Report to

Service Nova Scotia & Municipal Relations

GeoNOVA Initiative – 5 Year Strategy

User Evaluation Report

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1. EXECUTIVE SUMMARY

The GeoNOVA Initiative – 5 Year Strategy User Evaluation Report documents information gathered from users regarding their past experience with GeoNOVA, current business requirements and the future direction of GeoNOVA.

Users were consulted through 11 one-on-one interviews, six Trends and Technologies workshops with 42 stakeholders attending, and five focus groups with a diverse assortment of 51 stakeholders involved. Data was compiled from facilitated focus group discussions and from questionnaires used as part of the focus groups. An extensive set of quantitative data has been compiled.

The report presents findings based on the data gathered and makes observations about these findings. The observations form the user consultation component of the GeoNOVA Program Evaluation Report. Key observations include:

There is a widespread and growing need for geographic information and the integration of different sources of geographic information.

There is a strong commitment to the principles of GeoNOVA.

Stakeholders want a single on-line access point, or portal, where they can discover, access and analyze geographically related data about Nova Scotia.

There is much work to be done to achieve this.

The current structure of GeoNOVA is ineffective.

There is strong support for SNS&MR to lead the GeoNOVA initiative for the next 5 years provided:

- A clear direction is set
- A workable governance model is employed
- Stakeholders are engaged as partners
- A realistic plan is set with achievable results
- Constraints stakeholders are working within are recognized

Stakeholders are looking to the future with anticipation. They want to see GeoNOVA as part of that future.

2. INTRODUCTION

2.1. Purpose

The purpose of the GeoNOVA Initiative – 5 Year Strategy User Evaluation Report is to document information gathered from users regarding their past experience with GeoNOVA, current business requirements and the future direction of GeoNOVA.

The GeoNOVA Initiative – 5 Year Strategy study will result in three reports:

- User Evaluation Report
- Program Evaluation Report
- Strategic Directions Report

The User Evaluation report documents the data gathered from users through focus groups and questionnaires, used in the focus groups. In some instances, focus group findings are augmented with data from one-on-one interviews. The report presents findings based on the data gathered and makes observations about these findings. These observations form the user consultation component of the Program Evaluation Report and enable the Program Evaluation Report to focus on the program, without including the bulk of material associated with documenting the user consultation.

2.2. Background

The GeoNOVA Initiative – Five Year Strategy project is an opportunity to reflect on the effectiveness of GeoNOVA over the past 10 years and re-focus on the GeoNOVA Vision and key strategies required to make significant progress in the coming five years.

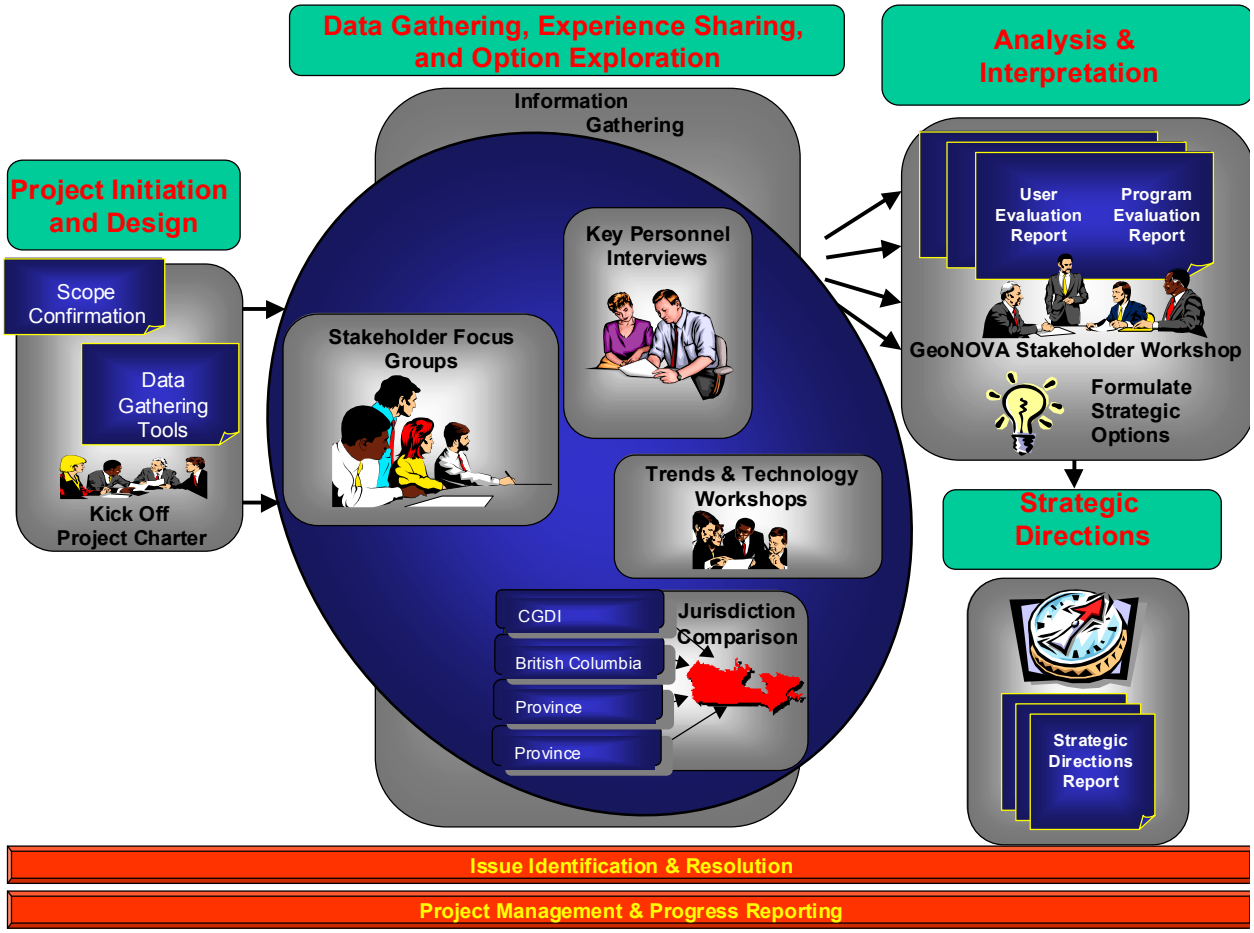
Service Nova Scotia & Municipal Relations retained Sierra Systems to assist in examining the performance of the GeoNOVA Initiative to date, determining current and future user requirements from a broad base of stakeholders, explore trends and best practices in the industry, and identify options for GeoNOVA's future. A major component of this study involved consulting a wide range of stakeholders from data providers to sophisticated partners to emerging users.

3. APPROACH

3.1. Project Approach

The GeoNOVA Initiative – Five Year Strategy study encompasses four phases with logical deliverables from each phase. Each phase consists of a group of activities that provides information as a foundation for the next phase and for making management decisions. Figure 1 depicts the approach and phases for this project.

Figure 1: Project Approach and Phases



The overall approach to gathering user evaluation data was to conduct interviews, surveys and focus groups with GeoNOVA Initiative stakeholders and users (including GeoNOVA partners) from the provincial, municipal, federal governments, the academic and private sector communities. The intent was to solicit feedback and to identify priority user requirements now and over the next five years. Prior to facilitating the focus groups, Sierra Systems conducted a series of Trends and Technologies workshops to stimulate thinking and discussion about the future of GeoNOVA based on industry trends and activity in similar jurisdictions. Jurisdiction reviews will be dealt with in the Program Evaluation Report.

Interview, workshop and focus group invitations were extended based on a list of names developed by the GeoNOVA Project Committee.

A series of data gathering questions were developed and reviewed by the Project Committee. These were then used to formulate interview guides, focus group discussion questions and focus group questionnaires.

Eleven one-on-one interviews were conducted with people involved in developing and delivering GeoNOVA program components, as well as emerging users. Appendix A - Stakeholders Consulted contains a list of interviewees. Due to the confidential nature of the interviews, interview notes are not included in the report. Nine of eleven interviewees also attended focus groups and filled in questionnaires. Their views are included with those of other stakeholders. Findings from the interviews are used to inform and shape the findings and observations in the Program Evaluation Report.

Six Trends and Technologies workshops were conducted for 82 attendees involving 42 different stakeholders. After a slow start, the sessions succeeded in stimulating discussion and consideration of alternative approaches seen in other jurisdictions. It was important to remind attendees that the sessions were not presenting the preferred path for GeoNOVA's future but were intended to inform the development of Nova Scotia's own path forward. Topics covered included:

- Business Drivers and Technology Options
- GeoPortal Concepts and Realities
- Implementing Large Geospatial Information Systems
- Canadian Geospatial Data Infrastructure (CGDI)
- British Columbia - Case Study & Lessons Learned
- Specific Session for Nova Scotia Geomatics Centre Specialists

Presentation material from the workshops is contained in Appendix I - Trends and Technologies Workshop Presentations.

Five focus groups were conducted with a diverse collection of stakeholders. Appendix A - Stakeholders Consulted contains a list of the attendees. The following outlines the types of stakeholders engaged:

Stakeholder Type	Estimated Number of Attendees
Provincial – Custodians & Users	20
Provincial – Emerging Users	7
Municipal – Custodians & Users	15
Federal – Users	3
Academic – Users	4
Private Sector – Users & Developers	2
Total	51

In addition, a focus group was conducted with the St. Mary's University senior/graduate GIS class to further explore the awareness and needs of emerging users. This group, of 13 students and one professor, was representative of new professionals who will be using GIS applications over the next 5 years. Only 3 sets of questionnaires from this focus group are included in the tabulated results. Among the 10 other questionnaire sets, the high number of "Don't Know" responses would have unnecessarily skewed the percentages calculated for groups of answers.

The focus group sessions used a combination of questionnaires and group discussion all based around the data gathering questions formulated at the outset of the study. A GeoNOVA Awareness questionnaire was filled out at the outset of the session to determine stakeholders' awareness coming into the focus group. This was discussed and then a Geographic Data and Use questionnaire was used to determine use of data, standards, and challenges associated with the use of GIS in the stakeholders' business. Although this questionnaire did not address the GeoNOVA program directly, it sought to determine the impact of GeoNOVA by asking about data sharing, access to data, awareness and impact of standards and policies. These topics were then discussed as a group.

A brief SNS&MR presentation on GeoNOVA was given to provide focus group participants with a baseline understanding of what GeoNOVA was intended to be and to accomplish. Appendix B - GeoNOVA Program Presentation contains a copy of the slides used. Focus group discussion then moved to explore stakeholders' perceptions and experience of the GeoNOVA program. This was followed by discussion of future directions and the role of GeoNOVA. At the end of the focus group, attendees were asked to complete a final questionnaire regarding GeoNOVA's future.

Key points of discussion were captured on flipchart sheets and posted during the session. These were subsequently transcribed for inclusion in this report as Appendix H – Notes from Focus Group Discussion. Note that a significant number of questions were formulated for focus group discussion. Not all of these questions were used and the sequence of questions was not rigidly adhered to. As discussion flowed into various areas of interest, points were made and noted. The

questions were used to spark discussion and provide a broad framework to ensure key areas were addressed.

The following detailed material is provided in the appendices:

- Appendix A: Stakeholders Consulted
- Appendix B: GeoNOVA Program Presentation
- Appendix C: Focus Group Questionnaires
- Appendix D: Questionnaire Question Key - A list of the questions, question numbers and abbreviated questions from the questionnaires. This is helpful in reading the compiled results of the questionnaires.
- Appendix E: Questionnaire Results – Results are sorted by question, user type and answer.
- Appendix F: Tabulation of Answer Counts - Contains a tabulation of counts of answers to questions that are readily quantified.
- Appendix G: Focus Group Discussion Questions
- Appendix H: Notes from Focus Group Discussion
- Appendix I: Trends and Technologies Workshop Presentations

4. KEY FINDINGS

The following sections describe the key findings from the focus groups and questionnaires. Each question is posed and a summary of the responses follows. The detailed responses to each question are given in Appendix E – Questionnaire Results.

Since this is a user evaluation report, every effort has been made to reflect the views of the users. Where applicable direct quotes of their comments are used. Not all of the comments are necessarily accurate but from a user perspective, perception is reality. An evaluation of the findings will be made when considering which findings have a bearing on the program evaluation.

The results are structured in the same framework as the focus groups were conducted:

- GeoNOVA Awareness
- Geographic Data and Use
- Experience of GeoNOVA
- Future Directions and GeoNOVA

Where applicable, quantitative results from the questionnaires are given. In some instances, for example "How have you heard of GeoNOVA?", responses were made as comments and these were categorized into a logical set of categories derived from the main types of answers. The category "Other" is used for widely varying responses or responses which did not apply to the question.

In other instances, for example "Extent you use – Air Photos", specific responses were given on the questionnaire to choose from, for example "Critical, Routine, Occasional, Not Applicable". These responses were easily tabulated. A complete listing of the quantified results is given in Appendix F - Tabulation of Answer Counts.

In other instances, comments are given with no obvious way to categorize the responses. Findings in these areas have been made based on reviewing the comments and seeking to determine a theme or themes that emerge.

For some questions, a sampling of stakeholder comments are included to communicate the diversity or flavour of opinion on the topic.

4.1. GeoNOVA Awareness

This section seeks to gauge stakeholders' level of awareness and understanding of GeoNOVA coming into the focus group session. Stakeholders were asked to fill out a GeoNOVA Questionnaire prior to any group discussion occurring.

4.1.1. GeoNOVA Name Recognition

How have you heard of GeoNOVA?

Answer	Count	Percent
Committee	7	18%
Department	7	18%
Yes	5	13%
Web	3	8%
Informal	2	5%
Interactions between departments	2	5%
Many ways	2	5%
Other	2	5%
Presentations	2	5%
SNSMR Contact	2	5%
Conference	1	3%
Documents	1	3%
Limited	1	3%
Meetings	1	3%
Projects	1	3%
Use data	1	3%
	40	**100%**

Due to the nature of the attendees, the GeoNOVA Advisory Committee and through staff work within provincial departments were the dominant form (36%) of hearing of GeoNOVA. Outside of this there were a wide range of ways. Surprisingly 6 of 13 St. Mary's University students had heard of GeoNOVA, primarily through the Nova Scotia web site or the GeoConnections' web site.

4.1.2. View of GeoNOVA

What is your view of what GeoNOVA is?

Other	10	22%
Coordination	9	20%
Capture once use many	6	13%
Data collector & provider	6	13%
Data warehouse	5	11%
Sharing data	5	11%
Advise on GIS	1	2%
Data clearinghouse	1	2%
One stop shop for data	1	2%
Portal	1	2%
	45	**100%**

There are many views on what GeoNOVA is. It is evident that data predominates the responses, 25 of 45 responses or 55% are directly related to data or data access. Coordination was the other major item at 20%. There is no single specific focus or message stakeholders associate with GeoNOVA.

The following comments came from the focus groups and exhibit the wide range of views:

- SNSMR provide advice to government on GIS across government
- Set and communicate standards to users and non-users
- Develop corporate data bases such as
  - roads – topographic layer
  - property ownership layer
  - co-ordinate reference system
- Co-operative initiative within common stakeholders to share responsibilities for maintenance and data with recipients of resulting data
- Promote benefits of spatial data to other departments
- Geographic Infrastructure containing building blocks of data maintenance by owners
  - Data collected once at source
  - Standards for data
- Agreement among departments to share data and a technology to enable shared data

- Seamless and transparent integration of data sets
- Sharing data between different departments/organizations to avoid duplication
- Clearing house to collect and disseminate geo-spatial data
- Organize to bring spatial analysis into government decision making

4.1.3. GeoNOVA's Objective

What is the ultimate objective of GeoNOVA?

Provincial Database -Accessible	10	25%
Awareness	4	10%
Cost savings	4	10%
One stop shop for data	4	10%
Sharing data	4	10%
Capture once use many	3	8%
Better decisions	2	5%
Coordination	2	5%
Don't know	2	5%
Advise on GIS	1	3%
Economic development	1	3%
Implement GIS	1	3%
Other	1	3%
Policy leadership	1	3%
	40	**100%**

Focus on data is a dominant theme when data related categories are combined, giving 21 of 40 responses or 52%. There is more diverse opinion on GeoNOVA's ultimate objective than there is on what GeoNOVA is viewed as.

The following comments came from the focus groups regarding GeoNOVA's objective:

- Efficiently build, maintain, and disseminate geographic data such that collect once share many times
- Foster co-operation between departments collecting and sharing
- Provide advice to government ensure GIS effective and efficient implementation across government
- Enable better policy analysis and development based on better data

- Making corporate data available to many by collecting at source
  - avoid duplication (provincial, municipal, federal)
- Save dollars
- One stop shop for geographic information (everything; municipal, provincial, business)
- Free exchange of information
- Draw business to the province by our facilities/showing our environment to business/investors
- Inventory of digital data and services (how to get permits...)

4.1.4. Recent Action from GeoNOVA

When was the last time you saw action from GeoNOVA?

Current study	7	19%
Don't know	6	17%
1 year or more	5	14%
Projects	5	14%
Other	4	11%
Provincial Discount Agreement (PDA)	4	11%
Committee	3	8%
Never	2	6%
	36	**100%**

Stakeholders do not view GeoNOVA as active. Exceptions to this are projects with a GeoNOVA orientation, for example the Nova Scotia Civic Addressing, Transportation and Public Works GIS Data Warehousing Pilot and Target Nova Scotia and work on the ESRI Provincial Discount Agreement (PDA).

4.1.5. Promotion of GeoNOVA

Do you think GeoNOVA should be more widely promoted?

Yes	30	77%
Only if	5	13%
Other	2	5%
Don't know	1	3%
No	1	3%
	39	**100%**

There is strong support for increased promotion of GeoNOVA. There is also qualified support suggesting promotion be done once GeoNOVA's role has been clarified, there are resources committed to it's delivery, or there are accomplishments to promote. Numerous suggestions were made regarding means to promote GeoNOVA and audiences to target.

The following comments came from the focus groups regarding wider promotion of GeoNOVA:

- Initiatives should be more widely promoted and understood (e.g. relationships between the NSCAF, NSPRD, and Target NS websites)
- GeoNOVA has to be more than a concept, i.e. needs an operational budget
- Only if the province is committed to its objectives - how to DELIVER. Ensure it has profile in other organization's successes it significantly contributed to
- Promotion isn't the problem… altering the partnership framework is
- Regular emailings would be a start, backed up by a web site
- Yes - various means. Individual and group meetings with stakeholder groups. Development of a communications strategy and plan to include stakeholders. Promote examples of projects. Conferences
- Yes - Feel it has already made tremendous strides by bringing together departments which collect and use this data. More marketing and identification of its use and expand the client base
- Yes - Need a better definition of what GeoNOVA is
- Yes - needs to be promoted at senior levels within non-traditional GIS user departments
- Yes - more data on the internet and more regular correspondence with stakeholders
- Yes - through all means possible top-down, bottom-up
- Yes - understanding other provincial departments data, methods & collections should be promoted
- Not until its role is better defined. Understanding of GIS technologies is extremely varied at senior levels
- Yes - need more involvement of GeoNOVA representatives and dissemination of information

4.2. Geographic Data and Use

This section seeks to understand stakeholders' business requirements and use of geographic data. By asking about areas that GeoNOVA touches, standards for example, a view of the influence/impact of GeoNOVA emerges. A Geographic Data and Use Questionnaire was completed by each respondent after discussion of GeoNOVA Awareness and prior to group discussion of geographic data and use.

4.2.1. Use of Geographic Information and Technology

To what extent do you use of geographic information and technology?

Critical	29	73%
Routine	8	20%
Interested	2	5%
Occasional	1	3%
	40	**100%**

Not surprising given the targeted stakeholders, 93% of respondents view geographic information and technology as a critical or routine part of their business. During focus group discussion there were strong statements made regarding the vital and growing importance of, and dependency on, geographic information and technology. There are many application areas that have yet to be exploited.

4.2.2. Major Geographic Information Initiatives Underway

What major initiatives do you have underway with geographic information?

An incredibly wide and diverse array of initiatives incorporating geographic information are underway within the province. Respondents identified 79 major initiatives. In discussion it was evident there are countless small simple applications providing significant benefits to their users. As one respondent indicated their initiatives were “Too numerous to mention”. The number of applications is growing daily. See Appendix E – Questionnaire Results, question 202 for a listing of the initiatives.

4.2.3. Geographic Data Maintenance

What place does database maintenance play in your organization?

Critical	26	65%
Routine	10	25%
N/A	2	5%
Occasional	2	5%
	40	**100%**

Stakeholders are heavily involved in data maintenance with 90% indicating it is a critical or routine part of their business. Even among emerging users, data maintenance was critical to 50% of respondents.

4.2.4. Use of "Primary" Databases

The following table summarizes the extent of use of the "primary" datasets:

	Critical	Routine	Occasional	Not Applicable	Respondents
Coordinate control network	38%	21%	18%	24%	34
Air photos	22%	24%	35%	19%	37
Topographic data	55%	25%	15%	5%	40
Property Records	55%	15%	23%	8%	40
Civic Addressing data	51%	13%	13%	23%	39

The coordinate control network is a critical component to determining the coordinate location of features. The majority of emerging and municipal users viewed it as not applicable.

Air photos are currently available as hardcopy prints. Considerable interest was expressed, particularly by municipal users, in digital orthophotos.

Topographic data is viewed by most respondents as "the base map" with 80% using it routinely or as a critical part of their business.

Property records are a close second with 70% of respondents using them routinely or as a critical part of their business.

Civic addressing data is used routinely or as a critical part of their business for 64% of respondents. 4 of 7 emerging users rated civic addressing data as critical.

4.2.5. State of the Province's Geographic Data

The following table summarizes respondents' opinions of the state of the province's geographic data:

	High	Medium	Low	Don't Know	Respondents
Availability	33%	55%	8%	5%	40
Relevance	58%	38%	0%	5%	40
Accuracy	35%	55%	5%	5%	40
Timeliness/up to date	5%	58%	28%	10%	40
Accessibility	30%	43%	20%	8%	40
Cost	26%	31%	23%	21%	39

The responses regarding whether data is available for use indicates that there is a general level of satisfaction (only 8% rated availability as low) but with the majority of users rate availability as medium (55%) indicates is there is room for improvement. The ratio of high to medium satisfaction was the same across all types of user groups.

The majority of stakeholders rated the relevance of the data to their needs as high (58%). The combined total for high and medium is 96% of respondents.

Accuracy follows an almost identical pattern to availability, indicating general satisfaction but room for improvement. Only 1 of 8 emerging users rated accuracy as high.

Timeliness and currency of data is a significant concern for users with 28% rating the province's data as low currency and only 5% rating it high. This is an area where expectations continue to rise as improvements in timeliness increase.

Opinions on accessibility of data are mixed. With 20% of respondents believing accessibility is low, this is an area where improvement is expected.

There is an issue with the wording of the cost question. It is intended to ask for a rating of your "opinion of the costing policies/practices in the province". Hence a "high" rating is considered good. There may be some confusion where a respondent rated "high" as high cost and not a high opinion. In examining the details of the responses by user type, the latter misinterpretation does not appear to be occurring. Opinions on cost are split roughly four ways between high, medium, low and surprisingly "don't know". Municipal and resource users rated the cost policies highly. 4 of 7 emerging users said they "don't know". Surprisingly, 4 of 6 primary providers of data rated the item as "don't know".

Stakeholders indicated particular challenges in securing data outside of the "primary" datasets. One respondent commented, "For SNS&MR and NSGC (Nova Scotia Geomatics Centre) things are great and getting better. For other departments…ARGHHHHHH!".

The following comments on the state of the province's data came from the focus groups:

- PID-AAN (Parcel Identifier-Assessment Account Number) link is still an issue
- Good service from NSGC but there's a lot of work to create a data set covering a large area because data availability at management unit level. Require a seamless database linked to attributes
- Obtaining data from NSGC not a problem
- Cost not a problem
- Difficult to get "added value" data sets - may be a lack of resources, e.g. converting data to another format. We don't have staff in-house to do this

- In the past, were able to obtain more support from NSGC
- Problems in getting data from other departments (e.g. DNR Protected Areas) - data licensing obstacles in digital format (was available in hard copy)
- Getting data from Assessment, there are ambiguous FOIPOP (Freedom of Information and Protection of Privacy) issues
- No clear definitions/agreements with municipalities to include their data within provincial data sets
- As a provider of info it is unclear what should and should not be released
- Need current info on ownership and assessment changes thru NSPRD on-line (improving)
- Need provincial standard for geo-referencing for survey plans for digital submission and approval
- Need building footprints for issuing permits
- Accessibility - Phone up "the guy"/"the girl" to get the data. Should be able to get it on the web
- Signing data licenses with each provincial department is silly - should license agreement for all Municipal – Provincial data
- Cost is an issue with - land cover, - air photos
- Accuracy is not the issue – how it is collected is important to know

4.2.6. Ease of Access and Sharing of Geographic Information

How do you rate the access and sharing of geographic information in the province of NS?

Easy	4	10%
Reasonable	25	61%
Difficult	12	29%
	41	**100%**

It is interesting to compare these results with the previous question on accessibility. From the previous responses it was evident that data was accessible. From this question it is evident that 90% of respondents did not find access easy. Additionally, unlike other questions, there were no respondents who rated "don't know" indicating all of the stakeholders had experience and/or opinions on ease of access and sharing.

Ease of access and sharing varies from agency to agency, as one respondent commented, "Depends on who you are sharing data with." The access issue is of concern to both data users and providers. One primary data provider commented, " Data access presently requires interaction from both the requestor and data provider. Could automate delivery, licensing, payments, etc." thus reducing the burden on providers as well.

4.2.7. Awareness of and Adherence to Provincial Policies

The following table summarizes respondents' awareness of and adherence to provincial policies with respect to:

Policy	Aware				Adhere			
	High	Med	Low	N/A	Yes	No	Partial	N/A
Coordinate referencing - NAD'83 & UTM	59%	14%	27%	0%	52%	3%	13%	32%
NSTDB - data collection standards for topo data	28%	25%	33%	14%	29%	0%	29%	42%
Property Records	50%	21%	11%	18%	44%	0%	6%	50%
Data Distribution - licenses, price encourages use, free to provincial users, commercial use approved	50%	34%	11%	5%	91%	0%	6%	3%

Each question had 31 to 38 respondents.

Coordinate referencing is an interesting problem. Through discussion it became clear that there was confusion regarding whether the policy did indeed stipulate NAD'83 and UTM as the standard or did it just encourage users to move in that direction. This lack of clarity was true for primary providers of data. Given the numerous comments received regarding problems with ATS'77 data and intentions to move to NAD'83, it is surprising that 76% of respondents who indicated coordinate referencing applied to them, indicated yes they adhere to the coordinate referencing policy (76% is calculated by dividing 52% of respondents who indicated they adhere to the policy by the total number of respondents for whom coordinate referencing was applicable, 52% + 3% + 13% = 68%).

Awareness of NSTDB standards, 53% rated high or medium, was not as high as others. Adherence was equally split between yes and partial for those to whom the standards applied.

Property records policies had a reasonably high level of awareness, 71% rated high or medium. 88% of respondents affected by these policies believed they adhered to them (88% is calculated by dividing 44% of respondents who indicated they adhere to the policy by the total number of respondents for whom property records was applicable, 44% + 0% + 6% = 50%).

The data distribution policy rated well at 84% of respondents having a high or medium awareness. Given this it is interesting to note 91% of respondents adhered to the policy.

Overall, only one stakeholder admitted to not adhering to a policy. In general, excluding NSTDB standards, 71%-84% of stakeholders had a high or medium awareness of the policies and 76%-93% of stakeholders, to whom the policies applied, complied with these same policies.

4.2.8. Effect of Policies and Standards

Are policies and standards a help or a hindrance?

Help	17	46%
Hindrance	11	30%
No effect	3	8%
Other	3	8%
Wider use required	2	5%
Lack of awareness	1	3%
	37	**100%**

Less than half of the respondents see policies and standards as a help. At 30% a significant number see them as a hindrance. This is a particularly important finding as stakeholders express strong desires to improve access to and integration of data sets.

One respondent commented, "Policy and standards provide a needed framework to integrate data from various sources." Another respondent noted, "Benefits are not always apparent." A good summary comment was, "Sometimes (standards) appear as a "very necessary" hindrance – essential."

4.3. Experience of GeoNOVA

The following section describes stakeholders' experiences of GeoNOVA based on focus group discussion. No specific questionnaire was used to gather responses for this topic. Comments come from focus group notes and in some cases are augmented by insights from interviews.

4.3.1. Past Accomplishments

Of the 5 focus groups, only the 2 provincial and municipal groups were able to list past accomplishments. Emerging, federal and academic groups could not. Accomplishments included:

- Understanding
  - Fostering of "some" government support for the GeoNOVA concept
  - Relationships between the province and municipalities have improved
  - Implemented examples of "collecting data once and using many times" with RIMS capturing data on behalf of the Assessment Division

- Data
  - Completed coverage of the primary data sets in a standard format was a major move forward
  - Establishment of standards was considered positive even though they may be dated or have outstanding issues associated with them
  - Improved ability to vertically integrate data sets
- Access
  - Free exchange of data between provincial departments was a major move forward
  - Easier to access data
  - Dealing with the Nova Scotia Geomatics Centre (NSGC) on access to data has improved – and we're not afraid it will cost lots
  - Nova Scotia Directory of Geographic Information – even though it is out of date
- Use
  - Increase in the use of GIS by non-traditional users
  - Some technology transfer to new users
- Financial
  - Opportunities to leverage the Map Fund to apply for GeoConnections funding, even though the applications were unsuccessful
  - A Provincial Discount Agreement (PDA) with ESRI for GIS software

4.3.2. Lost Opportunities

The focus groups listed the following as lost opportunities or areas GeoNOVA has not delivered on:

- GeoNOVA Concept
  - Too much focus on the high-level concept and not sold practical initiatives as outcomes/building blocks of GeoNOVA.
  - People want products – not GeoNOVA. They want a map
  - It is unclear whether the Deputy Ministers have bought into the concept
- Understanding
  - Very poor communication from GeoNOVA Advisory Committee representatives to department staff. Staff continue to be surprised at what is available
  - There is a disconnect between management and technical levels

  - Did not develop strong working relationships with the working level. When departments start with GIS there is one or more people at the working/manager level who champion the use of GIS. Relationships are required at this level
  - There is a lack of trust by all participants as to the role of GeoNOVA within their respective jurisdictions
  - There is lots of activity in the municipal and private sector which GeoNOVA is not engaged in. Municipalities have never been invited to the GeoNOVA table
- Standards
  - The issue of the NAD'83 coordinate referencing system is still not resolved
  - Standards work has not been sustained and has fallen out of date
  - Standards are in place but departments are happy to go off and do their own thing
  - There are no standards for GIS software
- Use
  - GeoNOVA has been seen as the NSGC doing things for departments. The NSGC role should be to support the departmental client and the private sector until the project is self sustaining
  - Not seen the expansion of use of GIS technology to other departments
  - There is a need to assist new users/departments through training
  - GeoNOVA pilot projects have focused on stovepipe/narrow data sets. GeoNOVA pilots should be more broadly focused using lots of different data sets
- Data Access
  - Expected a single portal to access all geographic information from one site
  - Not able to easily determine what data is available or is planned to be available. Now I have to phone people
  - Ease of access and sharing of data between departments is not good
  - Expected a Wide Area Network to deliver geographic data
- Financial
  - Expected to save money on technical infrastructure
  - We have not tapped GeoConnections funding for information infrastructure

4.3.3. Additional Comments Regarding Accomplishments and Lost Opportunities

- (We) would have the "primary" databases without GeoNOVA. There has been nothing done in GeoNOVA that would not have been done without GeoNOVA.
- Good projects are driven bottom up. After a project is successful it is labeled as a GeoNOVA project.
- The success of GeoNOVA pilots in moving to an ongoing application is based on having an internal project champion.

4.3.4. Effectiveness of the GeoNOVA Initiative

What is your view of the effectiveness of the current GeoNOVA initiative?

It is interesting to note that stakeholders engaged with GeoNOVA, provincial departments, are frustrated with its performance while stakeholders outside of GeoNOVA, municipalities for example, are generally positive.

Municipal comments:

- Getting data is easier
- Access to data is getting better
- "Nothing but happy." The information we are getting for free is great (some data we can't afford to pay for – but it would be worth paying for)
- Provision of base and property mapping is effective
- Our common goal is better information
- A clearinghouse and access to data is ineffective.

Comments from other stakeholders, primarily provincial departments:

- Still not collecting data once at source – we have a long way to go
- Still challenges with getting access to data – information is power. Owners of data are protective of access
- Everything would have been done without GeoNOVA
- SNS&MR has been effective in moving projects forward but what about other departments?

4.3.5. Effectiveness of the GeoNOVA Structure

What is your view of the effectiveness of the current GeoNOVA organizational structure?

- The Advisory Committee has not had Director level representation – not been able to convince Directors that it is valuable
- Representatives do not attend GeoNOVA Advisory Committee meetings because they do not see them as effective
- Directors are busy fighting fires and don't have time for GeoNOVA
- Have not developed strong working relationships with the working level – interactions are informal
- Many people have been engaged in GeoNOVA for a long time and they are tired
- Lost senior management (Deputy Minister) buy in
- People meet and go do their own thing
- Not effective
- Sporadic attendance
- The direction is not clear
- Not able to make decisions
- Struggling with a reason to be

There is wide ranging frustration with the GeoNOVA Advisory Committee. Far more candid comments were made during interviews than during focus groups. There were also a number of suggestions on rectifying the situation:

- Someone needs to identify, articulate and bring forward policy issues for action
- Create a Director level taskforce to deal with issues as required rather than monthly meetings
- Utilize other means to achieve information sharing – no one has time for another meeting just to share information
- Create a management level committee and a technical level committee
- Foster collaboration at the technical and operational management levels. They are the real initiators for projects. Let the people on the street "do their thing"
- Conduct a quarterly forum to share information and show what's been accomplished
- Establish a forum for municipal representation

4.4. Future Directions and GeoNOVA

This section draws on the focus group discussion and the results of the Future Directions questionnaire. Note that this questionnaire was completed at the end of the focus group and after the group discussion on future directions and GeoNOVA. The other two questionnaires were completed prior to group discussion on the topics.

4.4.1. Envision in 5 Years

When you think of geographic information, what do you envision being in place in 5 years?

Portal	16	32%
Other	10	20%
Provincial Database -Accessible	7	14%
One stop shop for data	6	12%
Integration with Municipalities	3	6%
Data exchange	2	4%
Data warehouse	2	4%
Capture once use many	1	2%
Data directory	1	2%
Sharing data	1	2%
Stakeholder group	1	2%
	50	**100%**

As with questions regarding what GeoNOVA is and GeoNOVA's objective, the future is dominated by concerns about data. 70% of respondents envisioned future capabilities revolving around the access and sharing of data.

32% envisioned a geographic portal as the means to access data from their desktop. It is important to define what a portal is. The following comment does a good job of encapsulating the various definitions given for a portal, "Publicly available on-line system that enables discovery, access and analysis of spatial data about Nova Scotia."

14% of stakeholders envision a seamless provincial database that integrates and makes accessible a variety of provincial datasets.

Throughout this discussion there was tension between what stakeholders envisioned in their ideal scenario and what they envisioned as the probable state of affairs in 5 years time. One stakeholder depicted the difference this way:

”Desirable – compiled, easy to use geographic information in on-line virtual warehouses with contacts/sources included.
Probable – high cost, non-convertible datasets available after tedious searching.”

This speaks to the widespread concern that GeoNOVA focus on concrete action. Another stakeholder identified the lack of resources in the provincial system as a serious constraint to moving forward:

“We are so under funded and under staffed, the workload is so great, I can’t get benefit from my old technology let alone look at new technology.”

The focus groups envisioned the following items being in place in 5 years:

- Ability to share corporate data to a consistent standard (primary databases and some thematic themes)
- Seamless graphics and attributes
- Access data live from a central server
  - don’t copy the data
  - see updates automatically
- Our complex data available in a more generalized way for analysis
- Ability to smash data together readily (spatial fusion)
- Ability to access data via a geoportal
- Municipal concerns
  - municipality has more current data than the province - how will provincial procedures ensure keep up
  - who is liable for the data
- Role of Metadata
- View data with any standard (standards based) software
- Access data across the counter
- Read only access is free
- Data available from any department/any where in province (Provincial WAN in place)
- Standards which deal with the FOIPOP (Freedom of Information and Protection of Privacy) issues (e.g. confidential data for resource management)
- More data maintenance from source
- On-line access to NS Map - locate all data available and download with on-line license agreement

- All FREE
- Data available in hard copy (maps, airphotos)
- Good data - vertically integrated
- No "songs and dances"
- Access data from one spot - if the data is not there it is not available
- Know what you are getting is in a standard compatible format (e.g. standard date formats)
- Compiled data set with a trackable source - can contact person who collected data
- Meta data for more than feature codes (Datum, date, source, lineage)
- Focus on GIS analysis and not finding data
- Geo virtual warehouse, free, downloadable data
- Have a physical access point (e.g. in universities)
- NSGC as a focus point/node for all data in province - on-line and personal contact
- Should work within Federal GeoConnections program
- Friendly access - high school students to sophisticated users

4.4.2. Is GeoNOVA Required?

Is a GeoNOVA Initiative required over the next 5 years?

Yes	35	92%
Unsure	3	8%
	38	**100%**

There is broad based support for the GeoNOVA to continue and strengthen in the next 5 years. The reasons given as to why it should continue are as diverse as the different applications of geographic information represented. One unifying comment was "To ensure GeoNOVA principles are followed." Additionally, "Everything we've complained about what's not done - won't happen without GeoNOVA."

The following comments were made during focus group sessions:

- Needs to be a communication vehicle at management and technical level
- Concept needs to be further implemented
- Policy work must be addressed / reviewed
- Technical exchange of info must continue
- Sharing experience with new users

- GeoNOVA needs to showcase data and projects to new users
- Need for a communications strategy
- Focus on core data from departments (e.g. Environment, Aquaculture, Health) to get data into digital form
- Is there a funding issue? No department is going to contribute to a central fund
- If you are not in GIS now
  - Huge problem today with costs of getting into GIS (less than past)
  - Departments needed to give up something else to get into GIS
- Successful applications will drive demand
- Balance between maintenance, access and applications
- Need to orient the principles to be outwardly focused and customer focused. Ensure partnerships are 2-way and information/updates are fed back from clients and acted on.
- Measure of GeoNOVA success is health of geomatics industry in province

4.4.3. Importance and Relevance of GeoNOVA Principles

GeoNOVA has been based on a set of 5 guiding principles:

- Create data once at source and use it many times
- Undertake a corporate approach to data creation, management, dissemination, and use
- Adhere to standards
- Share data freely amongst provincial departments
- List data in the NS Directory of Geographic Information

There is broad support for the GeoNOVA principles. These principles could be considered GeoNOVA's primary asset and strength over the past 10 years.

The following tables summarize respondents' opinions of GeoNOVA's first 3 principles:

	Very Important	Important	Don't Know	Other	Respondents
Create once use many times	51%	46%	0%	3%	35
Corporate approach	37%	47%	3%	13%	30
Adhere to standards	26%	69%	3%	3%	35

Creating data once and using it many times is considered very important or important by 97% of respondents. It is interesting to note that this principle was a recurring theme throughout discussion and questionnaire responses. It appears as a response to questions of what your view of GeoNOVA is, what is GeoNOVA's ultimate objective, and what you envision in 5 years time. This principle is the one thing that is tightly tied to the GeoNOVA name.

84% of respondents rate a corporate approach to data as very important or important. There were concerns expressed about the definition of corporate – these are reflected in the 13% Other responses. For example, the principle of corporate approach is "Important but need to manage data at source with those who understand the data. Do not centralize data creation."

Even though 30 % of stakeholders previously stated that standards are a hindrance to their work, 95% of respondents view standards as very important or important. There is a broad acceptance that standards are key to be access and integration of data.

The following tables summarize respondents' opinion of sharing data freely amongst provincial departments:

Important	16	42%
Share with municipalities	7	18%
Very important	6	16%
Share with all	4	11%
Share with municipalities & federal	3	8%
Other	2	5%
	38	**100%**

The consensus is that data should be shared freely, differences of opinion occur over the issue of with whom. 58% of respondents feel that sharing data freely amongst provincial departments is very important or important. An additional 37% of respondents believe that this should be expanded to other agencies and 11% believe that data should be shared freely with all users.

Not surprisingly, providers of primary data sets and resource users, which tend to be provincial agencies, are content with the current principle. Municipal users want this principle to be extended to include them.

The following tables summarize respondents' opinion of listing data in the NS Directory of Geographic Information:

Important	15	45%
On-line directory & access	6	18%
Very important	5	15%
Improve method	3	9%
Don't know	2	6%
Other	1	3%
With GeoConnections	1	3%
	33	**100%**

A directory of data is considered very important or important by 60% of respondents. 30% believe the method of collection, update and distribution needs to be improved with a focus on an on-line directory/access system.

The following comments on GeoNOVA's principles come from the focus groups:

- Want to collect data once - we (municipalities) are the source of lots of data. Then we have to fight to get the data back (e.g. assessment field cards)
- (Our municipality) can't work to the province's time frames. We have gone off on our own and funded work ourselves (e.g. civic address). Have a problem with freely giving data to province - when it cost us
- Why not give data free to private sector?
- If taxpayer paid for it, it should be free
- Standards - need to develop collaboratively
- Show the public important policy issues thru geographic info (e.g. show service areas for hospitals in province)
- Use geographic data to inform citizens
- Need to move from principles to work plans
- Help municipality with data warehouses and geo portals
- Provide, at their discretion, the infrastructure to enable municipalities to add zoning or other municipal data to a provincial system - available to public
- For existing data update at source then acquire new data sets with resources saved from updating at source
- Social demographic data has powerful use spatially
- Expand use beyond 'primary' data sets - particular focus on social issues

4.4.4. Top Priorities for GeoNOVA

Stakeholders were asked to list their top 3 priorities for GeoNOVA over the next 5 years. The following tables summarize their responses:

Promotion	16	16%
Access to data	14	14%
Data updating	8	8%
Free access to data	7	7%
Other	7	7%
Municipal involvement	6	6%
Collaboration between stakeholders	5	5%
Expand data holdings	4	4%
Standards	4	4%
Training	4	4%
Applications	3	3%
Partnerships	3	3%
Sharing data	3	3%
Complete initial data capture	2	2%
Coordination	2	2%
Data licensing	2	2%
Metadata	2	2%
Seamless data	2	2%
Data directory	1	1%
Data warehouse	1	1%
Move to NAD'83	1	1%
Provincial Discount Agreement (PDA)	1	1%
Portal	1	1%
Unify Pricing	1	1%
Vertical data integration	1	1%
	101	**100%**

When grouping similar categories together, priorities related to access to data were identified by 25% of respondents. 17% of stakeholders view improving or expanding data as a priority. This is a total of 42% focused on data or data access issues. Promotion of the GeoNOVA initiative rated high at 16%.

The following priorities for GeoNOVA were identified during focus groups:

- Solid sustainable meta data system people can trust
  - created by data holders
  - service provided for capturing meta data for data placed on deposit
- One place for electronic data from/about NS
  - discovery
  - access
  - analysis
- Handful of (data) silo destroying applications which demonstratively service citizens of NS better
  - How do you get political buy in
  - New level of collaboration
- Better licensing agreement with ESRI
  - Improve access to software
  - Reduce maintenance costs
  - Province wide license to include K-12 and higher education (GeoNOVA partners)
- Need to clarify how NSGC fits in. Who has the power?
- Issue for the private sector – it can't afford the data. Difficult to promote private sector.
- Support from "a person" for use of all government data
- Clearer explanations why can't have the data
- When get the concept set for next 5 years then "Brand" it as GeoNOVA. Kids access GeoNOVA site
- GeoNOVA's a great name
- It's important to connect GeoNOVA vision and metaphor with something practical/initiative. Need to connect with the average citizen
- Want to access data dynamically and use it for modeling and decision making without holding the data myself

4.4.5. Expanding Participation in GeoNOVA

Does the level of participation in GeoNOVA need to be expanded?

Yes	30	81%
No	5	14%
?	1	3%
Don't know	1	3%
	37	**100%**

The general feeling is that participation needs to be expanded. The dissenting view from provincial participants is concerned that broadening participation will produce a very large unworkable and ineffective committee structure.

To whom should participation be expanded?

Municipal	12	43%
All	8	29%
Academic	2	7%
Non-traditional	2	7%
Federal	1	4%
Municipal/Federal	1	4%
Private sector	1	4%
Provincial only	1	4%
	28	**100%**

Expansion to include municipalities tops the list at 43% of respondents. An additional 29% believe participation should be expanded to all sectors.

4.4.6. GeoNOVA Lead

The question of who should lead GeoNOVA was not included in the Future Directions questionnaire but the topic was discussed during focus group discussion. There was general consensus that Service Nova Scotia & Municipal Relations should continue as the lead agency for GeoNOVA.

5. OBSERVATIONS

The following sections deal with observations of users evaluation of GeoNOVA. The observations are based on the findings and focus group discussion. The intent in the GeoNOVA User Evaluation Report is to state the observation. The GeoNOVA Program Evaluation Report explores the implications for the GeoNOVA program.

5.1. GeoNOVA Awareness

GeoNOVA has good name recognition among stakeholders. Focus group attendees who were not involved in the GeoNOVA Advisory Committee had heard of GeoNOVA and held opinions regarding its objective and effectiveness. Even among participants where we did not expect an awareness of GeoNOVA (e.g. St. Mary's University students), half of the participants were aware of GeoNOVA through its web presence.

There is a wide diversity of views of what GeoNOVA is and what GeoNOVA's objective is. This causes confusion for stakeholders, particularly when asked to consider its accomplishments or lost opportunities. Is GeoNOVA a:

- Concept
- Principle – capturing data once and using many times
- Committee
- Coordination effort
- Policy effort
- Standards body
- Program within SNSMR for anything to do with geographic information
- Data set
- Application providing access to geographic information
- Clearing house to collect and disseminate geographic information
- Name attached to successful projects after they are completed
- All of the above

There is considerable diversity of opinion on what GeoNOVA is within SNSMR – the agency with the mandate for GeoNOVA.

For provincial participants, GeoNOVA is generally synonymous with the activities of the GeoNOVA Advisory Committee. This is not evident in participants' view of what GeoNOVA is but it comes through when asked when you last saw action from GeoNOVA or when gauging accomplishments or lost opportunities.

The dominant theme throughout GeoNOVA is geographic data. Stakeholders care deeply about efficiently building, maintaining and disseminating geographic information. They believe that better government and sustainable economic development will occur with increased access to and integrated use of a wide range of information related to its location.

The expectation is that GeoNOVA will make all types of geographic information available simply and will foster its use in government operations and in decision making throughout society.

Having said this, stakeholders readily acknowledge that the process to do so is not simple or easy. There are many views on "the way" to get there.

Stakeholders generally view GeoNOVA as inactive. With the exception of a few projects they associate with GeoNOVA (e.g. NS Civic Addressing, Transportation and Public Works GIS Pilot, Target Nova Scotia) and the current work on a Provincial Discount Agreement for ESRI software, stakeholders have not seen action from GeoNOVA in a year or more.

In the midst of this, there is very strong support (over 90%) for the promotion of GeoNOVA. Stakeholders believe that efficiently building, maintaining and disseminating geographic information is worth promoting. The dilemma remains as to what GeoNOVA is and what exactly is to be promoted.

5.2. Geographic Data and Use

Geographic information and technology is a critical part of the GeoNOVA stakeholders' business. The use of and dependence on geographic data is growing. New applications and business needs (e.g. integrated resource planning) can only be effectively met with the integration of data based on location.

Stakeholders have many diverse geographic initiatives underway. There are non-geographic business applications incorporating geography as feature of the application. 79 major initiatives were identified by stakeholders consulted with countless small applications cited during discussion.

Geographic data maintenance is a critical or routine part of stakeholders business for 90% of all respondents and 50% of emerging users.

The "primary" datasets are an integral part of stakeholders' business. The percentage of respondents viewing data as critical or routine in their business was 80% for topographic data, 70% for property records and 64% for civic addressing data.

Stakeholders rate the availability, relevance and accuracy of provincial data reasonably highly. Timeliness of updates to the data requires improvement.

Opinions on the accessibility of data are mixed. There is a definite demand to make more datasets accessible.

There is diverse opinion on costing and the affect of costing/licensing on access to data. This continues to be a serious issue that GeoNOVA will need to tackle. Stakeholders appreciate the tension between revenue to invest in data maintenance and the benefits of increased use of data based on free access. The desire and direction among users is towards free access to data. This issue will be heavily influenced by federal government policy shifts being contemplated.

It is noted that data providers believe there is a flexible approach to licensing data to academic users that makes data readily available within the current policy structure. Experience of academic users indicates that securing data is a cumbersome, bureaucratic effort that is executed repeatedly for new uses or additional datasets – there really is no process.

90% of stakeholders did not find data easy to access. There is demand to improve access, particularly for "thematic" data sets. The Nova Scotia Geomatics Centre (NSGC) received favourable comments for improvements made in providing "primary" data. Other departments were cited as still being difficult to obtain data from. Having said this, many departments do not have a mandate to disseminate data and dissemination of data occurs "on the side". Stakeholders' best success in accessing data is via personal relationships with data providers. This places new and emerging users at a significant disadvantage.

Stakeholders reported a high level of awareness regarding provincial policies for geographic information. It is unclear from the focus group discussion whether the stakeholders really understand what the policies are. It is also unclear whether the reported adherence to policies is an accurate picture of compliance – particularly if respondents are unclear on what the policies really are. A more objective investigation would need to be conducted to gauge the level of compliance.

The Coordinate Referencing Policy is a major concern and source of frustration for a significant number of users. Particularly with the growing use of GPS positioning, stakeholders want to be on the NAD'83 datum with a UTM map projection. There are still questions as to whether this "is the standard" policy for the province. There are outstanding issues with securing the grid shift files from the Nova Scotia Geomatics Centre to enable stakeholders to migrate their data holdings.

The Data Distribution policy exhibited the highest level of awareness and adherence. It has had a significant impact on stakeholders. It is widely cited and followed, or consciously not followed.

30% of users rated policies and standards as a hindrance for their business. In the midst of this, 95% of stakeholders view standards as important to enable data access and integration. There is acknowledgement that extra effort is required for corporate benefit. It is unclear whether in the midst of operational pressures, short cuts are being taken which will negatively impact the value of data corporately.

5.3. The GeoNOVA Experience

Given the diversity of opinion regarding what GeoNOVA is and what GeoNOVA's objective is, it is difficult for stakeholders to provide a consistent evaluation of GeoNOVA's past accomplishments and lost opportunities. The following sections highlight the key concerns raised.

5.3.1. Past Accomplishments

Stakeholders believe that understanding and support was fostered within government for GeoNOVA and relationships were fostered with municipalities. It is unclear whether improved municipal relationships were a direct result of the GeoNOVA initiative.

The completion of provincial data coverage for topographic and property mapping is cited as a major accomplishment by stakeholders who were members of the GeoNOVA Advisory Committee in the past. Some see the drive for provincial coverage and determination of priority areas for data collection as valuable work by the Committee. There is a sense that once provincial coverage was complete, the Advisory Committee had satisfied its goal and lost direction. It became a forum for information sharing rather than grappling with issues. Interestingly, emerging users and those not directly involved in GeoNOVA do not perceive completion of provincial data coverage as a GeoNOVA accomplishment.

Stakeholders who were members of the GeoNOVA Advisory Committee in the past cite agreement on a provincial data distribution policy with free access to data between provincial departments as a major accomplishment. The development of the Nova Scotia Directory of Geographic Information is considered an accomplishment although there are mixed reviews on the extent to which the directory was actually used.

Projects to introduce the use of geographic information into non-traditional areas are considered positive. When the list of GeoNOVA pilot projects is presented there are concerns expressed regarding the sustainability of these projects. Was true technology transfer done and capacity built within the agency involved or were these one off projects?

The use of the Map Fund for data maintenance and to leverage additional funding was seen as positive. The development of a Provincial Discount Agreement (PDA) for ESRI software is another accomplishment.

5.3.2. Lost Opportunities

Too much emphasis was seen to be placed on the GeoNOVA concept and not enough on concrete outcomes. There is concern that the Deputy Ministers have not bought into the concept.

There was very poor communication from the GeoNOVA Advisory Committee representatives to department staff. There was a disconnect between management and technical levels, and relationships were not developed at the working level. Municipal and private sector partners were not engaged in GeoNOVA.

Standards work was not sustained or enforced. Standards have fallen out of date and the level of compliance is questionable.

The Nova Scotia Geomatics Centre (NSGC) is seen by many as the "arms and legs" of GeoNOVA but this has never been clearly stated. NSGC have done a number of pilot projects with new users but questions remain about the level of transfer of technology/expertise to the user departments and whether these projects are sustainable. As well, not enough has been done to expand the use of GIS to emerging and new users.

Expectations have been high regarding access to data. There is disappointment that there is no single "portal" to access all geographic information and no infrastructure to disseminate all different types of geographic data for the province. There is no way to determine what data is available or is planned to be collected. The sharing and access to data between provincial departments is problematic.

Stakeholders expected to save money on their technical infrastructure through GeoNOVA. Many believe GeoNOVA should have secured money through the GeoConnections program to fund information infrastructure developments.

5.3.3. Effectiveness of GeoNOVA

It is interesting to note that the closer a stakeholder is to the GeoNOVA Advisory Committee and the GeoNOVA process, the higher the level of frustration with the ineffectiveness of GeoNOVA. This appears to be directly related with the ineffectiveness of the GeoNOVA Advisory Committee in recent years. Upon completion of provincial data coverage, the Committee appeared to lose its "reason to be". Focus was on information sharing. Members delegated their seat to lower level staff in their organization. Director-level representatives wanted to deal with policy issues, lower level staff wanted to deal with technical issues and both were frustrated.

The way in which the GeoNOVA Advisory Committee is structured is not working. The issue of GeoNOVA's governance and structure is critical and must be resolved if GeoNOVA is to move forward.

Stakeholders outside of the GeoNOVA process, particularly municipal stakeholders, believe that significant progress has been made. These stakeholders want to be part of the GeoNOVA process. Frustration with the GeoNOVA initiative has discouraged many provincial stakeholders. There is a higher level of interest and energy in GeoNOVA among municipal, federal and academic participants than among provincial participants consulted.

5.4. Future Directions and GeoNOVA

Access to data dominates stakeholders thinking of what they envision in 5 years. The majority envision a single on-line access point, or portal, where they can discover, access and analyze geographically related data about Nova Scotia. This would be based on a seamless provincial database that integrates a variety of provincial datasets.

These simple statements involve a lot of work to make them a reality. This future state implies, among others, a technical infrastructure for data access and dissemination, a directory of geographic data holdings to enable discovery of data available, standards for data which enable integration of data sets, policies addressing access and use of data, agreements with data custodians, data which meets the requirements of the foregoing, and a support organization to assist users and sustain the initiative.

There is broad based support for GeoNOVA to continue. To varying degrees, stakeholders appreciate the work that needs to be done to achieve what they envision in 5 years. They see the need for focus and leadership to move GeoNOVA forward. As indicated by one stakeholder, "Everything we've complained about what's not done – won't happen without GeoNOVA." Stakeholders see SNSMR leading the GeoNOVA initiative.

There is strong agreement and support for GeoNOVA's 5 guiding principles. It is the strength of these principles that has sustained interest in and commitment to GeoNOVA. The concept of "create data once at source and use it many times" is one thing that is closely tied to the GeoNOVA name.

There are some updates suggested to the principles. Stakeholders would like to see data shared freely to all, not just amongst provincial departments. They want to ensure standards are industry or national standards where possible. Stakeholders want a more flexible and accessible way to access an inventory of geographic data than the current Nova Scotia Directory of Geographic Information.

In identifying GeoNOVA's top priorities stakeholders focused on data access, use and improvement. They focused on items required, over the next 5 years, to achieve access to all geographic data from the desktop. As well, the promotion of GeoNOVA is priority and vital to securing and applying resources to achieving GeoNOVA's goals.

Given all of the work and investment in developing data, making this data accessible is the top priority. This must be done in the context of an ongoing data maintenance program. Without ongoing maintenance the value of the data will be lost. Having said this, the bias must be to provide access. We cannot afford to hold data back from users while it is being "improved". Data must be labeled accurately to enable it to be properly used. Accessible data of mixed accuracy or completeness is better than no data at all.

One important point raised by emerging users is the need for "people" to provide support. It is fine for an experienced user to access data from a web portal. Emerging users aren't sure where to look, what questions to ask, what opportunities may be available that they are not aware of. In order to foster new applications of geographic information, there needs to be a means to talk with knowledgeable, helpful support staff.

Given the broad scope and implications of GeoNOVA, stakeholders see a need to broaden participation beyond provincial government departments, particularly among municipal stakeholders. This is a key governance question. Increased participation must only be done within a structure that enables GeoNOVA to communicate, engage issues, make decisions and take action in an effective and timely fashion. Simply adding seats to an already unwieldy committee is not a viable approach.

5.5. Conclusions

There is a widespread and growing need for geographic information and the integration of different sources of geographic information.

There is a strong commitment to the principles of GeoNOVA.

Stakeholders want a single on-line access point, or portal, where they can discover, access and analyze geographically related data about Nova Scotia.

There is much work to be done to achieve this.

The current structure of GeoNOVA is ineffective.

There is strong support for SNS&MR to lead the GeoNOVA initiative for the next 5 years provided:

- A clear direction is set
- A workable governance model is employed
- Stakeholders are engaged as partners
- A realistic plan is set with achievable results
- Constraints stakeholders are working within are recognized

Stakeholders are looking to the future with anticipation. They want to see GeoNOVA as part of that future.

APPENDIX A: STAKEHOLDERS CONSULTED

This section contains lists of the stakeholders engaged through:

- Interviews
- Trends & Technologies Workshops
- Focus Groups

One-on-One Interviews	
Interview Perspective	**Interviewee**
Executive Management	Brian Stonehouse, Deputy Minister, Service Nova Scotia and Municipal Relations Nancy Vanstone, Executive Director, RIMS
Geospatial Delivery & Information Management	Bert Seely, Manager, Nova Scotia Geomatics Centre, RIMS Brad Fay, retired (formerly Director of Geographic Information, RIMS) Peter Kittilsen, Director of Property Information, RIMS Rob Doiron, Director of Information Management, RIMS
Key GeoNOVA Influencers	Ken Snow, Manager, Forest Inventory, Natural Resources Mike Cherry, Director, Mineral and Energy Resources, Natural Resources Mike Langman, Director, Resource Stewardship, Agriculture and Fisheries
Emerging Users	Dan Hemsworth, Hydrogeologist, Ecosystem and Risk Management Branch, Environment and Labour Kent Speiran, Manager, Asset Management, Transportation and Public Works

Trends and Technologies Workshops	
Name	**Organization**
Ed Light	SNS&MR, RIMS
Robin Mullin	Sierra Systems (Consultant)
Britt Roscoe	**Annapolis County**
Paul Conroy	**Community Services**
James Boxall	**Dalhousie University**
Colleen Brother	**DNR, Forest Inventory**
Danny Swim	**Agriculture and Fisheries, Plant Industry**
Jeff Poole	**DNR, Mineral and Energy**
Norm Lyttle	**DNR, Mineral and Energy**
Richard Morash	**DNR, Forest Inventory**
Brian Fisher	**DNR, Mineral and Energy**
Keith AuCoin	**DNR, Surveys**
Ken Snow	**DNR, Forest Inventory**
Richard Hinton	**Agriculture and Fisheries, Aquaculture**
Wendy Reid	**DOTPW, IT**
Everett Backman	**Economic Development**
Cassandra Dunstall	**Education, Research and Statistics**
Dan Hemsworth	**Environment**
Charlie Williams	**Environment**
Geoff Howell	**Environment Canada**
Andy Sherin	**Natural Resources Canada**
Alastair Lawrie	**Pictou County District Planning Commission**
Mike Thompson	**Pictou County District Planning Commission**
Brad Fay	**Consultant**
Brian Drew	**Sierra Systems, Consultant**
Bernie Gunning	**SNS&MR, RIMS**
Bob Caldwell	**SNS&MR, RIMS**
Darlene Joyce	**SNS&MR, IT CSU**
Dave Cody	**SNS&MR, RIMS**
Jim Michaelis	**SNS&MR, RIMS**
John Power	**SNS&MR, RIMS**
Nancy Vanstone	**SNS&MR, RIMS**
Rob Doiron	**SNS&MR, RIMS**
Steve Fiendel	**SNS&MR, Service Delivery**
Wayne Richard	**SNS&MR, IT CSU**
Bert Seely	**SNS&MR, RIMS**
Danny Gray	**SNS&MR, RIMS**

Trends and Technologies Workshops	
Name	**Organization**
John Corning	**SNS&MR, RIMS**
Kevin Legere	**SNS&MR, RIMS**
Perry Hamilton	**SNS&MR, RIMS**
Dave Keefe	**SNS&MR, RIMS**
Mark Poirier	**SNS&MR, Municipal Services**
Peter Kittilsen	**SNS&MR, RIMS**
Dave Pitcher	**Spatial Metrics Atlantic, Consultant**
Peter Nelson	**Town of Truro**
Connie Michaelis	**TSS**

Focus Group 1 – Provincial Custodians and Users	
Name	**Organization**
Ed Light	SNSMR, RIMS
Robin Mullin	Sierra Systems (Consultant)
Brian Fisher	**DNR, Mineral and Energy**
Keith AuCoin	**DNR, Survey**
Ken Snow	**DNR, Forest Inventory**
Mike Cherry	**DNR, Mineral and Energy**
Bert Seely	**SNSMR, RIMS**
Danny Gray	**SNSMR, RIMS**
Joe McEvoy	**SNSMR, Alternative Program Delivery**
Kevin Legere	**SNSMR, RIMS**
Perry Hamilton	**SNSMR, RIMS**

Focus Group 2 – Provincial Custodians and Users	
Name	**Organization**
Ed Light	SNSMR, RIMS
Robin Mullin	Sierra Systems (Consultant)
Tony Matthews	**Finance, Elections Office**
Chris Mason	**SNSMR, RIMS**
Dave Keefe	**SNSMR, RIMS**
Peter Kittilsen	**SNSMR, RIMS**
Robert Devet	**SNSMR, RIMS**

Focus Group 4 – Municipal Users	
Name	**Organization**
Ed Light	SNSMR, RIMS
Robin Mullin	Sierra Systems (Consultant)
Alastair Lawrie	**Pictou County District Planning Commission**
Albert Dunphy	**Annapolis County**
Brian Currie	**Colechester County**
Britt Roscoe	**Annapolis County**
David Poole	**Kings County**
Jason MacDonald	**Town of Amherst**
Jim Gannon	**HRM**
Judy Chisholm	**Antigonish County**
Mark Hebert	**Rural Cape Breton Planning Commission**
Mike Thompson	**Pictou County District Planning Commission**
Peter Nelson	**Town of Truro**
Dave Keefe	**SNSMR, RIMS**

Focus Group 3/5 – Data Partners and Providers	
Name	**Organization**
Ed Light	SNSMR, RIMS
Robin Mullin	Sierra Systems (Consultant)
Bob Maher	**College of Geographic Sciences**
Simeon Roberts	**College of Geographic Sciences**
James Boxall	**Dalhousie University**
Jon Griffin	**Fisheries and Oceans (federal)**
Richard Hinton	**Agriculture and Fisheries**
Kent Speiran	**Transportation and Public Works**
Cassandra Dunstall	**Education**
Charlie Williams	**Environment**
Geoff Howell	**Environment Canada**
Andy Sherin	**Natural Resources Canada**
Robert Cormier	**Justice**
Brad Fay	**Consultant**
Clyde Horner	**SNSMR**

Focus Group 6 – Emerging Users	
Name	**Organization**
Ed Light	SNSMR, RIMS
Robin Mullin	Sierra Systems (Consultant)
Danika van Proosdij	**St Mary's University, Assistant Professor**
Sherry Fraser	**St Mary's University, Student**
Roxanne Gauthiek	**St Mary's University, Student**
Dawn Laing	**St Mary's University, Student**
Jessie McFarlane	**St Mary's University, Student**
Charlet Myra	**St Mary's University, Student**
Olivia Brown	**St Mary's University, Student**
Vince Nugroho	**St Mary's University, Student**
Tanya Leverette	**St Mary's University, Student**
Devin MacDonald	**St Mary's University, Student**
Nobuko Murai	**St Mary's University, Student**
Connie Sexton	**St Mary's University, Student**
Tara Martin	**St Mary's University, Student**
Rebecca Hanson	**St Mary's University, Student**

APPENDIX B: GEONOVA PROGRAM PRESENTATION

The following presentation material is an abbreviated version of a presentation made by Nancy Vanstone, Executive Director, RIMS and Rob Doiron, Director of Information Management to the Deputy Ministers on the GeoNOVA Initiative in September, 2000.

APPENDIX C: FOCUS GROUP QUESTIONNAIRES

The following are the 3 questionnaires used during the GeoNOVA focus groups:

- GeoNOVA Awareness
- Geographic Data and Use
- Future Directions and GeoNOVA

APPENDIX D: QUESTIONNAIRE QUESTION KEY

The following pages contain the questions used for interviews, focus groups and questionnaires. This key is helpful in interpreting the questionnaire results in Appendix E.

- Id – is a unique identifier for each question
- Q-Seq – is a number identifying the sequence of questions on the questionnaire
- Question – is the full text of the question
- Short Question – is a short form of the question that is printed with the answers to enable ease of correlation between questions and answers while enabling both to be printed on the same page.

Note: All questions are listed on the key sheet. Not all questions were incorporated in each interview, focus group or questionnaire.

APPENDIX E: QUESTIONNAIRE RESULTS

The following section contains the full set of results from the focus group questionnaires. The results are reported in two forms.

The first section contains results sorted by Answer Type. Answer Types are the categories of answers used to tabulate the counts and statistics referenced in the report. Results are sorted by Q-Seq, Answer Type and then Answer.

The second section contains results sorted by User Type. User Type is the category used to group similar respondents and provides insight into the perspectives of particular interest groups. Results are sorted by Q-Seq, User Type and then Answer.

The field names reported are:

- Forum – where the questionnaire was collected. For example, FG4 represents Focus Group 4 – Municipal Partners as listed in Appendix A.
- Q-Seq – – is a number identifying the sequence of questions on the questionnaire
- Short Question – is a short form of the question that is printed with the answers to enable ease of correlation between questions and answers while enabling both to be printed on the same page
- Answer – answer as recorded by the respondent.
- Answer Type – a logical set of categories used to group responses by type of answer given. The types vary by question. Some questions provided specific answer types for the respondent to use. Answer types were developed, based on questionnaire results, for questions that solicited unstructured comments as responses.
- User Type – a logical set of user categories used to group the responses when the respondent's name was given. Types include:
  - Resource – provincial natural resource agencies
  - Primary Provider – provincial groups responsible for the primary datasets
  - Municipal – municipal representatives
  - Emerging – users in the early stages of use of geographic information systems
  - Advanced – any participant not in a category above who is in advanced stages of use of geographic information systems, could be an academic, federal or private sector user.
  - "-" – any respondent who did not give their name

Questionnaire Results Sorted by Answer Type

Questionnaire Results Sorted by User Type

APPENDIX F: TABULATION OF ANSWER COUNTS

Where questionnaire responses were given from multiple-choice answers a count of the answers are provided for each question.

Where answers could be logically grouped by type of answer, a count of the answer types are provided for each question. An example of logically grouping answers would be if three answers were given: seamless data, geographic data, and standards. This could be categorized into 2 Data answers and 1 Standards answer. The specific answer can always be found in Appendix E – Questionnaire Results.

The tabulation of the answer counts contains the following fields:

- Question – combination of Q-Seq number and Short Question (see Appendix D – Questionnaire Question Key)
- Answer – multiple choice answer or for answers were grouped into logical categories this is the category of answer.
- Count – number of responses
- Percent – percentage of the total number of responses

APPENDIX G: FOCUS GROUP DISCUSSION QUESTIONS

The following section contains questions used to guide focus group discussion. Not all questions were used with every group.

APPENDIX H: NOTES FROM FOCUS GROUP DISCUSSION

The following are the transcribed notes from flipcharts used to record focus group discussion. Focus group numbers are per Appendix A – Stakeholders Consulted. The question numbers correspond to the number on the focus group presentation slides in Appendix G. The number in brackets is the unique question id per the Question Key in Appendix D.

APPENDIX I: TRENDS AND TECHNOLOGIES WORKSHOP PRESENTATIONS