



Proposal for Investment
through the
Atlantic Canada Opportunities Agency

Submitted on behalf of the
Geomatics Association of Nova Scotia



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Spatial Atlantic for Innovation and Learning – SAIL

This proposal for investment is based upon the need to restructure the geomatics sector in Atlantic Canada. Our goal is to focus our business, organisations, educational institutions, and connections nationally and internationally on the issues associated with climate change, smart cities, green growth and clean technologies. These have always been areas of strength in our sector, as well as themes supporting the wider economy and environment.

As the name suggests, SAIL is a sector wide structure that moves us forward with a focus on the ocean aspects of our shared region. As we border the Atlantic it makes sense that our support for clean technologies and climate strategies will also be ocean based. This does not however preclude any other areas of emphasis such as health, agriculture, forestry, mining, urban design, transportation, defense, etc. All these activities and more in the Atlantic region are impacted or shaped by our proximity to the ocean.

Background and context of sector

The unique quality of the geomatics sector is that it has a strong, integrated vertical pillar where innovation takes place and new processes, business lines and research are brought to the forefront. Partially because of this vertical strength, geomatics differs greatly from other sectors in that it provides the foundation for all activity across all other sectors, thereby being the quintessential horizontal enabler.

Geomatics relates to geospatial data and geographic analysis through such things as: Land surveying; Remote sensing platforms from drones, air craft, satellites; Hydrography; Modelling of the natural environment; Geographic information systems; Cartography; Spatial data infrastructures (sharing, open, standards); Geodesy; and GPS.

Location – the ‘where’ of everything – is seldom considered even though it forms the basis of all that we do: where roads are built, mines, forest protection, shipping lanes, cables and powerlines, hospitals, businesses, cell towers, bike lanes, transit systems, schools, solar and wind farms, and the list goes on.

And of course, the power of geomatics rests in the ability to translate data and knowledge into visualisations and maps which express, quickly and effectively, the issues being considered in a spatial context.

Geomatics covers a wide range of activities but with a common root - the ‘geo’ - which is ‘where’ anything happens and why it happens ‘there’. Location analytics allows anyone to capture data for decision making so that planning is effective and new research is translated into development to support smarter and greener activities.

For example, an area of concern is the connection between climate, pollution and health outcomes. To fully appreciate, understand and act upon those concerns would require knowing where the situation is most severe, who is living there under threat, where should immediate remediation or mitigation activities take place, and what can be done in any particular location to prevent further problems. Whether the issue is environmental health or epidemiology, it is only resolved through the use of geomatics and understanding ‘where’ things are happening and why they are happening ‘there’.

A clean future through Geomatics and Geospatial Data

Geomatics is especially suited as business lines which support green initiatives, smart cities, healthy oceans, sustainable resource use, and keeping our commitments relative to climate change agreements to support a healthier and more secure society and environment.

Regardless of the activity or the impact, be it a technology, infrastructure, social or environmental activity, or an economic driver of growth such as an industrial location of transportation, the fact is everything happens somewhere.

Location based technologies form the backbone of smart and green infrastructure. Planning and development of new buildings must take into account location, energy use, and design. In geomatics a whole business line - GeoDesign - has been established specifically for this and the move towards smart cities and green settlements.

As we move forward within a green growth and fossil free economy, the need for public safety and mitigation strategies become even more pressing. How these are structured and where they are focused in terms of priority locations is critical in terms of protection and cost.

The establishment of clean energy grids through renewable resources relies heavily upon geomatics. Location of sites for wind generators, tidal power, solar farms and the like are totally dependent upon location. Geomatics not only determines those locations but it also helps extend the effectiveness and productivity enhancement of such sites.

For example, any renewable power location could be improved by better locational analysis. If one could increase productivity per site by 10% then the outputs would increase and costs would decline. Such savings not only relate to renewables but to all other elements of energy intensive activities.

This is the most significant aspect of geomatics – the ability to improve decision making and increase productivity with decreased costs while still protecting (if not enhancing) the environment. From a climate policy perspective, this is more than a simple win-win.

The value proposition

Natural Resources Canada and GeoAlliance

The geomatics sector, including the geospatial data user community, was recently studied for Natural Resources Canada (NRCan) to determine the state of the sector and the impact on the broader economy, as well as how productivity is enhanced across other sectors. The key outcomes of that study were:

In 2013, about 2,450 private sector geomatics firms contributed \$2.3 billion to the Canadian economy.

The use of geospatial information contributed \$20.7 billion – or 1.1% of GDP (\$19 billion to Real Income)

The sector generated approximately 19,000 jobs to the Canadian economy in 2013.

“Open” geospatial data (data available a minimal or no cost and for use without restriction) provides an estimated additional \$695 million to GDP and \$635 million in real income in 2013.

Interestingly, the sector has also been viewed as recession proof, with continual growth post-2008. For example, in 2000, “Industry Canada’s Canadian Company Capabilities database mentioned geomatics in 8% their descriptions. As the *Canadian geomatics environmental scan and value study* has found, 13 years later, that number has increased to 21%, but there are still many firms providing geospatial information products and services that do not associate themselves with the field of geomatics.”

Economic Value of Geomatics and Geospatial Data

According to the recent NRCan study, our sector influences the regional GDP by nearly 1%, adding an addition FTE of 973 which comes from geomatics firms and the use of geospatial data.

Region	GDP		Consumption		Investment	Net trade	FTE jobs
	\$ million	% change	Private consumption	Gov't			
			\$ million	\$ million	\$ million	\$ million	#
Atlantic	\$995	0.94%	\$317	\$306	\$189	\$182	973
Quebec	\$2,792	0.77%	\$1,179	\$668	\$550	\$395	3,318
Ontario	\$5,295	0.76%	\$2,396	\$1,198	\$1,089	\$612	5,634
Prairies	\$8,985	2.03%	\$3,553	\$1,051	\$2,913	\$1,468	7,423
BC	\$2,457	1.02%	\$1,187	\$347	\$641	\$282	2,174
The North	\$174	2.38%	\$17	\$124	\$148	-\$115	55
Canada	\$20,700	1.10%	\$8,648	\$3,695	\$5,530	\$2,824	19,577

Table 3. Estimated percentage change in industry output as a result of geospatial information

	Atlantic	Quebec	Ontario	Prairies	British Columbia	The North	Canada
	%	%	%	%	%	%	%
Agriculture, forestry, fishing and hunting	2.50	1.04	1.33	0.96	1.38	4.47	1.22
Mining, quarrying, and oil and gas extraction	3.32	4.44	4.67	4.55	5.12	4.32	4.54
Utilities	1.60	1.73	1.68	1.19	1.51	2.09	1.58
Construction	1.34	0.94	0.82	1.90	1.17	1.50	1.23
Manufacturing	0.16	0.57	0.30	-0.18	0.86	1.75	0.33
Wholesale trade	0.88	0.85	0.81	1.14	0.93	4.03	0.90
Retail trade	0.51	0.46	0.43	1.11	0.55	1.68	0.60
Transportation and warehousing	1.57	1.65	1.59	1.45	2.16	0.26	1.64
Information and cultural industries	0.47	0.32	0.43	1.01	0.45	1.14	0.51
Finance and insurance	0.74	0.66	0.80	0.97	0.59	2.52	0.78
Real estate and rental and leasing	0.55	0.45	0.49	1.47	0.63	1.65	0.72
Professional, scientific, and technical services	0.72	0.34	0.28	0.94	0.57	1.54	0.57
Management of companies and enterprises	1.06	0.82	0.84	1.75	0.93	2.52	1.08
Administrative and support, waste management, and remediation services	0.87	0.71	1.00	1.13	0.89	3.11	0.95
Educational services	0.28	0.35	0.35	0.66	0.35	0.98	0.40
Health care and social assistance	0.60	0.57	0.55	1.17	0.57	1.48	0.70
Arts, entertainment and recreation	0.40	0.39	0.37	0.72	0.42	0.77	0.45
Accommodation and food services	0.56	0.59	0.64	1.46	0.74	1.59	0.83
Other services (except public administration)	0.38	0.28	0.36	0.92	0.44	1.86	0.48
Public administration	1.59	1.36	1.43	2.03	1.15	1.89	1.51

While the impact of the sector is across domains or other sectors, the value added to the economy is significant. We feel that the contributions from the Atlantic region can be enhanced through a collaborative model and regional approach similar to that of GeoAlliance Canada. Moreover, the name SAIL is a brand that relates to an ocean focused view of the sector. We have yet to fully realize the potential of utilizing the very basis of our ocean location (“Atlantic”) within a sector-wide, regional collaborative organization.

Added to this is the recent global attention on the COP21 agreement in Paris in December of 2015. We are cognizant that there is a great market for solutions that geomatics and geospatial firms can provide that are central to supporting the success of the post-COP21 agenda.

We have also looked at competitors to understand their approach to adapting sector structure and agency - especially with our most ‘interesting’ comparator being Australia/New Zealand. This also makes sense from a purely geographic understanding and historic reality – two countries with population distributions, environments and ‘colonial’ histories and systems of governance that are more similar to Canada than any other location.

In a 2008 report delivered to ACOA by Novus Consulting Group Ltd. entitled *Nova Scotia Geomatics Industry Assessment*, it was suggested that:

The success that has been achieved in other jurisdictions with this approach has been noted. The goal would be to build the leadership and dynamism that is needed to improve the sector’s strength, capability and success in pursuing the continued expansion of geo-spatial opportunities, domestic and international, in their multiplicity of new and enhanced product and service variants.

Of note, and following from the above quote, is how Australia and New Zealand recently merged their business associations to represent the entire the sector. This clearly indicates their strong desire for a more ‘corporatist’ structure of all elements regardless of geographic barriers.

Also that 2008 report suggested that:

Finally, there should be investigation and recommendations of the optimal alignment of the Nova Scotia sector, including all stakeholders: business, academic, Government, Professional and Trade Associations, and any new “umbrella” or leadership organization(s) that should be established.

Part of the rationale for this is that an ‘umbrella’ – GeoAlliance Canada – which was created at the national level and supported by members and Natural Resources Canada, private firms, not-for-profit associations, academic institutions, other levels of government and other federal agencies. To take a leadership role, the Geomatics Association of Nova Scotia (GANS) has become one of the ‘Founding Members’ of GeoAlliance. The recommendation from the above 2008 Novus report has been implemented at a national level. It is time to follow that proven suggestion at the regional level.

GeoAlliance Canada was formed with the support through NRCan and individual organizations/ and companies acting as founding members with investment of people and dollars. It has become a best case example of an Open Government model which the 2008 Novus report suggested as best for our region. The difference is that national organizations acted upon the spirit of those same recommendations while the region has yet to. It is time to rectify that discrepancy.

This proposal remedies that situation through the creation of SAIL. This is about revitalizing an industry that has had a successful past, but which no longer has the focus, profile, brand recognition or project deliverables that link *across* the region. It is about having a larger voice and more visible presence on both the national and international scene.

Having looked at the GeoAlliance model and process of creation, as well as a comparison of actions taken in other jurisdictions – namely the US, Australia, and New Zealand, we feel certain that such an effort will meet with success and place our sector, regionally, in a more advantageous position to expand markets, enhance capacity building, improve services across sectors for all citizens in Atlantic Canada.

As stated earlier, the heavy lifting of studying the sector and defining the way ahead has been done at the national level. The previous studies in this region made similar –almost exactly the same – recommendations which have been taken up by those representing the national voice. There is little need to study or define a model, and a greater need to quickly implement the model on the table so as to gear-up the sector in our region.

To be blunt, the approach we suggest through SAIL can be better thought of as a leap-frogging rather than merely a replication of what has been proven. We are fully aware that there has been a tradition (recalled in the *One Nova Scotia Ivany Report*) where we study everything and implement little of something. The case made for GeoAlliance Canada revolved around a need for boldness and a philosophy of creating a ‘moonshot’ for the sector which rallies a community around a common goal.

The goal for SAIL revolves around a refocused sector on an ocean theme, for reasons that the ocean affects our lives competitive advantage. We have recognized that the Paris COP21 agreement has elevated the need for SAIL due to the efforts to mitigate climate impacts and move towards a green economy. Previous discussions about SAIL included that idea, but now it is more pressing – including issues arising from Marrakesh COP22 which adds in the need for technology transfer and support within developing economies.

The case can be made that efforts in every sector, every business line, research stream, and capacity building need to be either entirely focused on climate targets or at least recognize and measure how they contribute to solutions at some level.

Geomatics is in a unique position because other sectors – no matter how focused on clean tech of climate – requires our technology, data and services. Therefore, the first to revamp and refocus their efforts should be our geomatics sector which focuses on location – where to make changes and where impacts are most severe, and where mitigation strategies can be enhanced most of all.

The basis for our model for renewal and action

As previously stated, much of work and processes for community engagement and refocusing efforts on key deliverables and greater impact for a green economy is based upon models within and outside Canada. Several years of community effort and input went into that model and our feeling is that we need not re-do that process. However, in order to adapt such a model in this region it is essential to engage the community in Atlantic Canada to develop a model that works here based upon unique characteristics of the sector in this region.

Moreover, we have used several other models from the sector in other regions where those communities have undergone a refocusing of the sector and where they have achieved a great deal of success.

Two organizations in Australia, the Spatial Industries Business Association (SIBA) and the Surveying & Spatial Sciences Institute (SSSI), provide excellent and successful examples of what we seek to do through SAIL.

The Spatial Industries Business Association (SIBA) is the leading association representing the Spatial Industry. SIBA is committed to working with Government and Academia to build a more innovative, entrepreneurial and prosperous Australia.

We are a unified network of businesses throughout Australia, providing tender alerts, networking and collaboration opportunities, professional development, think tanks and direct business opportunities.

The Surveying & Spatial Sciences Institute (SSSI) is Australia's peak body representing the interests of surveying and spatial science professionals, combining the disciplines of land surveying, engineering & mining surveying, cartography, hydrography, remote sensing and spatial information science.

These mandates of the SIBA and SSSI are very much in keeping with our organisations locally and nationally. The difference is that the investment in those organisations by government and member companies is much higher, and their focus is much more strategic on things which benefit Australia immediately and with a focus on smart cities, green growth, clean technologies and a healthy population.

Along a similar vein is the European Association for Geographic Information (EUROGI) which states that their role is to:

In order to ensure good governance, economic and social development, environmental protection and sustainability, and informed public participation, the mission is to maximise the availability, effective use and exploitation of GI (geographic information) throughout Europe. This requires EUROGI to stimulate, encourage and support the development and effective use of GI and relevant technologies and policies, and to act as channel of the voice for the European GI community, private and public sectors alike.

These three models, combined with our own GeoAlliance Canada, and with the addition of our traditional mandates of our sector organisations within Atlantic Canada provide more than enough to drive the sector forward. To differentiate ourselves and find a market niche as well as a more productive focus on a specific climate impact and green growth domains means we have to take the tactic of focusing on a more oceans-influenced economy.

Our idea is simple: we need to create an organization akin to the GeoAlliance Canada, SIBA, SSSI and others which will act as a regional integrator and a regional voice at both national and international tables and marketplaces.

A model for governance



The above model is not a proposal nor what is ideal. It is merely shown to indicate that SAIL is designed to be a representative body that meets the needs of the region while still allowing for local interests to be brought forward. Part of the proposed project herein, the *SAIL Summit*, is to be used as the key opportunity to allow the community in the region the chance to refine a governance model. This would then be part of the task for the first consultant study that would lay out the processes and procedures for success of the initiative.

Strategic ‘anchors’ for success

1. SAIL SUMMIT

We recognize that the timing of conferences, face-to-face local events, online webinars, or similar social media tools, do not adequately ensure or move ahead the SAIL effort.

To generate a high level of community buy-in, we propose a ‘summit’ in Charlottetown in 2017. This would be a smaller gathering of key actors and stakeholders to come together and fine-tune, adjust and support the model and strategies of SAIL. This would include the establishment of committees, development of studies and timelines for distribution, the setting of priorities and strategic actions that may need to be shifted. It would also be the time to formalize new leadership for SAIL at the regional and/or provincial level.

The choice for 2017 is also interesting in that MOUs could be signed amongst the partners in a symbolic manner reflecting the 150th anniversary of the founding of Canada which began in Charlottetown. Between now and late fall of 2017 the key will be to build momentum and ‘buzz’, as well as making more people and external groups aware of our goals and brand. We will be able to leverage our national relationships and activities to support the regional approach we have defined and for which we are requesting investment.

GANS recognizes that numerous reports and recommendations have been made to deliver a regionally based structure within our sector. The recent move to support such a model nationally, also based upon what our competitors have done, means that the timing is right. We wish to make certain we act before the ‘window closes’ on this opportunity.

2. SAIL CONFERENCE

We propose that the history and tradition of our sector's regional conference – Geomatics Atlantic – not be done away with in its entirety but be shifted in terms of governance, timing and brand so as to represent the interests of the region and to reinvigorate the event through a new model.

This would entail a shift from an annual event located in each province on a revolving basis (NS one year, NB one year, NL one year) to become a biannual conference located more centrally or in a new area (Moncton, PEI, etc). This would allow for better timing, costing, longer-term planning, travel and budgeting, as well as being a more convenient way for government employees, the private sector and academics to participate.

At present, there are a great many barriers in place that prevent more participation, networking, product and service marketing, and trust building which come from such events. In formalizing a more well planned and timed regional vent, we are convinced that costs can be decreased while at the same time increasing partnerships and exposure.

The conference would not only become the regional event that one must attend and contribute towards; it will become a nationally and internationally recognized event that is on the agenda of others within – and outside – our sector. To position the event in this way, we see the SAIL branding and marketing work as an appropriate time to both generate input from the sector about a conference brand, while also acting as an opportunity to market the brand and new model.

In the meantime, Geomatics Atlantic will continue in Newfoundland and Labrador. After the 2017 Geomatics, Spatial Atlantic will begin in 2018 and then continue in 2020, 2022 and so on.

To help ensure that communications, workshops and local efforts are active in terms of outreach to interested partners/members, each provincial level SAIL 'representative' will conduct more regular events and more often through online media like webinars or video conference. This in essence makes certain that the two-year cycle is not too far apart for engagement and trust building or actions in the community.

3. Digital Atlas

Geospatial information used for decision making is now delivered in a very interactive, online and community built environment. These have replaced and augmented the traditional atlases we have all used and have become accustomed to. That being said, the concept or 'idea' of the atlas is still valid. It is a collection of data and information about topics and issues brought together within one medium; the tangible iteration of a 'one-stop-shop' or 'portal'.

The benefit of an online *SAIL Atlas* for the Atlantic region would be as a means to assist decision making and a deeper understanding of our region and our place in the country and the world. Furthermore, such a system would allow the private sector and others to utilize data in an open environment (creative commons or copyright free) which could then be leveraged to generate new processes, business lines and enhance our competitive advantage. The atlas would also be an exceptional marketing opportunity, as well as a way to channel potential customers and partners to the SAIL organization.

A unique aspect to this atlas would be the inclusion of citizen science or publicly generated data that extends beyond the capacity of any one group, researchers or companies. This would mean that the people of the region are not only the beneficiaries of the atlas, they are also the creators.

Our intention for this SAIL project would be to develop the infrastructure, systems and governance to support the atlas within the first stages. The name could be *NEPTUNE 2.0* because the original Neptune Atlas (18th century) was the first to survey the entire region and was the basis for the first nautical maps and surveys of the region. It also continues the theme of SAIL being focused on the Atlantic and our ocean heritage.

The SAIL Atlas will be the means and opportunity to share data and knowledge across the Atlantic Provinces within a collaborative and open governance model. It will be designed and implemented so that people within, and outside, the region will be able to not only know about the region, but also be able to connect to those in the region, and to add their own unique data resources to the Atlas.

These three anchors provide a strategic focus for SAIL in that related needs (such as branding or identity and public profile) would be achieved through the development and delivery of the core components. Once these have commenced, the most critical workflow would be to develop and utilize the proper metrics to gauge the effectiveness of SAIL, adjust the organisation and workflows based upon those measures, and then shift towards a more sustainable model without the need for governmental funding.

Metrics

While the proposal includes a budget line for consultation services to adequately measure the metrics showing the impact of SAIL, there are certain broad areas we can already recognize as those where success can be evaluated. These would include:

- Ease of access to Open data and Open source software with Web mapping applications associated with ocean related impacts and a green economy.
- Level of public awareness of the sector and its role in supporting society and the environment. This would also include the citizen science (engagement) within the SAIL Atlas process (brand recognition)
- The number of new markets developed and their value to companies in the region especially in green technologies and emerging markets or developing countries
- knowledge translation of R&D into the private sector; speed from research to market.
- The level of funding received from outside government
- The shift in nominal GDP across the sector and across other sectors
- Productivity enhancements in other sectors
- Number of partnerships and MOUs developed and signed
- Number of trade missions
- Attendance and membership within SAIL Conferences
- Sponsorships for events and membership through partners
- Government uptake across departments and between provinces

- In terms of capacity building, metrics which are most obvious would support such measures as: Number of retained students; Exposure in schools; Transfers from HS to programs at university college; Retention from UGRad to graduate; Number of doctoral and post doc (funding MITACS) Internships
- Immigration (former workers and new migrants)
- Increase in marginal communities, Indigenous and gender equity employment
- Patents New applications; New web based services (amount of use, traffic, sales)
- Degree of collaboration in region to identify new markets in climate related fields
- Quantify the mitigation contributions of clean geomatics technologies
- Quantify improvements in health, environment, ocean resources
- Establish baselines for special sector contributions within a clean technology framework
- Financial measures for COP21 targets with new tech transfers to developing nations

The above metrics will, be defined through the SAIL Summit and in large part be scoped out during the first studies which will focus on the status and direction of the sector in the region. Moreover, a great deal of groundwork in measuring the sector, with a solid and vetted methodology that was previously conducted for NRCan through HAL (Hickling's, Arthur, and Low in Ottawa). We foresee collaboration there and/or a sharing or purchase of the methodology to speed up the process in this process.

Critical to success in terms of translating products and services for new markets and supporting domestic initiatives and needs within a green economy will be the involvement of partners in the region and creation of new companies or the expansion of existing firms. Such a focus and the creation of adequate metrics and prioritization of initiatives must be left up to the leaders at the SAIL Summit.

The rationale for the above is simple: far too often there have been similar sectoral realignments that have failed because of a lack of buy-in and a to-down approach. To succeed we must have the regional leaders in the sector ready and able to define their path forward. This also makes Year 1 of this effort the most critical as it will set the foundation for a community led approach to expanding the sector and increasing its impact on the region, the green economy and external, untapped markets.

For this reason, if year one does not put in place a community accepted model, then further funding will not be necessary.

Cross-sector and public benefits

The following are above and beyond the primary goal to increase the economic, social and green technology impacts of our sector within the Atlantic region. These benefits are in part:

a. Core geomatics sector

- Increased leadership capacity
- gains a stronger and more cohesive common identity
- recognizable brand that speaks to the regional nature of our work
- more understood message of what we do and contribute to the region's economy and society, especially within context of clean economic growth and oceans focused actions.

b. Geospatial data user community

- increase representation in emerging markets, news users and firms
- develops stronger ties with the core producers and the end users or value added firms
- expands the view and identity in line with the national value study by NRCan
- develop a sense of openness and governance based upon trends in technology and use of data rather than the past view limited to surveying and mapping.
- link the development of new technologies and data resources with existing firms thereby extending expertise and developing new marketable products and services

c. Private Sector

- greater recognition of the number and value of the firms
- more opportunities to make formal linkages across the region, thereby building capacity to compete more effectively and efficiently at other levels
- ability to share resources across firms to develop cooperative marketing and bringing to the market an 'Atlantic' approach and support rather than only one firm

d. Government agencies

- increase the exposure and reliance upon what government does best in both the sector and the geospatial data community
- expose more developers, companies, researchers and end users to the base products and services within government
- creates a governance structure that provincial and municipal agencies can utilize as a more collaborative means to share resources, data and experiences for mutual benefit

e. Not-for-profit agencies

- increase the exposure of the NPO agencies to the work and potential collaborations of the other dimensions within the sector and community
- showcase the vital role NPOs play in developing awareness through the use of our geospatial products, data and services
- act as an honest broker so that efforts fit into the needs of the wider community
- enhance the NPOs ability to find new partnerships and new avenues to increase awareness of their work and to support this through a formal membership within the governance structure (i.e. Board)

f. Education

- more effective creation and delivery of professional development opportunities and certification for members of the sector
- increase collaborations amongst educational institutions beyond existing research
- pursue ways to support the development and implementation of common or core curriculum at the post-secondary level which reflect developments in the sector
- gain support for and awareness of linkages to post-secondary activities and professional development, with career pathways for k-12 students

g. Public

- an increased awareness and appreciation for the reality that most of what we do is based upon our location- focused business, government and academic work
- showcase how location can be used in everyday life, planning and decision making through access to and use of the SAIL Atlas
- develop a wider user community, and enhance their exposure to potential markets, through public contributions of 'citizen science' information for use in the SAIL Atlas

h. Environment and Social Capital

- increased awareness of how environmental concerns, issues, and solutions are highly dependent upon the work we do with analysis of spatial relationship in the environment;
- create, through the SAIL Atlas, the means to explain our environmental situations and issues, as well as promote the solutions to many of the current concerns/issues;
- increase the ability of the public and all decision makers to understand the connections between “what happens where”, and the outcomes in other areas not normally seen as being part of the work we do (emergency services, health care, administration, building/planning, etc.)

i. All members of SAIL

- common brand and identity that expresses the nature of our work and value of our sector and community to the economy of the Atlantic region, with a recognized Atlas that all members and the wider public have a stake in;
- event that brings together a wider audience to look at the core technologies and also the wider uses of the data, solutions and potential for new products or services;
- a representative governance model built upon openness and collaboration, seeking to extend benefits to the widest possible community and increase our contributions to the regional economy, environment and society;
- A series of strategic studies (3 mentioned above in table of investment) that focus on actual plans to transform domains within the sector (data, education, professional development, climate/environment, identity/profile).
- a sense of pride and accomplishment that has been lacking for many years across the region, even if sometimes we have had that in individual actions - a sense of unity overdue.

Conclusion: Climate, innovative green growth and oceans.

It would not be hyperbole to suggest that the context for investment and economic growth must now be consistently placed within a Post-Paris Agreement, COP21 policy and action framework.

The current mandates, policy and funding directions of the Government of Canada clearly make the case that our national, regional and local efforts at enhancing – sustainably - Canada’s growth must be in keeping with the COP21 directives over the next several decades or longer.

Specifically, the COP22 meetings in Marrakech, call upon governments, business and people to act towards “adaptation, transparency, technology transfer, mitigation, capacity building and loss and damages.” This is also directly related to and supported by recent calls in Canada for clean technologies, smart cities, new process for green business development, and engagement strategies for citizen participation.

In terms of the Paris Agreement, and the agenda for COP22, the geomatics sector is one of the better placed participants and leaders to address the key areas of adaptation, transparency, technology transfer, mitigation, capacity building, as well as addressing equity in the area of loss and damages.

Two things are happening in tandem as they relate to the geomatics sector in both Canada and Atlantic Canada. One is the continuation of an innovation stream with market development, capacity building and research leading to new processes and technologies. The other stream is the restructuring of the sector to further our existing support of green technologies and increasing the productivity of other sectors while helping decrease their negative impacts as measured in total Greenhouse Gases (GHG). This proposal outlines both of those streams and how they intersect in ways which provide Atlantic Canada with an opportunity to capitalize on existing expertise and capacity to move us forward under a clean-tech economy. This supports Canada’s Paris commitments and the policy and investment trends at home and abroad as they relate to shifting the economy away from fossil fuels. This moves us positively towards more renewable, smart technology better planning and more equity in socio-economic terms and over health of citizens.

To suggest we can continue along previous models for growth and sustainability is clearly not on the table. A new approach and mindset is needed. This has been more than adequately expressed by recent government announcements, the Ministerial Mandate letters, and international cooperation and agreements across sectors. The geomatics sector began this shift before the new directives, and we have always been a sector that underpinned and designed the foundation for future development based upon location – the where of everything we do.

Any information we see in any type of map or image of the earth has its root in our work. Nothing can ever be placed on, under or above the surface without our technology and expertise. When people speak of shovel ready activities, we are the sector that comes in before the shovel can be used.

Whether it be where a house is, a property line, a road network, or a water system, the location – the “where” – is the most critical element of knowledge. Such information is vital to effectively plan, develop and manage infrastructure, social services, resource development, and environmental management.

The impact of our sector’s research and development has become commonplace in our daily lives, even though it is seldom recognized. Such contributions to our lives, economy and environment do not come easy or overnight. Like all things we do as a society, they require dedication, education and training, private sector development, investment and market capture, government regulation and standards, and the input of citizens through not-for-profits.

To be more competitive and to fully realize the potential of the sector’s long history and leadership in Atlantic Canada, we need to find new ways to collaborate and cooperate across the many silos within the region. We need to be both nimble and active as a community across boundaries; we need to develop actual structures, organizations and a marketing capacity to further our common goals of economic growth and socio-environmental health.

Atlantic Canada provides an incubator and a test market; a place to evaluate innovation before going to market. This creates better goods and service, and lowers or manages risk, further allowing us to prove to markets that we are ready, able and tested. Thankfully, the diversity of environments and needs for our tech across sectors but with specific emphasis means our market opportunities are broader.

From an ocean standpoint, SAIL will enhance the current efforts across the North Atlantic through the *Galway Initiative* with the potential to share resources and build better tools for decision making. This will be a focus of SAIL as there are also opportunities to inject our regional sector into those processes which will make for far better business and export development connections, while at the same time extending research and capacity building.

Additionally, recent efforts through the Arctic Council point to the need for experts in these areas to align their work through spatial technologies. Interestingly, much activity on, or in the arctic arise out of the Atlantic region which is home to the major populations centres and the shipping/military/coast guard fleets. For this reason, we see SAIL as being co-located within the COVE site recently announced among governmental partners, ACOA and educational institutions. This would also provide a stronger link to the Ocean Frontier Initiative which connects across the region. To focus on climate, green technologies and the ocean sector, this would be the ideal strategic effort.

Our sector is capable of standing on its own. However, there is also an immediate need to provide some sort of incentive or kick-start to gain an advantage or leap-frog ahead of our competitors (at the minimum catch up). This is why our proposal to expand **SAIL – Spatial Atlantic for Innovation and Learning**- is being put forward for investment consideration by ACOA. We do not seek some means to create and continue something which will require continual investment for government. We seek to establish something that will grow and return to our region even more than our current contribution.

SAIL is a means to an end; it acts as a catalyst through coordinating deeper collaborations. It is also a process as much as a structure or organization. It is a community based network that allows for common messaging through a regional brand, identity and marketing strategy. Through our stated focus on a green economy, and a thematic view of the oceans as the most significant aspect within climate change, SAIL will become a geomatics leader for smart and clean growth.

	Year 1	ACOA	In-kind/cash	Year 2	ACOA	In-kind/cash	Year 3	ACOA	In-kind/cash
Identity									
design/materials	\$3,000		\$3,000	\$1,000		\$1,000	\$1,000		\$1,000
Sub-Total	\$3,000	\$0	\$3,000	\$1,000	\$0	\$1,000	\$1,000	\$0	\$1,000
Coordination									
Travel	\$5,000		\$5,000	\$5,000		\$5,000	\$5,000		\$5,000
Office/site rental	\$5,000		\$5,000	\$5,000		\$5,000	\$5,000		\$5,000
Admin	\$30,000	\$25,000	\$5,000	\$30,000	\$20,000	\$10,000	\$30,000	\$15,000	\$15,000
Event planning	\$10,000	\$10,000		\$10,000	\$10,000		\$10,000	\$10,000	
Sub-Total	\$50,000	\$35,000	\$15,000	\$50,000	\$30,000	\$20,000	\$50,000	\$25,000	\$25,000
Strategic Studies									
Open Data & Tech				\$10,000		\$10,000			
Capacity Building	\$10,000	\$10,000							
Geomatics & Green Tech	\$10,000	\$10,000							
Governance	\$10,000	\$10,000							
Markets and Trade				\$10,000		\$10,000			
Metrics evaluation							\$5,000	\$5,000	
Sub-Total Studies	\$30,000	\$30,000	\$0	\$20,000	\$20,000	\$0	\$5,000	\$5,000	\$0
Sub-Total	\$83,000	\$65,000	\$18,000	\$71,000	\$50,000	\$21,000	\$56,000	\$30,000	\$26,000
SAIL Summit									
50 Invited Leaders	\$75,000	\$37,500	\$37,500						
Facilitator	\$5,000	\$5,000							
Facilities/materials	\$7,500	\$7,500							
sub-total Summit	\$87,500	\$50,000	\$37,500						
SAIL Conference									
Registration Fees							\$30,000		
Sponsorships							\$20,000		
Exhibits							\$20,000		
Site				\$10,000	\$10,000				
Supplies/Admin				\$5,000	\$5,000				
Food				\$20,000	\$20,000				
Expenses	\$87,500	\$50,000	\$37,500	\$35,000	\$35,000				
Revenue			\$37,500				\$70,000		
TOTAL	\$170,500	\$115,000	\$55,500	\$106,000	\$85,000	\$91,000	\$56,000	\$30,000	\$26,000
Total In-kind/Cash	\$172,500		Total ACOA	\$232,500		Total Project	\$332,500		
% In-Kind/Cash	51%		% ACOA	69%					

Budget Notes:

- GANS has agreed to provide \$10,000 in cash for the first year which will cover the travel and some of the part-time administration costs. GANS, as the lead organization in the region, is providing cash as a means to instill trust in the process and an example for investment in the sector over the long term,
- The following year's contribution to administration and event planning will be derived from the revenues generated through the summit (\$37,500).
- Office space is being provide by Esri Canada at a value of \$5000 per year.
- Additional support for coordination and facilitating is being provide by Dalhousie University at a sum of \$7500 per year.
- Additional in-kind contributions (\$6000) will provide for support in creating materials, web sites, facilitating events, extra communications when and if needed, and promotions across other organizations.
- We also expect a contribution from the Nova Scotia Community College system that may defray other costs, or at the least act as buffer to support any areas in need of assistance during the project.
- The heavy costs during the first year are due to the critical nature of the SAIL Summit. This event will determine how the governance of the sector will be determined at a regional level, and then it will determine the level of financial and personal/in-kind support the sector is willing to invest.
- The second year sees the SAIL Conference take place, and this becomes a review-generating event to cover costs for the 3rd year and forward after that.
- By the third year, SAIL must be self-sufficient, and there have to be metric studies which indicate a return on investment through external markets, new jobs creations, new technologies, patents, and the like. Additionally there should be a noticeable impact on the development of smart technologies for cities and infrastructure, and for a shift to a green economy meeting climate change policies and actions.