

CANADIAN GEOMATICS COMMUNITY ROUND TABLE



strengthening the geomatics sector in Canada through community

PAN-CANADIAN GEOMATICS STRATEGY

**Canadian Geomatics Community Round Table
Steering Committee**

Version 3.0
June 2014

PREFACE

The Canadian Geomatics Community Round Table (CGCRT) is a collaboration between governments (federal, provincial, territorial, municipal and First Nations), industry, educators and students, and not-for-profit organizations.

A key goal of the CGCRT is to examine common issues facing the Geomatics Sector¹ and to develop a Pan-Canadian Geomatics Strategy to re-position the Sector for future success. The objective of the Strategy is to better meet the needs of, and enable the ever-growing Geospatial Community² that depends on reliable, accurate and fit-for-purpose geospatial services and expertise.

In developing the Strategy, the CGCRT focused on seven Strategy Dimensions identified as pressing issues facing the Geomatics Sector, namely:



¹ For the purposes of this Strategy, **Geomatics Sector** is defined as organizations, associations and individuals involved in the provision of data and information products, technologies, services, and expertise involving: geospatial information capture and processing; geospatial information analysis and presentation; integrated information products and services; and location-based solutions.

² For the purposes of this Strategy, **Geospatial Community** is defined as the broader community encompassing the Geomatics Sector plus the organizations and individuals that use the data and information products, technologies, services and expertise provided by the Geomatics Sector.

This document, the final draft of the Pan-Canadian Geomatics Strategy, is the result of Steering Committee examination, findings and integration of issues common across the seven Strategy Dimensions and of community feedback on the first draft. It contains the following components:

- **Vision, Mission and Guiding Principles** for the Geomatics Sector
- **Strategic Objectives** to address key issues facing both the Geomatics Sector and the broader Geospatial Community in Canada
- **A lead-in to the Action and Implementation Plan**

The Geomatics Sector was heard!

The CGCRT finalized this Strategy based on discussions and consensus reached at the ‘Team Canada’ Geomatics Strategy, Action and Implementation Planning Workshop that took place in Ottawa on June 9 and 10, 2014. After two days of intensive and often passionate discussion – in break-out groups and plenary sessions – with just over 100 participants representing the broad spectrum of the Canadian geomatics sector - the final Strategy document emerged and a solid start of a companion Action and Implementation Plan was established. Working Groups were formed to start moving the Strategy forward. The agreed to first priority action is to put in place an “umbrella” governance structure under which shared leadership takes on ownership of the Strategy and ensures realization of the Team Canada Vision.

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List of Acronyms

CCGRT	Canadian Geomatics Community Round Table
LBS	Location Based Services
NRCan	Natural Resources Canada
SDI	Spatial Data Infrastructure
VGI	Volunteered Geographic Information

1 BACKGROUND

The Canadian Geomatics Community Round Table (CGCRT) is a multi-stakeholder forum for open dialogue and collaboration on issues, challenges and opportunities within Canada's Geomatics Sector. It includes cross-sector organizational representatives from governments, industry, educators and students, and not-for-profit organizations.

In 2012, steps were taken to formalize the Round Table with the formation of an interim Steering Committee and a mandate to develop a 'White Paper' describing issues in the Canadian Geomatics Sector. In January 2013, at the conclusion of a 2-day Scenario Planning Workshop, a 2-year term Steering Committee representing cross-sector member organizations of the Round Table was formed. Its first mandate was to advance the development of a Pan-Canadian Geomatics Strategy to guide the sector into the future.

To achieve this, the Steering Committee formed Task Teams for each of the Strategy dimensions outlined in the *Canadian Geomatics Community Strategy "White Paper" and Scenarios*³ discussed and accepted at the January 2013 CGCRT Scenario Planning Workshop.

Each Task Team produced a Strategy Dimension Discussion Document outlining their findings. These Discussion Documents were posted on the [CGCRT web site](#) and the community was invited to validate Task Team findings, thereby informing further development of the Pan-Canadian Geomatics Strategy.

In November 2013, the Steering Committee met in a two-day workshop to take on the task of integrating the Strategy Dimension findings into the first draft of the Pan-Canadian Geomatics Strategy.

This document, the definitive version of the Strategy, was finalized based on discussions and consensus reached at the 'Team Canada' Geomatics Strategy, Action and Implementation Planning Workshop held in Ottawa on June 9 and 10, 2014.

Figure 1 is an illustration created at the November 2013 workshop. It captures the Pan-Canadian Geomatics Strategy journey from inception to the June 2014 'Team Canada' Workshop.

³ *Canadian Geomatics Community Strategy "White Paper" and Scenarios*. Prepared for Natural Resources Canada by Hickling Arthurs Low, Ottawa, January 20, 2013.

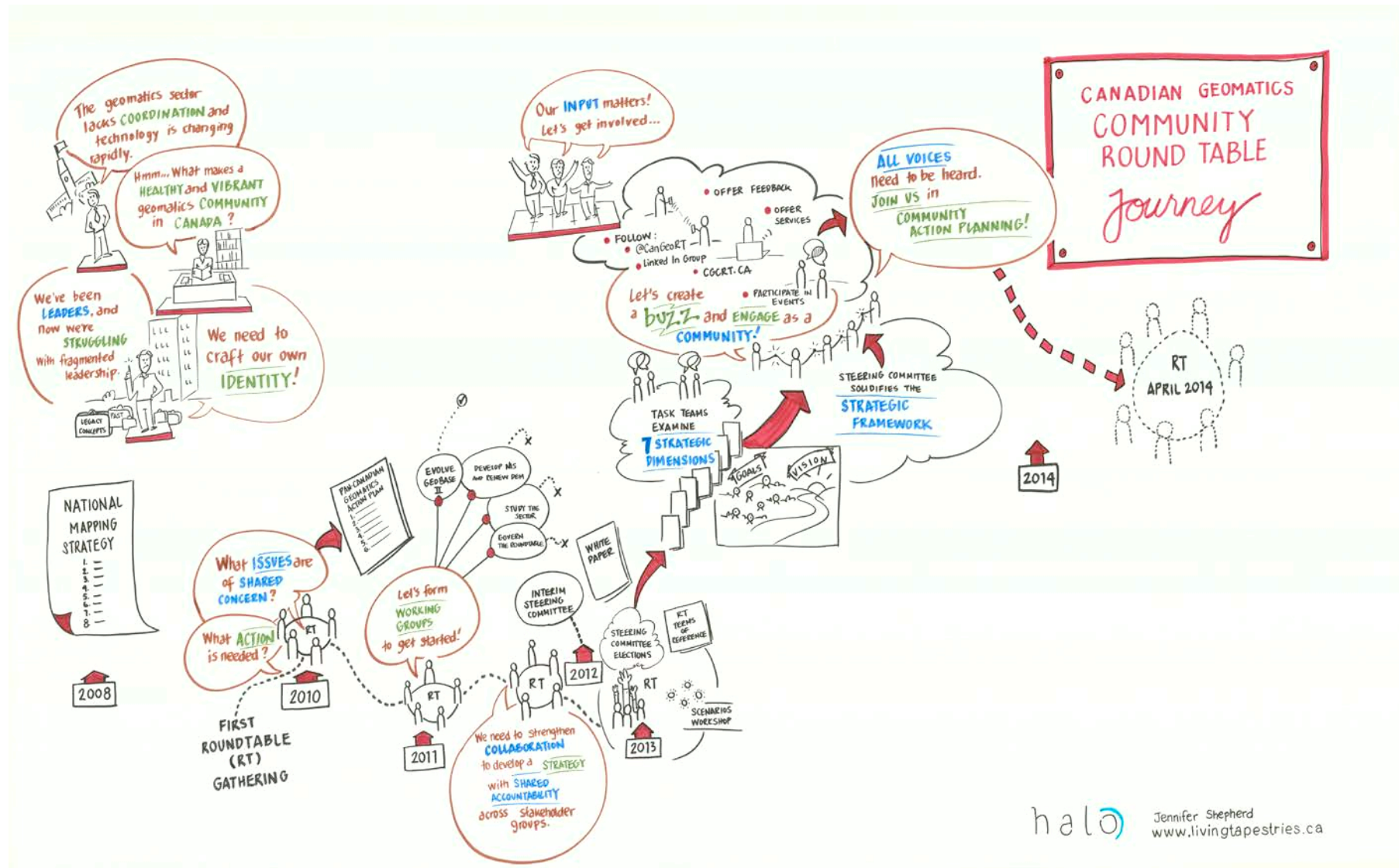


Figure 1: Illustration of the CGCRT Journey from 2008 to 2014

2 ABOUT THIS STRATEGY

2.1 Purpose

The Pan-Canadian Geomatics Strategy presents a vision, mission and guiding principles for the Geomatics Sector. It proposes a set of recommendations to address key issues facing both the Geomatics Sector and the broader Geospatial Community. The CGCRT seeks participation and collaboration to take action on the recommendations and make the Team Canada scenario a reality.

2.2 Team Canada Scenario

In January 2013, the CGCRT reached consensus on a “Team Canada” scenario⁴ to best describe the desired future for the Sector⁵. This has been used to guide the development of the Pan-Canadian Geomatics Strategy.

The Team Canada scenario describes a situation where the relationship between the private and public sectors has been clarified and where government has adopted a facilitating role to ensure that the private sector can thrive within an enabling and stable policy framework. The government has adopted stable long-term program planning, encouraging the private sector to invest and create new jobs. A common vision has been achieved and the Sector has expanded to include the wider Geospatial Community.



In this scenario, governments keep a light regulatory touch on the Sector to ensure the legislative framework is appropriate for new uses of geospatial information and to ensure Accurate, Authoritative and Accessible⁶ (AAA) geospatial datasets, managed by committed and resourced custodians, critical to underpinning decision-making on societal priorities, continue to be made available at ‘fit-for-purpose’ quality. Governments’ open data policies are strategically driven and continue to effectively support information needs of citizens, encouraging entrepreneurship and innovation that enhance economic development. Governments maintain responsibility for delivering core reference geographies and have increased their value-added services capabilities to meet growing demand for data integration and modeling to help solve complex horizontal policy issues.

With government support and encouragement the geomatics research and development (R&D) leadership is strengthened and leads to increasing funding and research capacity in academia. Research

⁴ A scenario is a story that describes a possible future. Scenarios are intended to form a basis for strategic conversation and for considering potential implications of and possible responses to different events, opportunities and challenges. They provide a means of exploring future uncertainties and making more successful decisions.

⁵ *Scenario Planning Workshop Outcomes Report*, Prepared for Natural Resources Canada by Hickling Arthurs Low, Ottawa, February 20, 2013.

⁶ For the purposes of this Strategy the following definitions apply: Accurate – the positions of data elements are close to their true positions or positions are accepted as being true, within published specifications; Authoritative – officially recognized data that is certified and provided by an entity authorized by a legal authority to develop or manage data for a specific purpose; and, Accessible – data that is easy and convenient to discover, visualize and retrieve using the Internet.

cohesion across the Sector and the research agenda delivers quality research that can be shared across the community for commercial advantage.

In response to government's facilitating role, the private sector has repositioned itself to embrace new markets and is more citizen-centric. The private sector has recognized the dramatic market shifts and has moved up the value chain to strategically focus on specialized value-added geospatial information services for both consumer and business markets. Some industry consolidation has occurred and new partnership models have been developed to regain the industry's international competitiveness. In consequence, the Canadian Geomatics Sector collaborates effectively, has shared leadership, is acknowledged as a global leader, and delivers significant and well-recognized benefits to Canada's society and economy.

2.3 The Pan-Canadian Geomatics Strategy Framework

The Pan-Canadian Geomatics Strategy Framework is illustrated in Figure 2, capturing the relationship among the major segments of the community. The key focus of this Strategy is the Geomatics Sector, which is seen as spatially enabling the broader Geospatial Community of users and a "geospatially-enabled society".

The Geomatics Sector provides geospatial information products and services, leveraged by the user community for geospatially enabling decision-making and policy planning. The Geomatics Sector is also responsible for the development and delivery of Canada's network of spatial data infrastructure (SDIs) providing users with necessary "core" data services. Canada's SDIs provide a set of geographic information, such as address, postal codes, roads, cadastre, and census data, including related metadata that is necessary for enabling geographic applications and service delivery.

2.4 The Strategy

The Strategy has three parts.

- 1) **The vision, mission and guiding principles for the Geomatics Sector:** The vision describes the desired future "ideal state"; the mission captures what is done to realize the vision; and the guiding principles express how the Sector operates collaboratively.
- 2) **Strategic Objectives for each of the Strategy Dimensions:** These capture the high level objectives that provide direction for actions that lead to the realization of the Vision. They also contribute to a big picture outcome statement for each Dimension.
- 3) **A lead-in to the Pan-Canadian Geomatics Action and Implementation Plan:** the Action and Implementation Plan identifies specific actions to meet the Strategic Objectives for each Dimension in order to achieve the Team Canada Vision.

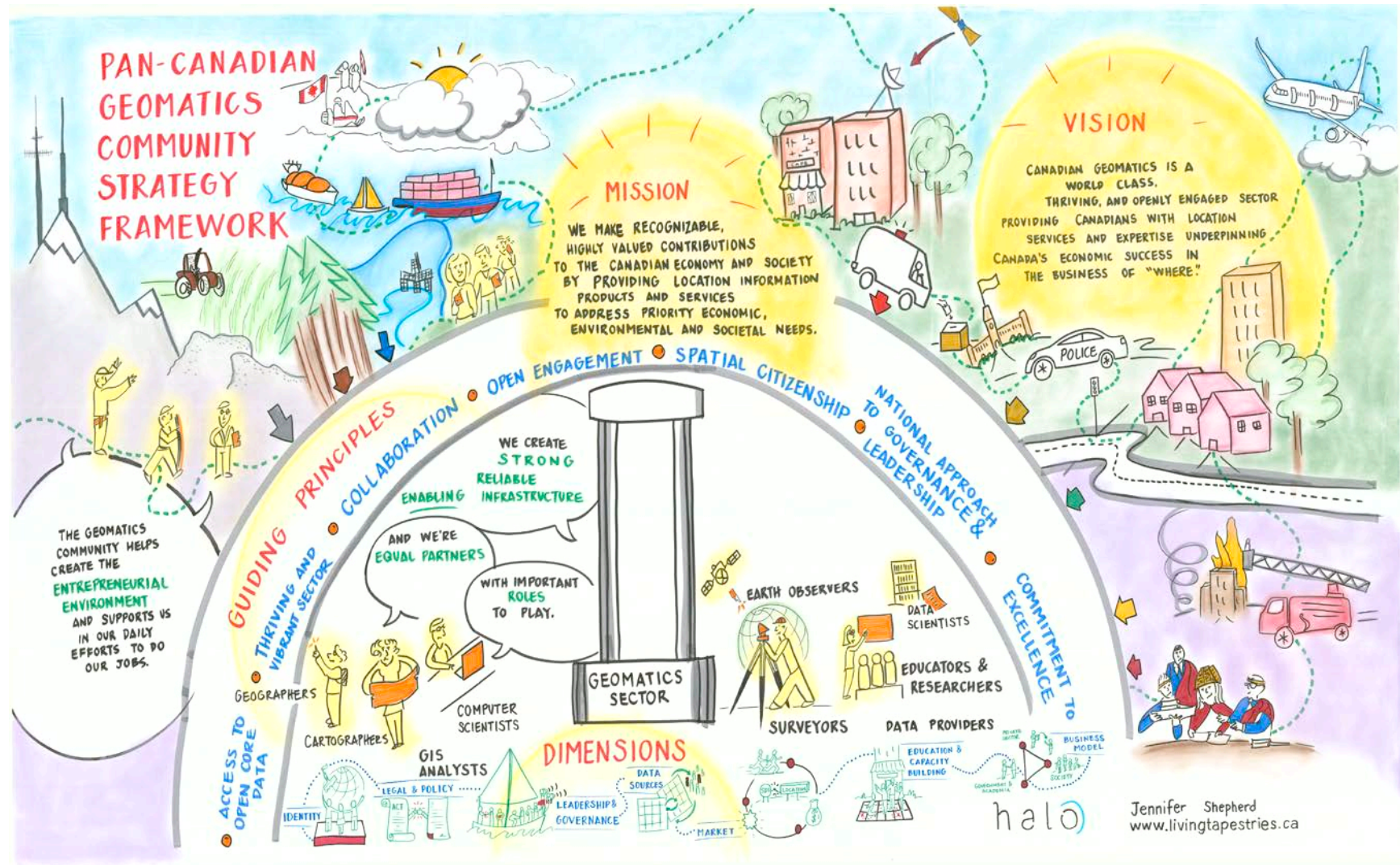


Figure 2: Illustration of the Pan-Canadian Geomatics Strategy Framework

3 VISION, MISSION AND GUIDING PRINCIPLES

3.1 Vision

Canadian Geomatics will be a world class, thriving and openly engaged Sector providing reliable geospatial data and information products, technology, services and expertise underpinning Canada's economic success in the business of "where".

3.2 Mission

We make recognizable, highly valued contributions to the Canadian economy, environment and society by providing geospatial data and information products, technology, services and expertise to address priority economic, environmental and societal needs.

3.3 Guiding Principles

- 1) **Thriving and vibrant sector:** A competitive, productive Geomatics Sector, able to provide made-in-Canada solutions that strongly benefit the Canadian economy, with governments playing a facilitating role to ensure that the private sector can thrive within an enabling and stable legislative and policy framework, and new partnership models leveraged to enhance both industry's national and international competitiveness.
- 2) **Access to open core data:** Commitment to supporting Canada's network of SDIs through open data principles and standard interoperable access and discovery protocols, supported by interoperable legislative and policy frameworks.
- 3) **Collaboration:** Collaborative work by the members of the Geomatics Sector towards the development, deployment and maintenance of the Strategy and Action and Implementation Plan, recognizing and respecting the autonomy, role and responsibility of all agencies, organizations and persons.
- 4) **Open engagement:** Open communication and activities tailored to engage the community (sector, public, political) in the evolution of the Pan-Canadian Geomatics Strategy and implementation plan.
- 5) **Capacity Building through Education and Research:** Geospatial literacy through a flexible, adaptive, responsive education and research framework, based on the principles of life-long learning thereby contributing to the Canadian economy and enriching Canadian culture and society.
- 6) **National approach to governance and leadership:** Inclusive governance with strong, shared leadership that recognizes and respects the organizations' roles and responsibilities and provides clarity and direction for the Sector.
- 7) **Commitment to excellence:** Commitment to quality at the highest level at all times, in education, training, professional standards, certification, and ethics.

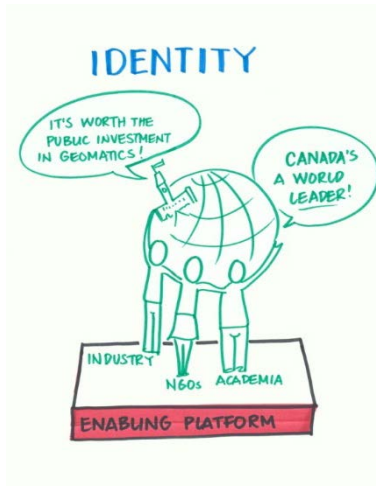
4 STRATEGIC OBJECTIVES

The Strategy provides direction to the Geomatics Sector through a set of seven distinct yet related Strategic Dimensions. Each Dimension is defined by a set of strategic objectives that identify necessary outcomes in support of the Geomatics Sector’s vision. The Action and Implementation Plan identifies priority and other actions currently being undertaken, planned or considered to achieve the Strategic Objectives and to deliver on the Team Canada vision.

4.1 Identity

There is a need to communicate a more cohesive and compelling geomatics story in Canada. The public, business leaders and politicians need to understand the relevance and importance of geospatial information in our everyday lives: from the GPS systems in our cars to the geodetic framework that underpins geospatial information whenever a map is made or used in Canada to the satellites that are capturing data on our changing environment.

The focus of this dimension is to define the scope of the Geomatics Sector and describe its uniqueness and importance in enabling the broader Geospatial Community, whether a forester, a geologist or market analyst – anyone needing to use geospatial information in their daily lives and work. There is a need for the Sector to articulate an easily understood and compelling identity that creates a positive image with government and private sector decision makers, and the public at large – both at home and abroad.



4.1.1 Strategic Objectives

The Canadian Geomatics Sector needs to reposition its identity to evolve beyond the primary focus on data capture, processing and delivery that made it successful in the past and move up the value chain to be recognized for its expertise in enabling the Geospatial Community to make the most effective possible use of geospatial information and related applications to support planning, management and decision making. The following identity-related strategic objectives capture necessary steps to achieving the Team Canada Vision for the Geomatics Sector and Geospatial Community.

- 1) **An identity for the Geomatics Sector that is clear and well understood** by senior leaders and decision makers and is viewed positively by the general public.
- 2) **A Canadian Geomatics Sector that reaches consensus on a Pan-Canadian Strategy** with support of senior sector leaders at all levels of government, industry, associations and academia.
- 3) **A Canadian Geomatics Sector that embarks on a Pan-Canadian Strategy** to position Canada as a leader in the global geospatial domain and that can be used as a world-reference for building awareness of Canada’s renewed identity in the market.
- 4) **Recognized and articulated commonalities to unify the Geomatics Sector**, to counter the current tendency towards splintered and diffused factions, adding weight to messaging from and about the Sector

4.1.2 Big Picture Outcome

The Canadian Geomatics Sector has a clear and visible presence in delivering significant and well acknowledged benefits to Canada’s society and economy through effective public and private sector collaboration and shared leadership, and is recognized as a global geomatics leader.

4.2 Market

It is critical for Canada’s Geomatics Sector to respond to current and future geomatics market trends and changes and explore new avenues to position Canada as a leader in an expanding geospatial market. Traditionally focused primarily on meeting the demands of a more narrowly focused geomatics marketplace, solution providers in the Canadian Geomatics Sector are now faced with opportunities to address the demands from a much broader Geospatial Community that is exploding well beyond the traditional sphere of activities serviced by the Sector. There is a need for Canadian-based Geomatics companies to more innovatively and competitively meet the needs of a growing national and international geospatial marketplace. The Geomatics Sector composed of geo-data providers, location-enabled device manufacturers, geo-app developers, and a growing network of geospatial experts and educators generates significant direct revenue to the Canadian economy and more importantly, geospatial services created by the industry deliver efficiency gains in the rest of the Canadian economy that are valued at many times the size of the Sector itself.



4.2.1 Strategic Objectives

The majority of Canadian geomatics companies are relatively small in comparison with their international competitors. To compete at a high level globally and to become leaders in the industry, they need to differentiate themselves and strategically align their activities. The following market-related strategic objectives capture the necessary steps in achieving the Team Canada Vision for the Geomatics Sector and Geospatial Community with the first 3 being the top priorities and the remaining to be addressed as time and resources permit.

- 1) **An understanding of characteristics of the geospatial market now and in the near future, and preparation for the impacts of disruptive technologies**, by examining the results of the *Canadian Geomatics Environmental Scan and Economic Value Study*, and identifying business trends on an ongoing basis
- 2) **Improved cohesion in the Geomatics Sector through greater collaboration** among all levels of government, private sector companies, and academic institutions, thus enabling improved ability to develop value-added geospatial applications, products and services, setting the foundation for a virtuous circle of investment, innovation, and readiness to respond to emerging business needs, nationally and globally.
- 3) **Strategic project investments** that will catalyze innovation and development, enabling Canadian solution providers to evolve their data services, applications, products, and consulting services in growing SDI and Location Based Services (LBS) environments.

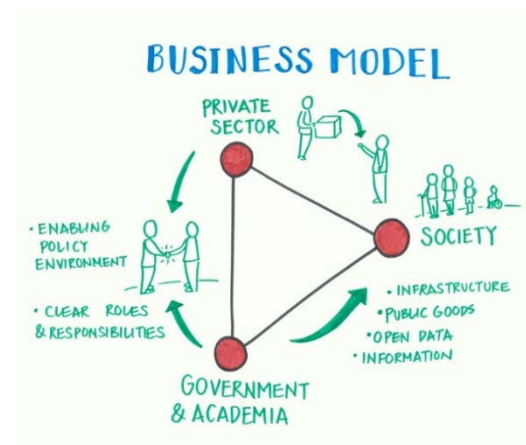
- 4) **Multi-sector, large-scale geospatial solutions** that make significant contributions to the Canadian economy, which can be accessed over the web and used as marketing vehicles for all participants, contributing to Canada’s renewed presence and recognition as a leader in the global geospatial marketplace.
- 5) **Improved coordination of the many web-enabled SDI and LBS environments both nationally and internationally** by realigning how geospatial information is acquired, stored, processed, modeled, analyzed, visualized and delivered through increased awareness and implementation of common operational polices and standards.
- 6) **Strategic focus on specialized value-added, interoperable geospatial information services** for the public and private sectors in both the web-enabled SDI and LBS environments, while leveraging mapping services provided by Google, Microsoft and others, along with data services supported by Canadian data providers.

4.2.2 Big Picture Outcome

Public and private investment establishes the Canadian Geomatics Sector as a pillar of the knowledge economy. It is recognized at home and abroad for its excellence in geospatial information and analysis applications, products, services, and expertise, and is rewarded with increased market share. Canadian Geomatics companies meet the requirements of a dynamic, growing marketplace and are recognized as global players and leaders.

4.3 Business Model

While the thinking on what precisely constitutes a business model continues to evolve, the basic question for any organization remains central: How will that organization thrive? In this analysis we define the organization to be the Canadian Geomatics Sector – diverse as it is. An appropriate business model enabling a healthy, viable Geomatics Sector is necessary to support Canada’s diverse and expanding Geospatial Community. The intent is to create a business environment that enables productivity and innovation, promotes excellence, and rewards investment in the Geomatics Sector. Ideally, such a model would promote collaboration among key stakeholders in the business and academic communities and all levels of government to best deliver on the needs of the entire Geospatial Community.



4.3.1 Strategic Objectives

The many components of the Canadian Geomatics Sector – private companies, academic institutions, associations and government organizations – must all be healthy to contribute to sustaining the vitality of the Sector. Currently, the Sector is fragmented along regional, demographic, and economic lines and many components of the Sector are in a state of transformation. The following strategic objectives capture necessary steps to achieving the business model-related Team Canada Vision for the Geomatics Sector and Geospatial Community with the first 2 being the top priorities and the remaining to be addressed as time and resources permit.

- 1) **Recognition that the delivery by government of authoritative geospatial information is a public good** worthy of continuing investment and an integral part of open data initiatives, enabling innovative private sector value-added product and service development.
- 2) **A new Geomatics Sector business model** collaboratively defined and optimized between the public and private sectors based on clear definitions of respective roles and responsibilities (i.e., Public sector – enable delivery of authoritative public sector geospatial information; Private sector – develop and deliver value-added geospatial products and services to meet priority economic, environmental and societal needs).
- 3) **Clear government policies and plans** that help to shape the market and provide the certainty, predictability and stability that facilitate private sector investment.
- 4) **Increased awareness of the importance of geospatial information** at senior decision-making levels in both industry and government.
- 5) **Mechanisms allowing geospatial information users to influence government** on what data to offer, which standards to use, levels of quality and usability of the data (including licensing and use restrictions) to ensure the data offerings can be fully exploited, and what legislation and/or policies are required as the Geomatics Sector evolves.
- 6) **A strategic approach to the collection and dissemination of public sector information (PSI) in a contemporary National Information Framework (NIF)**, which includes all key datasets (including geospatial data) to meet present and anticipated future needs of government and other key sectors in the Canadian economy.
- 7) **Capacity for the Geomatics Sector to be internationally competitive** and able to respond to complex, changing economic, social and environmental conditions, which includes meeting challenges academic institutions face in providing the training and skills required in increasingly complex workplaces with rising expectations of new hires.
- 8) **Recognition that smaller companies may be more vibrant, dynamic and entrepreneurial** in government policy support of the Geomatics Sector, along with recognizing the advantages larger companies have in capturing international business.
- 9) **An encompassing value proposition** that incorporates strategic government data collection and facilitates fundamental research that can support public policy and also be exploited by industry for domestic application and allow them to leverage international business opportunities.
- 10) **Canada an exporter of geospatial technology** services and applications that have the benefit of being fully piloted in the Canadian environment.
- 11) **A network of dispersed geomatics practitioners**, some with long and deep history in the field, others with focused skills, emerging professionals and established researchers, a robust industry and strong government organizations ensuring the foundational blocks are in place for continued innovation.
- 12) **Strong support of economic growth** for businesses locally, nationally and internationally to help achieve profitable, sustainable businesses.

- 13) **Government needs to invest in privately held AAA data** and determine how to meet future needs in collaboration with industry.

4.3.2 Big Picture Outcome

A new collaborative public-private sector business model for the Geomatics Sector is adopted. This model is based on government focusing on spatial data infrastructure, open data, and establishing a legislative and policy environment that enables business success, with the private sector focusing on value-added products and services. The private sector works collaboratively in this new business model and is successful in local, national and international markets, and is prospering, growing, driving innovation and providing jobs.

4.4 Leadership and Governance

Governance provides structure to leadership, which is responsible for advice and direction, and finding resources and moving the strategic process forward through consultation. It is a way to ensure we are consistent in our efforts and that the Sector is aligned with the overarching strategic objectives as expressed by our vision. The focus of this dimension is to propose leadership actions with an accompanying governance structure necessary to enable the community to come together under a shared vision and goals.



4.4.1 Strategic Objectives

Our current governance and leadership structures are complex, numerous, and well established. There is great potential to work together as we share similar goals and visions. The following strategic objectives capture necessary steps to achieving the governance- and leadership-related Team Canada vision for the Geomatics Sector and Geospatial Community with the first 3 being the top priorities and the remaining to be addressed as time and resources permit.

- 1) **A governance structure that enhances communications** among all levels and dimensions of the Sector and provides a means of more regular interaction.
- 2) **A strategy and process for engaging and mentoring next-generation leaders** in the Sector, so that the governance structure and Sector are sustainable and strong over the long term
- 3) **A new governance structure aligned with a common vision and identity** that is representative of the realities of the Sector's contributions to Canada and has contribution from all major groups in the Geospatial Community.
- 4) **Leadership of the Geomatics Sector that promotes collaborative ideas** to impact the decisions at all levels and dimensions of the Sector.
- 5) **Creation of a governance structure that focuses geomatics and geospatial information as infrastructure** - the same as water and sewer systems.
- 6) **Leadership that has the support** of all major groups in the Geomatics Community.

4.4.2 Big Picture Outcome

The Canadian Geomatics Sector collaborates effectively and through shared decision-making and aligned leadership. It is delivering a common vision, with a common voice and message, and is providing significant and well acknowledged, measurable benefits to Canada’s society and economy.

All key players in the Sector are represented within our community governance structures. The role of each is recognized for the value it brings to the whole Sector. The focus is clear and direct on making Canada both the world leader in the industry and also the leader in translating the benefits of the Sector into making Canada and our world better.

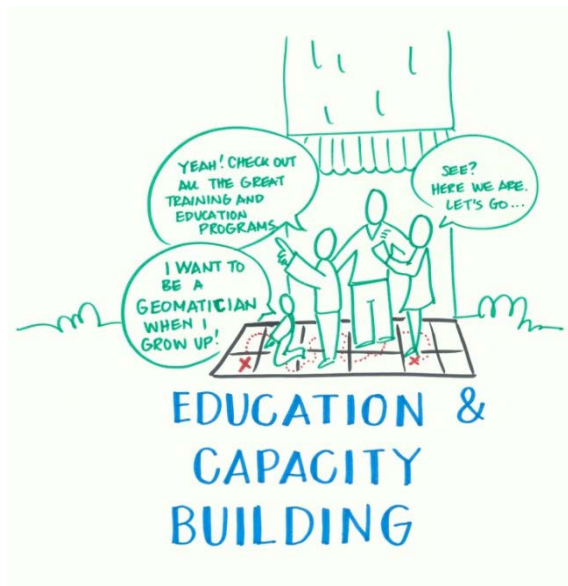
4.5 Education and Capacity Building

How do we ensure we have the Canadian Geomatics workforce and geospatially-enabled society of tomorrow? The focus of this dimension is to examine education and capacity building at the professional and technical level in the Geomatics Sector and the opportunity for certification. Focus is also on ensuring the broader Geospatial Community has the skills training necessary to make effective use of geospatial information in their daily work and to ensure a “geospatially-enabled society”.

4.5.1 Strategic Objectives

Academia, industry, government and the various Geomatics associations all have important but related roles to play in delivering a comprehensive and relevant education, training, and professional development framework for building a skilled, nimble geomatics workforce aligned with the changing needs of the Sector. The following strategic objectives capture necessary steps to achieving the education and capacity building-related Team Canada Vision for the Geomatics Sector and Geospatial Community with the first 4 being the top priorities and the remaining to be addressed as time and resources permit.

- 1) **A coherent geomatics education system from K to post-graduate with an adaptive and proactive curriculum** that: meets the demand for geomatics professionals and specialists to support Canada’s network of spatial data infrastructures; produces the geospatial data specialists with the skills needed to undertake geospatial data related research; and enables the range of candidate Geospatial Community practitioners with the skills they need to use geospatial information in their day to day work.
- 2) **A robust academic sector in Canada** with a research and training agenda aligned with geospatial community requirements that supports the whole Geomatics Sector and is significantly contributing to key issues.
- 3) **A Geomatics Sector that is supported with reliable, sustainable research resources** (grants, scholarships, government involvement) to support development of highly qualified personnel and the sustainability of the Sector.



- 4) **Increased awareness and use of geospatial data and information** at senior management levels to improve policy and decision-making in both industry and government.
- 5) **Strengthened quality of teaching and learning** in the field of Geomatics in the spectrum from K to Life-long learning (LL).
- 6) **A geospatially-enabled society where all “geo” stakeholders have contributed to the design and implementation of capacity building programs**, including enhanced primary and secondary education systems that include more exposure to geography, geospatial information, and tools.
- 7) **Harmonized geomatics accreditation/certification programs** across the Sector.
- 8) **A world class Canadian Geomatics Sector** with a dominant domestic and significant international market share supported by a “*geo-literate*” citizenry.
- 9) **Curriculum changes in the K-12 school system and cross-disciplinary teaching in colleges and universities** that enhances the Canadian public’s geospatial skills and develops capacity in geomatics.
- 10) **Learning tools that help the general public** to make best use of the geospatial information resources and services available to them.

4.5.2 Big Picture Outcome

A cohesive, well-recognized Canadian Geomatics Sector with attractive and viable careers supported by effectively delivered education programs designed to create a pool of highly qualified practitioners tailored to the needs of industry and government. Communication and common messaging promotes broad awareness of the Geomatics Sector across society along with a common understanding of the power of geomatics. Geomatics is a career option of choice.

A geospatially-enabled Canadian society that recognizes that “place matters,” effectively engages in open government through the public exchange of ideas, plays a ubiquitous, but important role in ensuring the reliability and currency of Canada’s network of spatial data infrastructures, and safeguards the sustainable development of Canadian communities and natural resources.

4.6 Data Sources

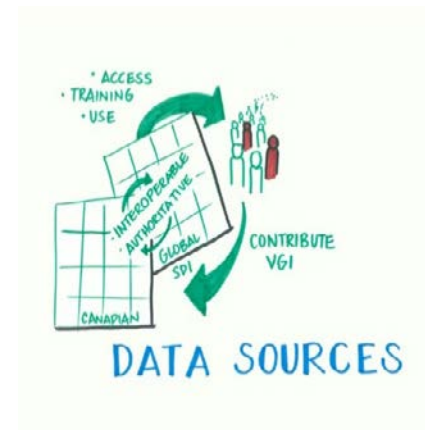
Canadians are using more geospatial data for decision making than ever before – and that use is growing. Through Canada’s network of SDIs the Geospatial Community is able to fully realize the true value and potential of geospatial data assets. This is further accomplished as core data⁷ holdings in the

⁷ For the purposes of this document the definition of “core” data conforms to specific CGDI data components: 1) Foundation, 2) Framework, and 3) Thematic. Thus, core data includes foundation, framework, a necessary subset of thematic data sets and all associated metadata. Foundation layers include geometric controls required to position geospatial information adequately. These layers are critical to the reliability and use of all other layers. Framework layers include land feature/form layers that contain well-defined and readily observable natural or manmade physical features that are not subject to interpretation or speculation. These layers include many of the same features that are visible on topographic maps, such as roads, rivers and elevation. Although useful for some applications by themselves, they are also used to provide reference information for thematic layers. Thematic layers are those developed and used to describe and administer the country. These layers complement a vast amount of application-specific data. They are often interpreted from observations of physical, economic or social factors, and include features such as municipal boundaries, federal electoral districts, census tracts and ecological areas. Inclusion of any specific type of boundary under this layer is subject to its availability over large areas of the country, its

network of Canadian SDIs are enhanced, enabling the effective use of all geospatial data sources. Assigning custodial responsibilities for maintaining and distributing core data helps to ensure confidence that the data being provided is Accurate, Authoritative and Accessible (AAA). While it is often viewed as the role of governments to provide AAA quality core data, it is important that the Geospatial Community expresses its requirements for core data. In addition, the definition of core data must be responsive to new types of data resulting from research and innovation and to changing needs of the Geospatial Community.

4.6.1 Strategic Objectives

Geospatial information has become mainstream and the number of new users, developers, and applications are increasing rapidly. There is a growing reliance by government, industry and the public on geospatial data with an ever increasing economic importance. Canadian data providers must respond to the challenges and opportunities inherent in this changing environment. The following strategic objectives capture necessary steps to achieving the data-related Team Canada Vision for the Geomatics Sector and Geospatial Community with the first 3 being the top priorities and the remaining to be addressed as time and resources permit.



- 1) **Consistent and seamless access through Canadian SDIs to open, easily accessible Canada-wide authoritative geospatial data sets** (land, sea, air, statistical, environmental, socioeconomic, etc.) that support policy and decision making needs of government and business, social and environmental policy, planning and management, and enable geospatial services.
- 2) **A wide range of innovative, supported data sources**, including data from real-time ground-based, airborne and space sensors, mobile devices and Volunteered Geographic Information (VGI) with a design of the Canadian framework of SDIs that allows for the easy integration of future new data types and services.
- 3) **Executed standards** for data acquisition, preservation and interoperability into the future.
- 4) **Canadians with increased awareness of what core and other geospatial data is available** in the network of Canadian SDIs and understanding of the benefits of government and private sector investment in SDIs.
- 5) **Canadian SDIs that interoperate with wider international / regional SDIs** (e.g., the circumpolar Arctic region), to understand and model cross-border issues, with Canada being a significant contributor to global SDI initiatives, including the United Nations Global Geographic Information Management initiative.
- 6) **Collaborative business models** that help ensure the long-term sustainability of the network of Canadian SDIs.

geometric integration to alignment layers, and a consensus among major stakeholders on the importance of the ubiquity of the data.

4.6.2 Big Picture Outcome

The network of Canadian SDIs provides a national service, meeting the core geospatial data needs of Canadians. This service facilitates innovation and business growth in Canada while meeting social, cultural and environmental needs. It is effectively governed in a supportive, sustainable, collaborative environment by federal, provincial, territorial and aboriginal government organizations, industry, non-government organizations, associations and academia. In addition, it makes best use of new developments such as geospatial intelligence services, crowd-sourcing and VGI, and new, high-resolution information sources.

4.7 Legal and Policy Interoperability

There is a need to develop a harmonized, interoperable legal and policy framework that enables the creation, access and use of geospatial data in Canada. Such a framework will positively influence how data is used and shared and will have significant impact on the ability of Canada's Geomatics Sector to be competitive in both local and international markets and to support the Geospatial Community, including a geospatially-enabled society. Legislation and policy both enhance and protect Canada's financial investment in geospatial information.



4.7.1 Strategic Objectives

Due to the speed of technological changes, policy development related to Geomatics has tended to be reactive, resulting in fragmentation. Such fragmentation not only increases the complexity of using geospatial data, but also increases the risk of contradictions in the life cycle management⁸ of geospatial data and conflicts in the roles and responsibilities of jurisdictional entities. The following strategic objectives capture necessary steps to achieving the legal- and policy-related Team Canada vision for the Geomatics Sector and Geospatial Community with the first 4 being the top priorities and the remaining to be addressed as time and resources permit.

- 1) **A harmonized, consistent and transparent policy⁹ framework** evolving with the pace of technological change, which supports geospatial-enablement of society through effective and inclusive collaborative governance, where well-defined roles and responsibilities of Canadian governments, industry, academia and other stakeholders are aligned for action through common goals and objectives.
- 2) **A shared national policy classification framework and repository leveraged by all levels of government** to address areas such as: privacy, national security, liability, responsibility and obligations, public protection, data acquisition, management, access, dissemination and preservation; data interoperability; and intellectual property.

⁸ Life cycle management is a policy based approach to managing the flow of an information system's data throughout its life cycle: from creation and initial storage to the time when it becomes obsolete and is deleted or archived.

⁹ In this context, "policies" include laws, regulations, policies, directives, standards, guidelines, best practices and tools that facilitate the sharing and interoperability of geospatial information.

- 3) **Interoperable¹⁰ legislation and policies** relevant to the stewardship/custodianship and life cycle management of geospatial data and services.
- 4) **Promotion within the Geomatics Sector of the implementation of the principles of open government at all levels** - from aboriginal communities, to municipalities, to regional, provincial, territorial and federal governments - with appropriate measures to address the integration of heterogeneous geospatial data.
- 5) **Successfully operating Canadian spatial data infrastructure (SDI) initiatives** under a cooperative model.

4.7.2 Big Picture Outcome

Canada is forward looking and thinking and leads the development of legal and policy tools for geospatial data and information sharing, enabling collaborative analysis, enriched learning, innovation, and more effective use of geospatial information in our daily lives, work and business environments. A high level, inter-jurisdictional governing body is established, or an existing body adds responsibility for the geospatial legal and policy framework to its mandate. Significant progress is made on harmonizing and operationalizing policies on issues such as: privacy, intellectual property, national security, confidential business information, common data frameworks, public safety, data sharing and data licensing, and others as required.

¹⁰ In this context interoperability can be defined as the harmonization of Canadian legislation and policies relevant to geospatial data, information and services provided by Federal, Provincial, Aboriginal and Territorial Governments. Examples of policy harmonization include; the Canadian Geomatics Accord, TBS Standard on Geospatial Data, the establishment of GeoBase and the creation of Canadian spatial data infrastructures (including the CGDI) that enable the discovery, access and sharing of geospatial data, information and services.

5 ACTION AND IMPLEMENTATION PLANNING

Strategies are dynamic and should be treated as evolving efforts and documents. Strategy implementation should be flexible enough to integrate new initiatives, to address new priorities as they arise, and to adjust to changes in organizations and personnel. It is important to focus on outcomes and not lock into process – there are often several means to the same end.

The next step in the Pan-Canadian Geomatics Sector strategic planning process is to develop and execute an action and implementation plan. At the June 9 – 10, 2014, ‘Team Canada’ Workshop, participants came to agree on the Vision, Mission and Guiding Principles and the Strategic Objectives of the Strategy. This involved clarifying meaning, filling in gaps and prioritizing the Strategic Objectives to facilitate action planning. A “Straw man” Action and Implementation Plan, prepared in advance of the workshop, was used to provide examples and initiate the action planning process. The action planning process identified a number of priority actions to be initiated in 2014 to 2015 and a number of actions to be considered beyond 2015. These are outlined in detail in the Pan-Canadian Geomatics Strategy Action and Implementation Plan – Version 2.0.

The Strategy and its companion Action and Implementation Plan have been developed to ensure delivery of concrete measurable benefits to the Geomatics Sector and the Geospatial Community that it serves. Some actions will be implemented before others. There is a high degree of interdependency and inter-connectedness among the Dimensions. It is also important to note that the Strategy integrates components from each of the underlying Dimensions. Stand-alone Dimension implementation will not bring the desired results. This has been considered and reflected in the Action and Implementation plan.



All groups representative of organizations spanning the Sector will need to be engaged to implement this Strategy. This includes federal, provincial, aboriginal and territorial governments, private sector companies, academic institutions, non-governmental organizations, professional associations, and users of geospatial information and services. Multiple partners will need to be engaged to both develop and resource the plan. A governance body with a secretariat, such as the CGCRT, will be required to sponsor the Strategy and provide oversight, to assist in co-ordinating the process, and meaningfully report progress to the Geomatics Sector.

Ultimately, success of the Pan-Canadian Geomatics Strategy rests on how well implementation efforts are planned and executed by community partnerships and collaboration. Following through on actions within an organization is a demanding process, requiring persistence and the use of effective performance measurement techniques. In implementing the Pan-Canadian Geomatics Strategy, this could be a significant challenge because many of the stakeholder organizations and groups who have not worked together on shared initiatives in the past will now undertake many implementation activities together. Keys to success include: a common vision and understanding of how stakeholder groups can contribute towards the vision, a thorough, well designed strategic plan, effective communications and stakeholder engagement, and strong leadership from Strategy champions.