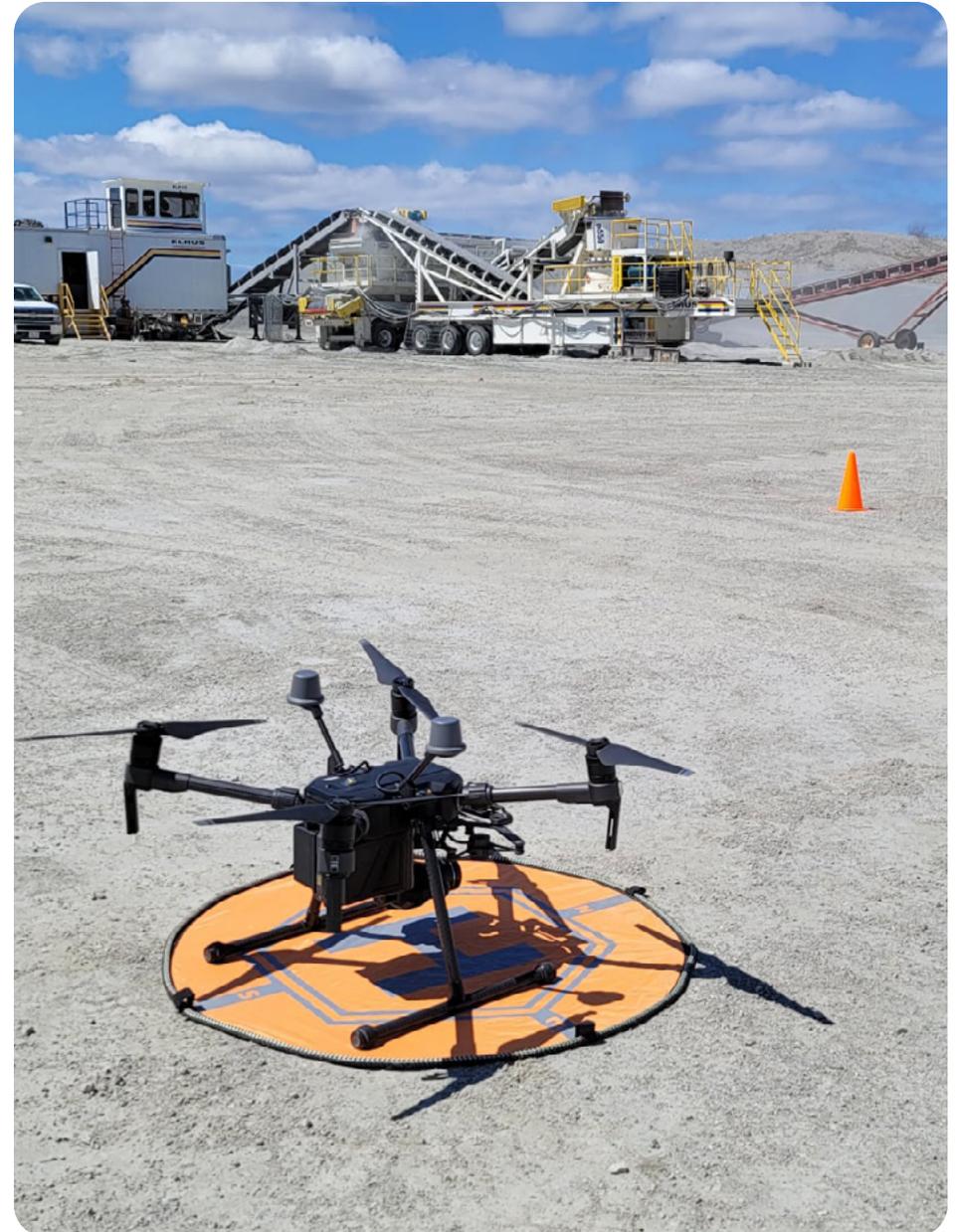
Launching ADC

ADC was launched in 2019 because of Jamie and Denise's commitment to volunteering in their community and helping people. An opportunity arose to work on a housing project in their community, and Jamie and Denise jumped at the opportunity to help. The goal of the project was to build affordable housing for homeless youth in the region. The success and outstanding quality of this work allowed ADC to secure more project opportunities in the area and to continue to help people along the way.

"We are extremely passionate about [helping people], and we kind of got into it. And then another project came, another project came, another project came, and then it started to escalate where that if we want to continue to help people and continue with the business that we need to grow."

Admittedly, Jamie did not envision the company growing as quickly as it did and having the positive trajectory it does now. They currently have projects in the works that will serve clients across Newfoundland and Labrador and in other provinces in Canada.

"Right now, we are working for a major client for hydrogen development, hydrogen, and wind turbines. So, it seemed like again, from a business perspective of how we grew it, it was more robust adjusting to the current market and to customer demand without realizing that we were going that way."



Products and Services



Products and Services

ADC initially started as a drone service company that offered three-dimensional (3D) mapping using photogrammetry, LiDAR (laser imaging, detection, and ranging), topography, and thermo-imaging that located underground pipe leaks, thermal analysis of buildings, heat loss, and energy loss. Over the past few years, ADC has evolved into a full-fledged engineering company.

Drone inspections are a non-invasive approach to inspecting hard-to-reach locations or assets above the ground. With drones becoming more affordable than crewed aircraft, it is easier to use this ground-breaking technology to conduct asset inspections.

Drones also save valuable time and can complete tasks much quicker than traditional survey services. As Jamie puts it:

“It’s a time saver because when you look at it, we just finished one drone flight where it would have taken a survey company about a week to do; we end up doing the flight in an hour and even sometimes under an hour.”

This time-saving value add is especially important when it comes to underground pipe leaks or projects experiencing energy loss where time is of the essence, and providing surveying services that identify issues more expeditiously is an asset to ADC’s clients.

Aside from saving their clients’ time, ADC’s services also benefit their clients’ bottom line. By covering larger areas in the same amount of time as a traditional survey crew, drone inspections can save customers a significant amount of money. Typical projects can gather over 50 million data points (images). A project of this scale would take a traditional survey or crew at least eight hours to complete but can be done using drones in under an hour. This technique significantly reduces the financial resources required for surveying, giving ADC a competitive market advantage over companies using more conventional methods.

Market Background

Market Background

Civil engineering, known as the second oldest branch of engineering behind combat engineering, focuses on planning, developing, and maintaining both built and natural environments (TWI Global, n.d.). The long history of this field has led to many streams of work, such as municipal, construction, and structural engineering (TWI Global, n.d.). Each subdivision covers a broad range of activities, including the design, building, and upkeep of infrastructure projects for both private and public sectors, such as water supply systems and oil and gas fields (TWI Global, n.d.). With the continued growth of projects like these, the global civil engineering market was valued at an estimated USD 8.56 trillion in 2022, with an expected compound annual growth rate (CAGR) of 5.9% from 2023 to 2030 (Grand View Research, n.d.).

Advancements in Engineering Technologies

Civil engineering is an evolving field that relies on a range of digital tools to guide projects, including survey and design equipment such as drones and imaging software (Tkac & Mesaros, 2019). Despite setbacks from the COVID-19 pandemic, the engineering industry has witnessed significant advancements in these digital technologies in recent years, allowing for further integration of these tools into modern infrastructure projects (Tkac & Mesaros, 2019; Suzuki & Kenzo, 2021).

Drones, also known as unmanned aerial vehicles (UAVs), are one of the many digital tools that have transformed the way industry projects are designed and executed today (Tkac & Mesaros, 2019). In the past, engineers had to depend on time-consuming and costly human inspections and measurements, while drones can collect substantial amounts of data at a fraction of the time and cost with impeccable accuracy (Tkac & Mesaros, 2019). The progression of drone technology has enabled civil engineers to obtain high-quality aerial imagery, topographic data, and 3D maps of sites, providing a comprehensive view of terrain and allowing them to make more informed decisions (Tkac & Mesaros, 2019).

With the integration of advanced laser scanners such as LiDAR and thermal cameras, drones have taken on an even more critical role in the field, making it easier to inspect and maintain infrastructure, especially in hazardous areas (Cropp, 2021; LiDAR Radar, n.d.). LiDAR is a sensing technology that allows for quick and accurate data collection using laser beams to create precise maps of physical environments (LiDAR Radar, n.d.). This technology enables engineers to detect structural defects and potential hazards without putting workers in harm's way (LiDAR Radar, n.d.). Thermal imaging supports LiDAR technology by detecting structural defects and identifying risks in real time using infrared light (Thusyanthan, Blower, & Cleverly, 2016). By virtually mapping any kind of physical environment through technologies such as these, engineers can gain insights into the condition of infrastructure and enhance safety and productivity.

Market Background



Becoming a Licensed Drone Pilot

In Canada, obtaining an Advanced Operations Certificate from Transport Canada is a requirement for those who operate drones weighing between 250 grams and 25 kilograms (Government of Canada, 2022; Guarneri, n.d.). To become a licensed drone pilot, Canadians must complete both online and in-person exams and pay a fee to Transport Canada (Guarneri, n.d.). Following the regulations set by Transport Canada, civil engineers can operate drones safely and legally. However, for operations that exceed the limits of these regulations, such as the use of drones that weigh over 25 kilograms or flying beyond a visual line-of-sight, an additional Special Flight Operations Certificate (SFOC) for Remotely Piloted Aircraft System (RPAS) is required (Government of Canada, 2023). These certifications are valuable and necessary as employment prerequisites for civil engineering firms specializing in infrastructure inspection and mapping.

Industry Future and Challenges

The future of civil engineering is expected to be significantly shaped by the real estate and government sectors, as they accounted for over 80% of the global civil engineering market share together in 2022 (Grand View Research, n.d.). This market's growth is projected to be fueled by the development of new infrastructure along with renovation and maintenance projects to achieve government-mandated and eco-friendly economic goals such as net-zero emissions. (Grand View Research, n.d.). The incorporation of emerging technologies such as drones and imaging tools, as well as advancements in artificial intelligence, are projected to play a key role in the future progression of the civil engineering field (Parakala, 2022).

The future of digital technologies will enable engineers to design and construct more resilient and sustainable projects as infrastructure critical to Canadians' everyday lives continues to age (Parakala, 2022; Canadian Infrastructure Report Card, n.d.). The demand for sustainable construction, along with the current aging population, will further emphasize the growing need for qualified civil engineers to undertake these projects (Engineered Design Insider Weekly, n.d.). Civil engineering companies will need to embrace new technologies while also addressing current structural and societal challenges to remain competitive and relevant in the future.

Differentiating ADC from the Competition

Differentiating ADC from the Competition

Like any business, it is vital to offer products and services that set it apart from its competitors. For Jamie and ADC, one way of doing this is by investing in new technology. For example, ADC has invested in LiDAR scanning technology and industry-leading drones.

“We have an iPhone 14 Max or Ultra Max that will do 3-D LiDAR scanning. We [also] have a couple of these [machines] in our company. We do not have to go into buildings now with measuring tapes anymore, we go in with the phones, or we have a ground-based, what we call LiDAR scanner. It’s a laser scanner that we will set up in a room on a tripod, and it will scan to the millimeter every piece of the room. And that differentiates us because a lot of engineering companies do not invest in that technology.”

Other engineering firms are often hesitant to invest in drone technology. This uncertainty is largely due to the upfront costs of drones themselves, ongoing maintenance, and the costs associated with training employees. Since Jamie is a licensed drone pilot, this has allowed ADC to leverage this skill to undertake a broader spectrum of projects and work contracts compared to what other firms may be able to secure.

However, as the business grows, he recognizes the need to train new hires to help grow the business and keep it operating into the future. For the company to succeed, investing in employee training is crucial. Jamie is also a registered flight trainer who can train inexperienced staff to operate their drones. Having Jamie hold this designation is extremely helpful and valuable for the company as it makes it easier to train new employees in-house than to seek training externally.



Challenges



Training

While Jamie can help train new hires, it can take up to two years for new staff to be comfortable enough to use the drones and for their new hires to hit their stride. Training new employees is a constant investment for businesses, and many businesses do not immediately see a return on investment. This is particularly true for ADC:

“What a lot of people don’t realize is that when someone starts on day one, they’re not making money until about four or five months down the road.”

This can be complicated to balance, particularly when working on larger projects, as many of ADC’s clients do not pay their full contract invoice upfront. Balancing payroll and other deductions can be difficult for smaller businesses, especially when new employees require constant training and development and lack the capacity to work on projects alone. This can limit ADC’s ability to take on more projects while developing new talent.



Access to Capital

Starting a new business can be an exciting journey, but it does come with its own challenges, particularly when it comes to financing. For ADC, one of their initial challenges was access to capital. Starting a business that is reliant on technology and equipment can be expensive.

To overcome this challenge, ADC took out a loan from the Community Business Development Corporation (CBDC) to fund the purchase of its drones. They have also taken out a line of credit and used other assets as collateral to fund their business.

Through the projects they have taken on, ADC is now at a point where they can begin to pay back their loans and reduce the debt they have accumulated.

Successes/Growth Opportunities

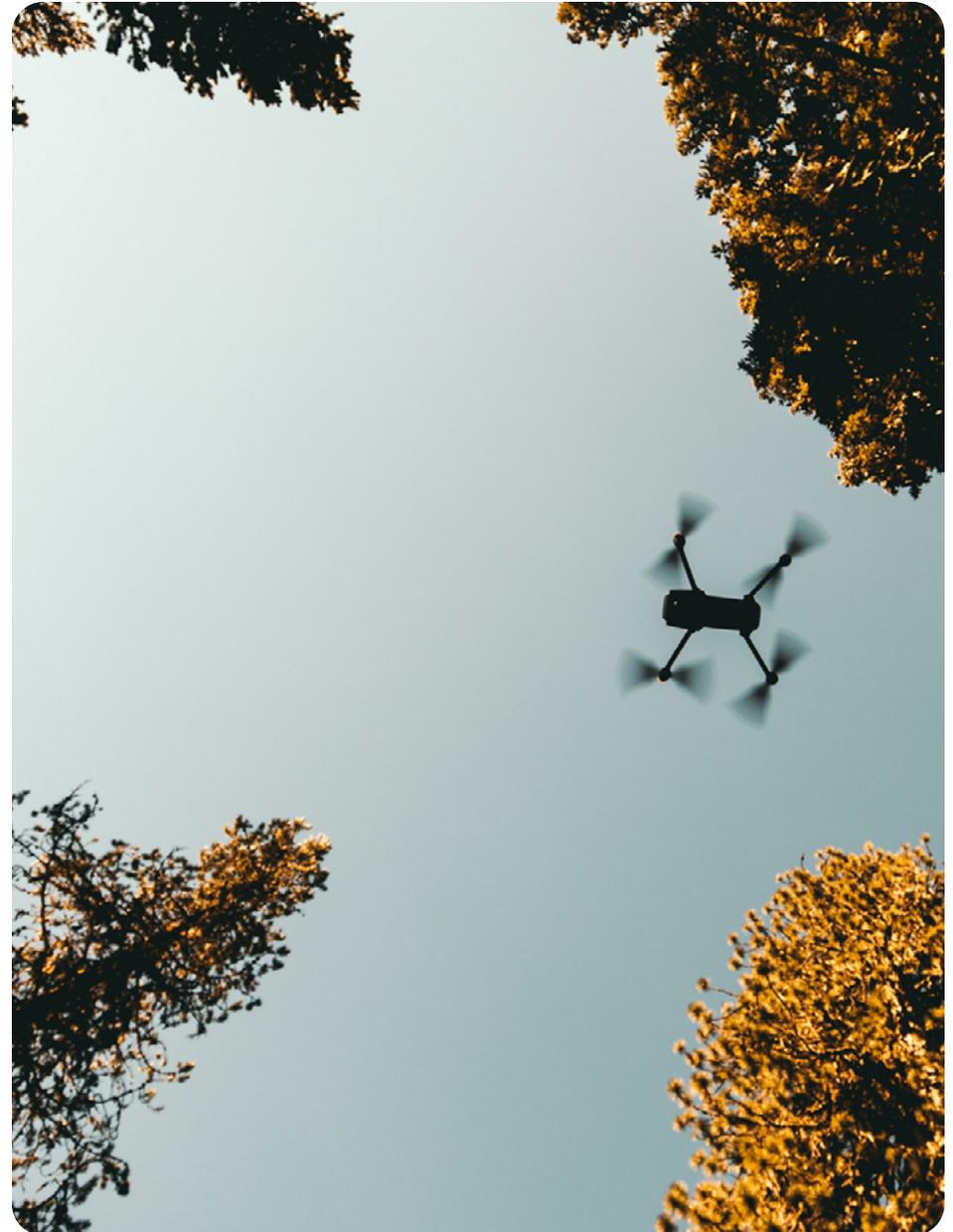
Changes in Technology and Regulations

Operating a business that relies heavily on technology and equipment, such as drones, can be expensive. This cost can include starting a business but also ensuring that your business has the recent equipment that is needed to serve its clients. Drones are an expensive investment and susceptible to technological advancements and improvements.

Camera quality is constantly changing, and ADC has moved from 4K cameras to 6K cameras in the span of a few years, resulting in a significant upgrade in the cameras' resolution capabilities. Software for 3D mapping is always improving, and batteries that fuel the equipment are rapidly advancing. These are issues that business owners must consider when ensuring that their businesses can serve their clients' needs.

Legislative shifts often accompany recent technological advancements, and companies like ADC must ensure that they are operating under current laws and regulations.

"You're not allowed to fly your drone 500 meters away from you, but that restricts you. You probably got about a kilometer of working space, 500 meters this way, and then 500 meters this way. So, we have a kilometre [to work with]. If you are doing an inspection on transmission lines and stuff like that, you really have to know your flight path."



Successes/Growth Opportunities

In the past, ADC relied heavily on bidding and winning municipal work. While they have been successful in this area, it is important for ADC to continue to expand the products and services they offer and diversify its clientele.

“You must be diversified, like any business. If you have one product — one service — and if, for some reason, the economy goes down in that area, it can have devastating results. A lot of mistakes are made in our industry. The mistake that they [engineering firms] make is that they stay with municipal work, and that is it.”

Municipal contracts are dependent on taxpayer funds and local mandates, which can vary as the political outlook and spending priorities change depending on who is running the local government. Thus, it is important for firms to expand and seek relationships and partnerships outside of municipal work. For ADC, they have begun to expand operations to include working in the private sector. ADC was recently awarded two large contracts with firms to build a new hydrogen plant and another project building wind turbines and wind power projects.

Jamie hopes to grow ADC and expand outside Newfoundland and Labrador and has been approached by engineering firms from Nova Scotia and Ontario. He would like to see ADC offer its products and services across Canada. To do so, ADC will need to continue to hire and bring in more talent.



Hiring

While the challenges mentioned above still exist, Jamie is confident that ADC can grow while continuing to bring in new talent. One way that ADC has addressed these challenges is by partnering with the Qalipu First Nation to tap into the training programs that are available to their community members. Qalipu First Nation provides funding to cover the employee wages, while ADC and Jamie provide the necessary training to help onboard new hires. This arrangement is a win-win situation for ADC, as it helps alleviate the initial costs of hiring and training and provides important job skills and training to community members.

“We’ve been incredibly lucky. Everyone we brought through that program has worked out.”



Retaining Talent

Retaining employees can be equally challenging. There is always a fear that trained employees will walk away and seek employment opportunities elsewhere as they progress in their careers. Jamie recognizes the importance of loyalty, and for ADC, it goes both ways. ADC recently launched a new benefits package, offering retirement and medical benefits for their employees. There is also talk of starting a profit-sharing package for each employee. This solution is something that Jamie hopes to implement soon as ADC continues to grow and becomes more financially stable.

“We like to see them [our employees] grow and learn, and with that, too, comes loyalty. It is finding the right people that want to work in the company.”



“Right now, we are not at the stage where we can do profit sharing, but we will. So, in the next five years, that is another key thing [for us]. When it comes to retaining employees, it is not necessarily pay. It is retirement benefits. It is whatever other benefits that your company can offer, and it is the sense of being part of something.”

For Jamie and ADC, the hard work has begun to pay off. In the summer of 2023, ADC was awarded the 2023 CBDC Business of the Year Award for Newfoundland and Labrador and named a finalist for the CBDC Business of the Year Award for Atlantic Canada. These awards and nominations recognize ADC’s accomplishments as well as the positive effects ADC has on the communities that it serves.

Indigenous Values and Beliefs

Indigenous Values and Beliefs

Jamie's Indigenous heritage plays a significant role in how he runs ADC. It can be felt in all aspects of his business. Jamie's approach to business is simple: it is not all about money; business is about people. When thinking this way, it ensures that the projects that ADC takes on are done in an ethical manner.

"We pride ourselves in making sure projects are done ethically and protect the environment. We must abide by those rules and those laws and not only federally, provincially, but also from our culture."

Jamie holds a strong connection to the environment and recognizes the role that ADC can play in ensuring that it is protected for future generations.

"If we don't take care of the environment — we don't take care of everybody that's around us — then there's not going to be anything left."



Advice for Future Entrepreneurs

Advice for Future Entrepreneurs

Jamie offers practical advice for those who are looking to start their own entrepreneurial journey:

“My advice to somebody that is starting out: keep your costs down as much as possible because it’s going to take time for you to actually establish yourself in the market.”

He also recommends establishing strong relationships and not burning any bridges:

“That’s why the old term “never burn bridges” is important, because, at some point, you are going to want those connections. You might have a bad day, but it is very wise to always keep those friendships and keep in touch, especially when you start your business.”

Do not be afraid to reach out for help. There are programs that can offer support and services to help you on your entrepreneurial journey. Jamie recommends the Community Business Development Corporation (CBDC):

“If you graduate, and you have intentions of creating a certain business, mentoring, finding a mentor, either through a mentorship program through CBDC, they can hook you up with mentoring programs.”

Jamie also suggests that future entrepreneurs, and especially Indigenous entrepreneurs, take advantage of grants and funding opportunities:

“There are grants for small businesses. There are tons of grants out there. Take advantage of everything that you can. Especially for us, where it is Indigenous, we do have certain advantages and certain projects that are called takeaways, which you need to have a certain percentage of Indigenous participation, or they are just Indigenous projects.”

And lastly:

“When it comes to people just coming out of school, first, you have all that energy, you have all that gusto, and the big thing is just controlling that enthusiasm and making smart decisions. Do not make decisions based on your heart, but based on your mind, because I have done that and made a lot of mistakes based on [following] my heart. If you want your businesses to succeed, people are your most important asset, and so making those first choices of who you want to work with are critical.”

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A Window into the Indigenous Economy