

The Purdy Crawford Chair

In Aboriginal Business Studies

Case Studies in Aboriginal Business

Integral Geomatics

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Aboriginal Business Studies**

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The Purdy Crawford Chair in Aboriginal Business Studies was established at Cape Breton University in 2010 in response to Aboriginal community leaders' expression of the need for entrepreneurship, business investment, and corporate skills training for the purpose of creating a model of self-reliance.

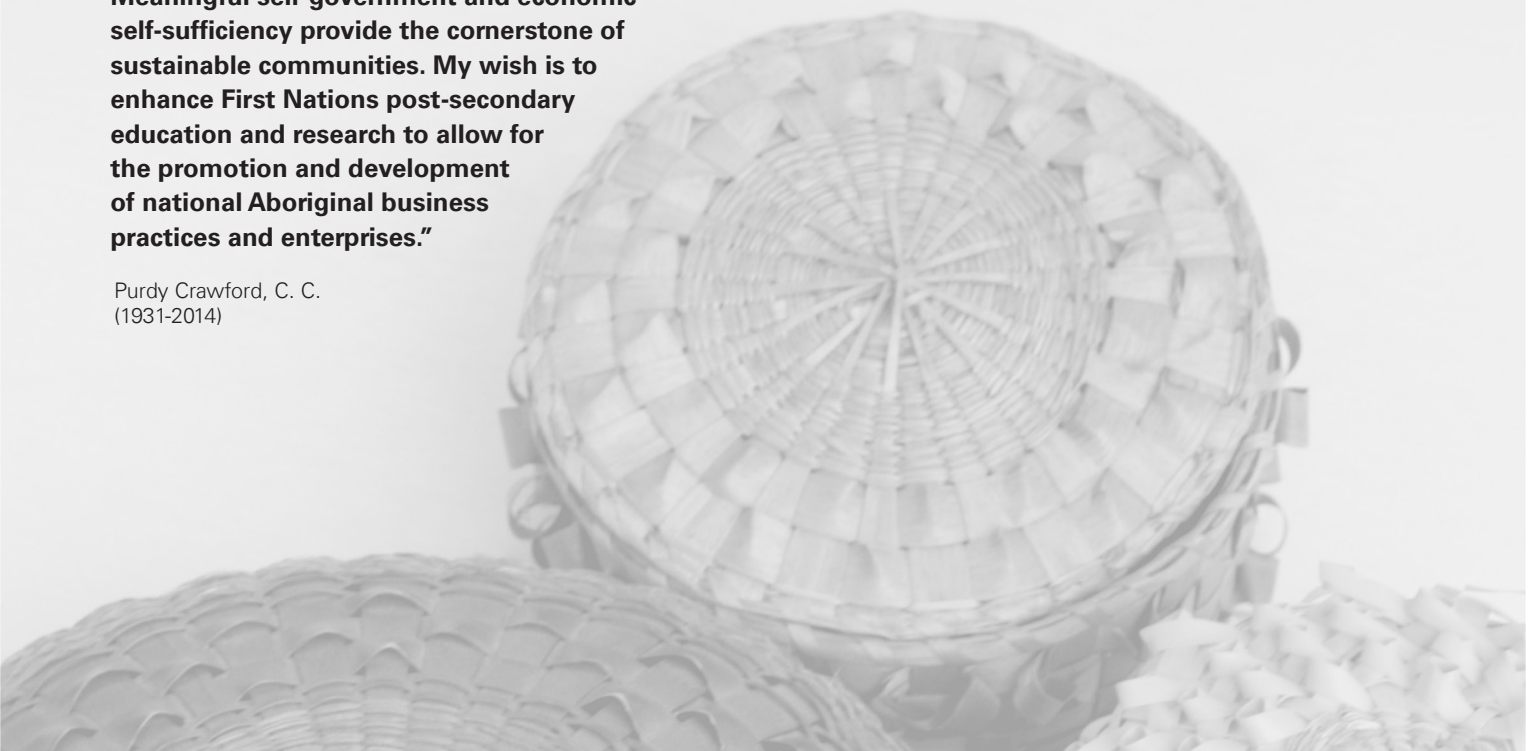
Named in honour of Canadian lawyer and corporate boardroom leader, the late Mr. Purdy Crawford, the Chair aims to promote interest among Canada's Aboriginal people in the study of business at the post-secondary level.

The Purdy Crawford Chair in Aboriginal Business Studies focuses its work in four areas:

- Research on what "drives" success in Aboriginal Business
- National student recruitment in the area of post-secondary Aboriginal business education
- Enhancement of the post-secondary Aboriginal business curriculum
- Mentorship at high school and post-secondary levels

"Meaningful self-government and economic self-sufficiency provide the cornerstone of sustainable communities. My wish is to enhance First Nations post-secondary education and research to allow for the promotion and development of national Aboriginal business practices and enterprises."

Purdy Crawford, C. C.
(1931-2014)



INTEGRAL GEOMATICS

In January 2014, Integral Geomatics, a GIS start-up based in Sydney, Nova Scotia, was almost nine months into a twelve-month contract when it became clear to co-founder Gary Pardy that IG would miss the delivery date unless its output was increased dramatically and quickly. Gary needed to find a solution as quickly as possible.

BACKGROUND

Gary, a member of NunatuKavut (formerly the Labrador Metis Nation), was born and raised in Cartwright, Labrador. He obtained a B.Sc. from Memorial University and, in 2010, he and his girlfriend graduated from Memorial University's Fisheries and Marine Institute with advanced diplomas in integrated coastal and ocean management. They had excelled in the program and one of their professors told them that, if he were looking for a GIS consultant, he would hire either of them without hesitation. He encouraged them to start their own consulting firm.

After they graduated, Gary and his partner moved to Sydney and, early in 2011, they began developing the plans for a geographic information system (GIS) business. Initially, they both worked on a full-time basis to develop and launch Integral Geomatics (IG). They applied for and eventually obtained financial support from both the public and private sectors. Their loan from Futurpreneur was matched with a grant from Aboriginal Business Canada, and the Nova Scotia Department of Economic and Regional Development and Tourism provided a reimbursement for some of IG's marketing expenses. In September 2011, they launched IG as an unincorporated partnership. They purchased powerful desktop computers and a license for ArcGIS, the industry standard for GIS modelling. They also subscribed to GeoBids, a service for GIS and geospatial procurements and requests for proposals. Early in 2012, IG was awarded its first two contracts. One was with the Nunatsiavut government and involved plotting traditional ecological knowledge of the Labrador Inuit. The other was a subcontract from the Southern Gulf of St. Lawrence Coalition on Sustainability (SGSLCS) for technical assistance with a regional sustainability atlas.

EXPANDING TO LARGER PROJECTS

IG had conducted GIS training sessions as part of the contract with SGSLCS. Among the participants was a geography professor from Truro, Nova Scotia, who later called Gary to inquire whether IG could help him with a project. In 2013, IG took on the project, which was much larger than its previous projects. IG was expected to develop a land classification model that rated the sensitivity of streams to changes resulting

from land use and land management practices within watersheds. The data for the project came from several government departments. By overlaying different types of data, a digital elevation model was created to define watersheds and illustrate drainage gradients. Additional data about surface susceptibility to erosion, land uses, proximity to streams, and other variables were added to the model. Each of the data layers was relatively simple to understand on its own but, in combination, they produced complex interaction effects and created enormous quantities of output. The outputs either had to be interpreted directly or used as inputs for other applications within the program that, in turn, produced outputs that had to be interpreted. IG knew from the start that it had the technical expertise required for the contract, but it had underestimated the size of the job and the amount of time that would be required for conceptualizing, developing, and testing the model, generating the sensitivity plots, and interpreting the results.

Gary was facing a sink or swim situation. IG's rate of production had to be increased significantly and quickly, or the stream sensitivity model and its outputs could not be delivered on time. There was no penalty clause in the contract that would be invoked if the project were not completed on schedule. However, as a new business, IG had an interest to create a positive reputation. The GIS community in Sydney was small and tightly-knit. Members of the community generally knew that IG had won the modelling contract. If IG delivered a poor-quality product or missed the delivery date, that would also become known and IG's reputation in the community would likely be damaged as a result. Other members of Sydney's GIS community might be less inclined to partner with IG, subcontract their own work to IG, or accept subcontract work from IG.

WEIGHING THE OPTIONS

Gary thought about increasing the amount of time that he and his partner worked on the project. At that time, Gary's partner was enrolled in another degree program at university and she was also serving as a board member of the Geomatics Association of Nova Scotia (GANS). She was working at IG on an intermittent and part-time basis. Gary was also working outside IG. He had accepted a contract with the Atlantic Coastal Action Program (ACAP) Cape Breton, where he managed a climate change project. Neither of them was able to work on the stream sensitivity model for 40 hours each week. Increasing Gary's or his partner's time commitment meant that either Gary would have to leave his job at ACAP or his partner would have to drop out of university at least temporarily.

Although the GIS community in Sydney was relatively small, it was quite advanced in terms of its technical skills and capabilities. Gary and his partner had several friends and contacts in the community. They knew it would be possible and even relatively easy to find additional help from within the community, either by sub-contracting part of

the project to another firm or by hiring an employee for a short-term contract. However, help from the GIS community would come at a cost. Subcontracting to another GIS firm would likely cost about \$100 per hour. Gary knew some talented individuals who were underemployed at that time and who would likely be willing to do the work for much less. Either way, however, if IG turned to the GIS community for help, the reputational benefits that IG deserved for conceiving of and developing the stream sensitivity model might have to be shared with, or could be lost to, the partner.

While Gary and his partner were considering what to do, a geography professor from St. Mary's University sent an email to GANS asking if any of its members had term positions that could provide practical experience for students in her fourth-year geography course. Gary wondered if this opportunity could be a solution or partial solution for IG's problem. He knew IG's capabilities and the capabilities of the other members of the GIS community in Sydney, but he knew much less about the abilities of unidentified fourth-year geography students. The students would not be paid for their work; it was as if the practical experience were a large laboratory assignment for the geography course. However, Gary did not know how motivated the students were, how willing and able they would be to work in a dedicated manner on IG's stream sensitivity model, or how much supervision and management they would require. Moreover, the university was located in Halifax and the students' work would have to be done from there.

CONCLUSION

In January 2014, Integral Geomatics was almost nine months into a twelve month contract. The project delivery date was fast approaching and Gary Parady, one of IG's co-founders, knew that output had to increase dramatically or the project would not be ready on time. He needed to decide quickly how best to proceed.

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