The Federal Geospatial Platform: Integrating Location into Canada's Public Policy through Client Engagement

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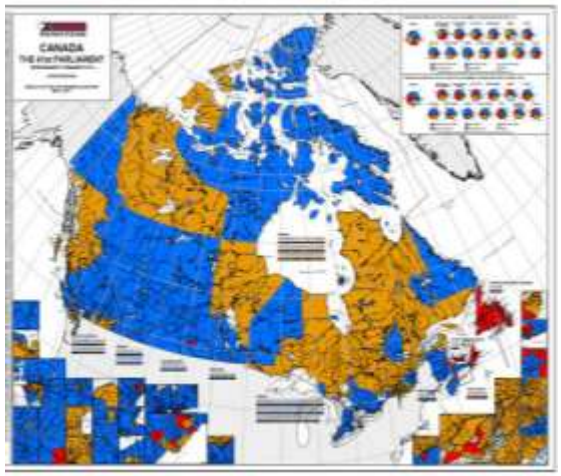
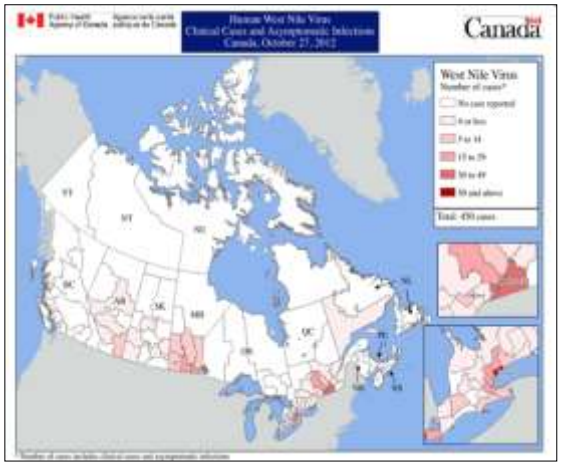
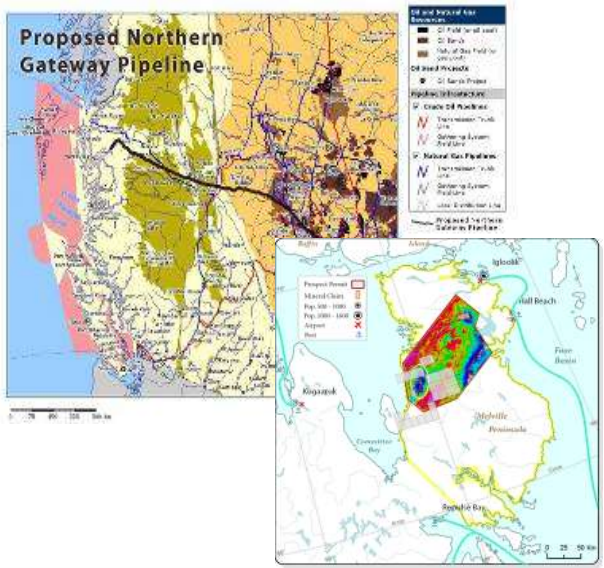
Outline

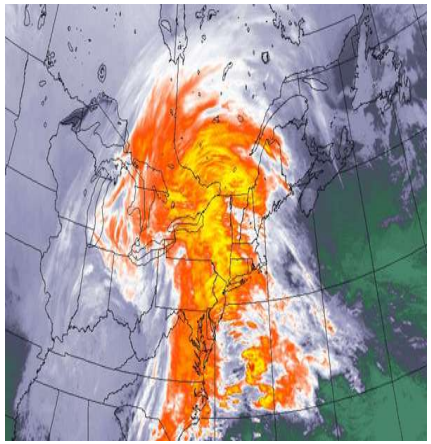
- Background: The Canadian Geospatial Data Infrastructure (CGDI)
- The Federal Geospatial Platform (FGP) solution
- Ensuring usability: Client engagement in the FGP design process

Geospatial data are produced and widely used in the federal government…









…but we are faced with many challenges in realizing the potential of one of our best assets…

- No single source to view and analyze federal Geospatial data together
- Acquisition of geospatial data and technology has not been well coordinated across departments or even within a department
- Result: sharing and integration of "trusted" data across the federal family is limited due to technology, standards, licensing barriers
- to meet the rapidly evolving demands of Canadians and industry, within a tight fiscal context, aging infrastructure and public service demographic – innovation and efficiency is required

The Growing Need…

- 94% of Respondents reported increasing demand for and use of geospatially related data to meet business requirements.

Source: FCGEO Survey, May 2012

…to transform how we develop, share, use and manage geospatial data to empower the government in advancing public policy

To meet these challenges, Federal Committee on Geomatics and Earth Observation was established in January 2012…

- to provide proactive, whole-of-government leadership in geomatics and Earth observations to better support government priorities
- to collectively enhance the responsiveness, efficiency and sustainability of the federal geomatics and Earth observations infrastructure
- to improve access, sharing and integration of geospatial data at all levels (F/P/T and international)

The Federal Committee on Geomatics and Earth Observation (FCGEO)	
AAFC	Health
AANDC	Industry
CanNor	NRCan
CIDA	Parks
CFIA	Public Health
CSA	Public Safety
DFO-Coast Guard	RCMP
DFO-Science	SSC
DND	StatCan
Elections	TBS
Environment	Transport

…and launched the Federal Geospatial Platform initiative to capitalize on the full potential of our geospatial assets

The Federal Geospatial Platform is an enterprise solution to the challenges

- Enabling policy analysts and other federal users to easily access a comprehensive collection of **authoritative geospatial data;**
- Allowing for **discovery, access, visualization, integration and analysis** of the geospatial data;
- Accessible through a common web-based environment that is **developed collaboratively** among the federal departments and sharable by all departments; and
- Being implemented under **shared governance and management** of geospatial assets, through operational standards and policies.

Online Access, Viewing & Analysis
for non-technical and technical users

FGP Catalogue
Organizes the information for easier searching

Data Repository
stores data from multiple departments

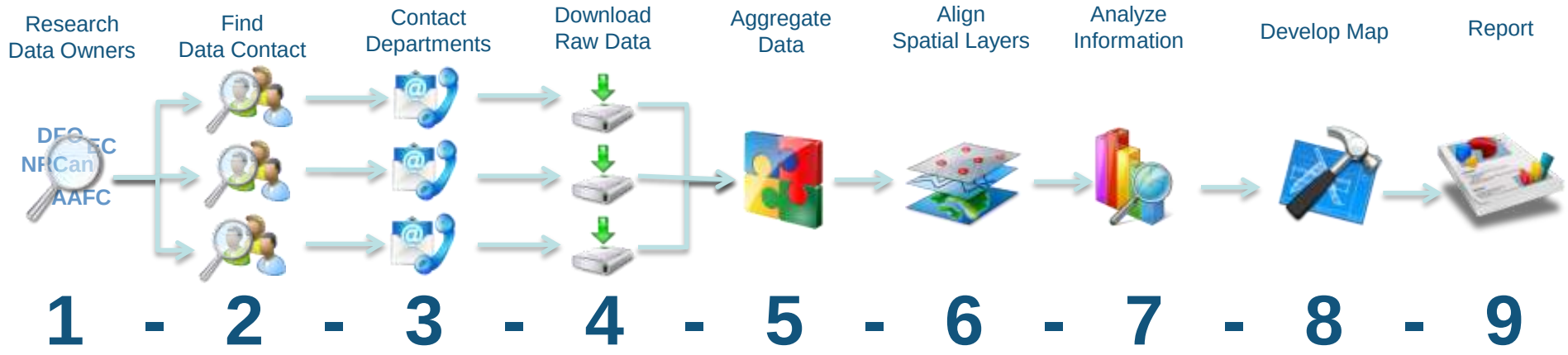
IT Supported by centralized server/cloud with networks

What is Federal Geospatial Platform?

Decision support tool	• to empower the Government in advancing its priorities such as responsible resource development, public safety, social-economic well-being, and environmental stewardship
A business transformation project	• using a whole of government approach fundamentally change the way we develop, share, use and manage geospatial assets, thereby to enhance program delivery and service to Canadians
Geospatial component of open data	• contributing to Canada's Open Government initiative to forge productivity and stimulate innovation

An expected result of FGP…

Today – an analysis could take weeks to months or even longer



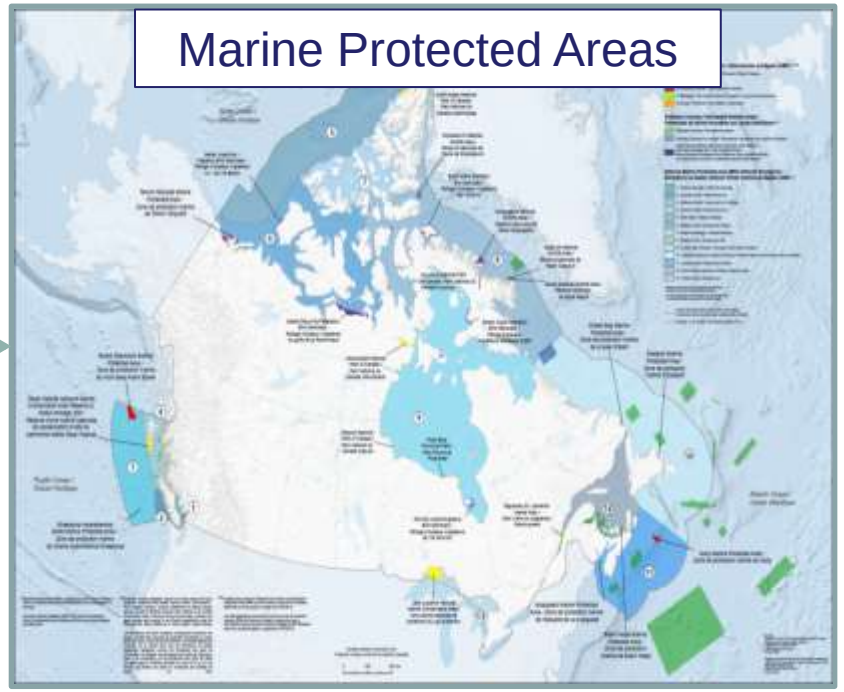
FGP will fundamentally improve this process, so that …

Tomorrow – it would take hours

Complex Policy and decision making often require multi-disciplinary geospatial information - a case…

- Bathymetry
- Marine bioregions
- Benthic habitats
- Conservation areas
- Fisheries
- Aboriginal land claims
- Aboriginal communities

Cost benefit analysis



All this information has been produced by various federal departments

Client engagement in the design process

- Functional Requirements
  - Functionality and the interaction of clients with the FGP
  - Assessing **how** the FGP will be used

- Data Requirements
  - What data is required, and alternatively
  - What information would improve current processes?

Types of Datasets Collected

Socio-economic

Energy Infrastructure
- Oil / gas pipelines
- Power transmission lines
- Power generating stations

Food Health
- Federal regulated meat establishments
- Plum pox virus – regulated areas
- Emerald ash borer

Canadian Demography
- Age, Education, Occupation, Marital status,, Income, Household characteristics, Mother tongue, Population and dwelling, Labour force status

Aboriginal Demography
- Age, Education, Occupation, Marital status,, Income, Household characteristics, Mother tongue, Population and dwelling, Labour force status

More are needed…e.g.
- Water Utilities
- Communication Utilities
- Public Facilities
- Health Indicators
- Cultural Resources, etc.

Environmental

Atmospheric
- Weather prediction
- Air quality prediction
- Climate baseline (10km gridded)
- Climate change scenarios (10km gridded)
- Essential climate variables

Water-Inland
- Watersheds
- Water quality

Water-Marine
- Tides and currents
- Winds and waves
- Water quality
- Water level
- Sportfishing areas in BC

Biota
- Ecological Regions/Framework
- Species at risk critical habitat (marine)
- Aquatic invasive species
- Ecologically/environmentall y significant areas (marine)

Environmental Management
- Protected Areas (land)
- Protected Areas (marine)
- Large Ocean Management Areas
- Environmental Cooperation Zones

Environmental Monitoring
- Air quality Indicators
- Fresh water quality indicators
- National pollutant release inventory
- Harmful substance emissions
- Greenhouse gas emissions
- Protected habitat indicators
- Agri-environmental Indicators

Natural Resources

Geological
- Geology
- Principal mineral areas
- Aquifers, wells
- G/Water monitoring sites

Mining
- Top 100 exploration deposit Appraisal Projects
- Mines in Canada

Land
- Canada Land Inventory
- Soil landscape of Canada
- Plant hardiness zones

Agriculture
- Prairie agriculture landscape
- Detailed soil surveys
- Agricultural biomass
- Saturated surface soil moisture
- Interpolated census of agriculture

Forest
- National burned area polygons
- National weather/fire weather point data

Aquaculture and Fisheries
- Marine Bioregions
- Ecologically/biologically significant areas
- North American Fisheries Organizations (NAFO) Zones

Base Framework

Geo-referencing
- Geodetic network
- Geographical names
- CHS Chart Index

Cadastral
- Northern oil/gas rights
- Aboriginal lands administrative boundaries
- Inuit communities
- First Nations
- Tribal Councils
- Aboriginal mining agreements

Base Map Features
- Administrative boundaries
- Principal municipal areas
- Hydrographic networks
- Road/railway networks
- Air/marine ports
- Digital elevation data
- Gridded bathymetry
- National Parks
- Land cover

Other Frameworks
- National highway systems
- Border locations
- Railway crossings
- CHS survey boundaries
- Ecological framework
- Federal electoral districts

Imagery

Base Imagery
- Orthoimages of Canada – Landsat TM 1:50K

Long term satellite data records (LTSDR)

National Master Standing Offers imagery

More to be defined

The Process of Creating User Stories …

Meeting with Clients

- 12 departments/agencies
- More than 50 people
- More to come

Develop Client Profiles

- A client's perspective about organizational roles and line of business
- 17 profiles, one per organization

Establish Personas

- **A bridge between client and implementers**
- **Designed to be easily understood by all participants**

Create User Stories

- Implementer's perspective
- Includes system's components, roles etc.

Our experience shows PERSONAS are very useful

What are Personas?

- Personas are fictional, generalized characters that encompass the various needs, goals, and observed behavior patterns among clients.

- They are created from direct client research and should be believable as people; "I feel like I have met these people."

- Sufficiently detailed but yet representative of the average of that type of client.

A FGP Persona Example:

Jennifer, Policy Analyst – Light User

Jennifer, as a member of the Strategic Policy and Economic Analysis group of *Administrative Affairs Canada (AAC),* provides advice on matters of policy with regards to Administrative entities within Canada as well as writing briefing notes and other communications materials for use by senior management of AAC. Jennifer is also responsible for organizing the annual Administrative Affairs Ministers' Conference, where FPT ministers meet to discuss shared priorities and collaborative actions.

"With every new request, I need context information; maps could help me access and assess that information"

Motivations / Drivers

- Network and maintain relationships with stakeholders
- Stay up-to-date within issues and developments in the administrative affairs policy landscape
- Respond quickly to requests from the senior management of AAC

Goals / Objectives / Needs

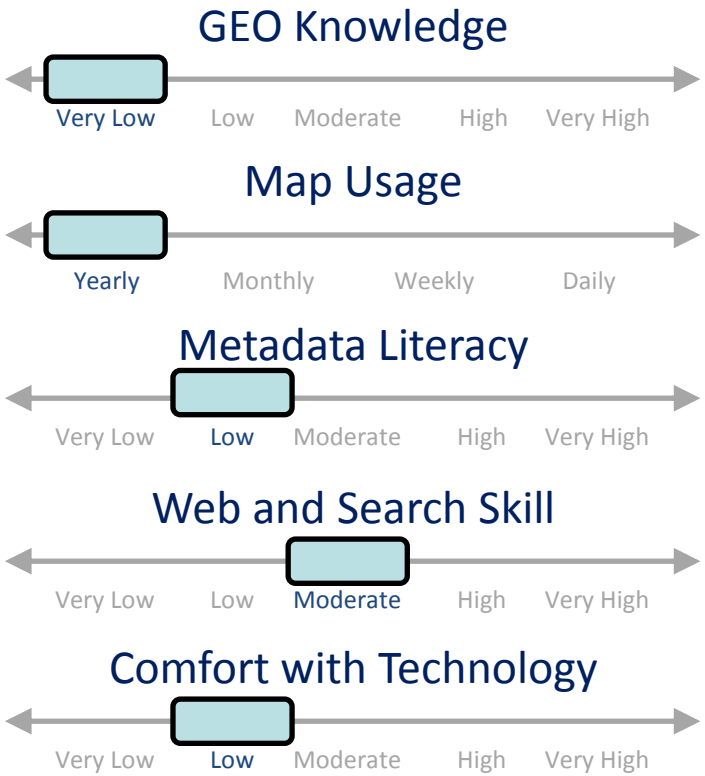
- Needs to find information quickly
- Broadly investigate issues to recommend a response
- Effective communication

Concerns / Frustrations

- Concerned with the accuracy and currency of information
- "Who should I be in contact with to get the best information?"

Relationships

- Jennifer works with Philip, Connie and occasionally Liam to initiate and effectively communicate Administrative Affairs policies
- Jennifer keeps the lines of communication open for many stakeholder relationships both inside the federal government as well as outside of it.



Philip, Economist

Philip, as a member of the Strategic Policy and Economic Analysis group of *Administrative Affairs Canada (AAC),* analyzes economic data about administrative entities in support of policy formation. Philip has a deep understanding of the economic implications of the regulation of administrative entities within the Canadian economy and uses this understanding to help his group respond to senior management enquires, compile national dataset on administrative entities annually and provide economic policy support.

"Maps can help me present the story or context around the economic data"

Motivations / Drivers

- Translate socio-economic data into meaningful take-away messages for managers and policy analysts
- Philip analyzes economic data to bring understanding and clarity to the administrative entities landscape

Goals / Objectives / Needs

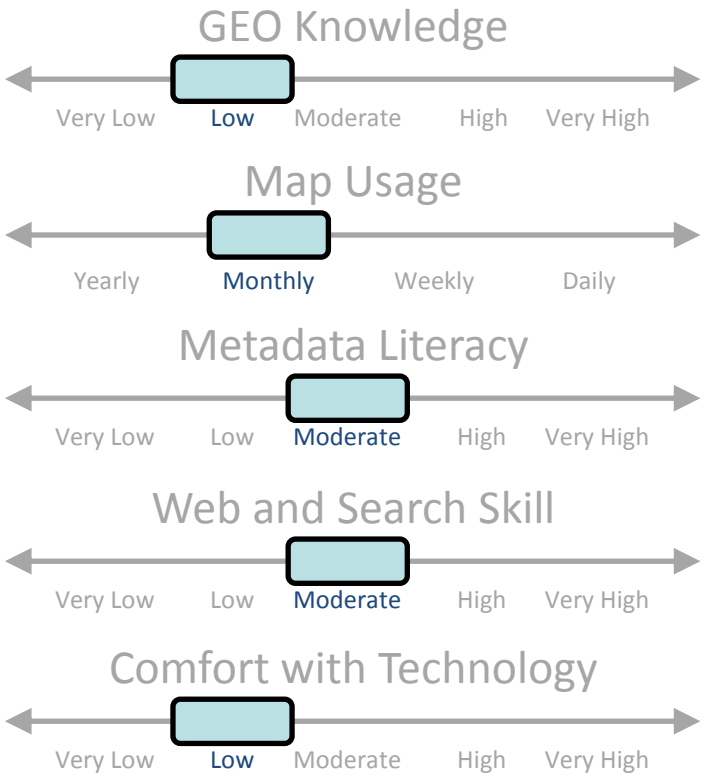
- Economic forecasting, impact assessment
- Solutions and mitigation for this sector of the economy

Concerns / Frustrations

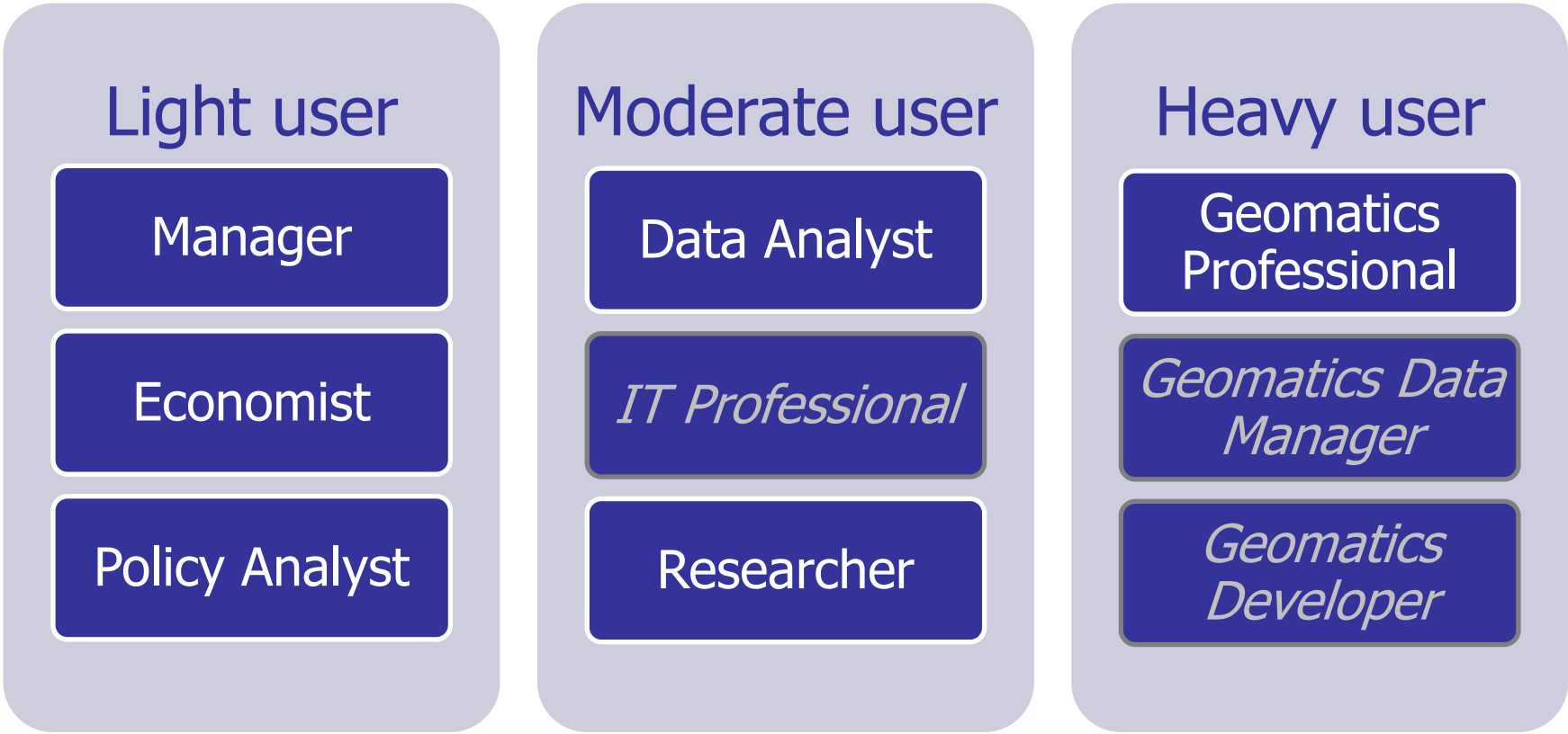
- Economic datasets are not integrated
- Datasets from other departments are hard to find and difficult to acquire
- Concerned with the accuracy and currency of information
- Geospatial economic information is not readily available

Relationships

- Philip as part of Connie's team works with Jennifer, Liam and Bernard
- Philip works with Liam to collect economic data on administrative entities from federal, provincial and territorial partners



Persona Types



The grayed personas need more samples to characterize

How Personas Shape The Development Of FGP

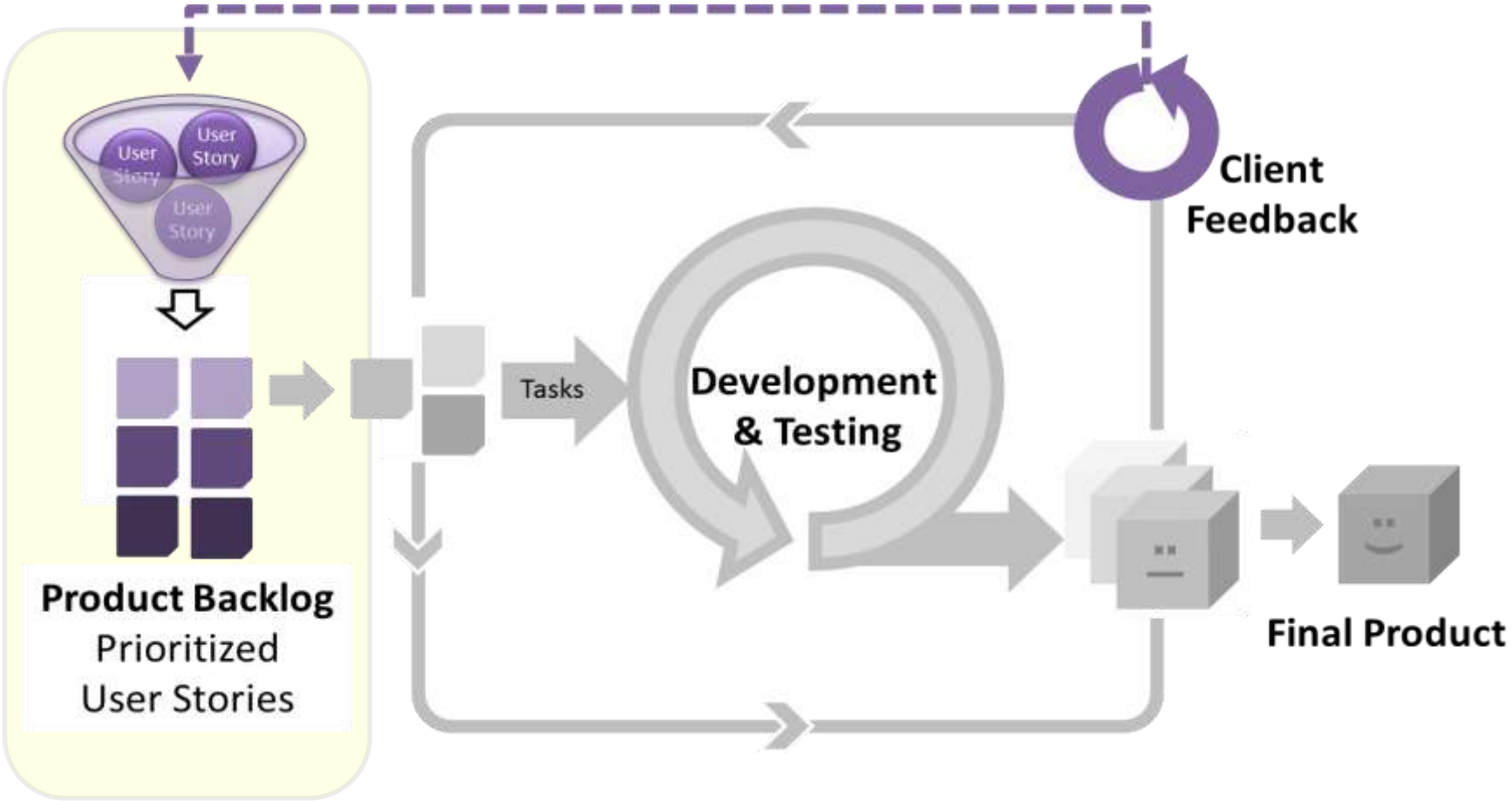
Front of House Priority Personas

"Front of House"	"Back of House"
Available Datasets	Data Maturity Model
Search & Discovery	Metadata Management
Visualization	Shared Development
etc.	etc.

Back of House Priority Personas

The chosen personas have been incorporated in the subsequent planning and implementation

To ensure FGP addresses client requirements:
Engaging clients in AGILE development process



…user stories serve as communicative channels between clients and developers

Summary

- **FGP will be a geo-enabling decision support tool**
  - enable federal geospatial data to be easily searched, viewed, integrated and analyzed by users from Canada and the world; and
  - empower the government for effective and efficiency decision making for public policy priorities

- **FGP is engaging clients to ensure its usability**
  - Major PERSONAS were established to guide the planning process as well as for developing user stories.
  - The next step is to create user stories based on personas and clients profiles and integrate them into the developmental process.

For More Information

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Annex

Connie, Manager

Connie manages the diverse staff in the Strategic Policy and Economic Analysis group of *Administrative Affairs Canada (AAC). In today's reality Connie struggles to balance her limited resources with expanded expectations from her senior management. Connie's team is responsible for delivering policy and economic analysis regarding the Administrative entities within Canada including their value to the economy, public cost of these entities and their overall efficiency .*

"I want my staff to be able to quickly and easily find information and evaluate if it meets our needs"

Motivations / Drivers

- "Success is the only option – on budget and on time"
- Respond to senior management enquiries in a timely and effective manner
- Connie is a strategic problem solver

Goals / Objectives / Needs

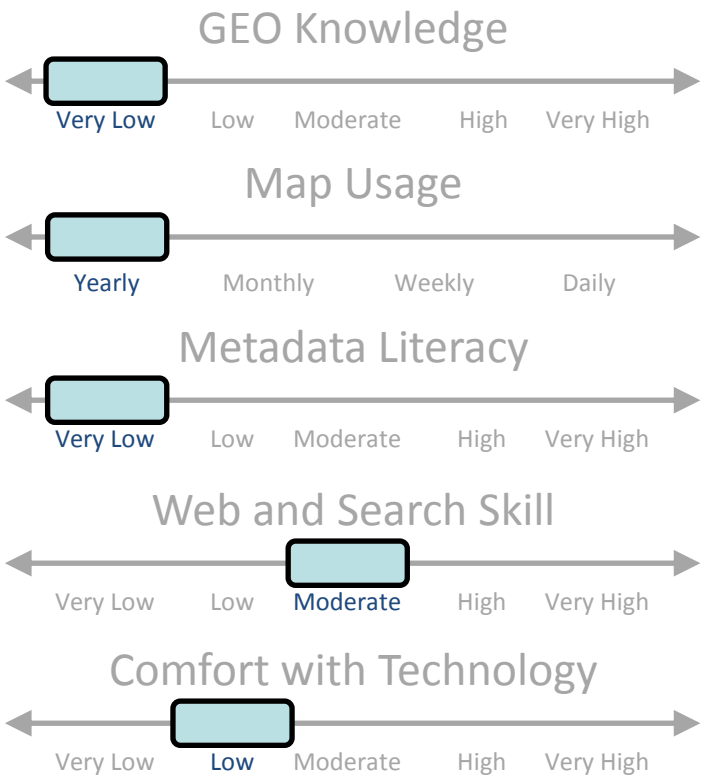
- Clear communication to senior management of AAC
- Manage limited resources in order to meet goals
- Meet the needs of senior management

Concerns / Frustrations

- "There is never enough time"
- "Will the FGP help or hinder our work?"

Relationships

- Connie manages Philip and Jennifer
- Connie is responsible for a broad range of stakeholder relationships both inside the federal government as well as outside of it.



Liam, Data Analyst

Liam, as a member of the Data Analysis and Research group of *Administrative Affairs Canada (AAC),* manages the Administrative Entities of Canada (AEC) dataset and provides senior management with annual report on the state of Administrative Entities in Canada. Liam analyzes data on demand to meet the needs of the Strategic Policy and Economic Analysis group and provides them with the results in the form of tables and graphs. Also Liam collects data quarterly on administrative entities from other federal departments, provinces and territories.

"Geo would add value to the dataset I manage so how do I make that happen?"

Motivations / Drivers

- Maintain, improve and make accessible the Administrative Entities of Canada dataset

Goals / Objectives / Needs

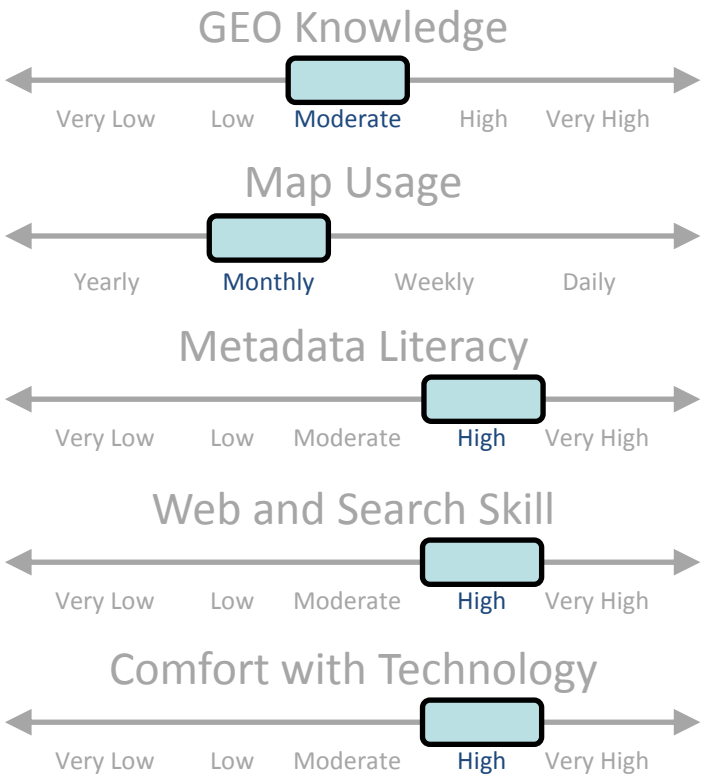
- Respond to data and analysis needs of the Strategic Policy and Economic Analysis group
- Report quarterly and annually on Administrative Entities in Canada

Concerns / Frustrations

- "How can I secure funding to improve the AEC by adding Geo?"
- Concerned with the accuracy and currency of information
- "Negotiating access to the datasets I need for analysis is time consuming and I have to keep going back to check for updates"

Relationships

- Liam works with Bernard, Philip, Rimona and occasionally Jennifer to provide data and analysis on Administrative Entities in Canada
- Liam maintains contacts in other federal departments, provinces and territories to facilitate the collection of data quarterly for the AEC



Bernard, Researcher – Moderate User

Bernard, as a member of the Data Analysis and Research group of *Administrative Affairs Canada (AAC),* is an expert in the field of organizational structures of administrative entities. Bernard investigates the impact of changes in organizational structures of administrative entities on the efficiency of these entities. Bernard attends and presents at conferences and symposiums as well as peer reviewing journal articles. He responds to requests from his colleagues for review, interpretation and analysis with regards to his area of expertise.

"How can I find others who need the same types of data that I do; maybe we can share the costs?"

Motivations / Drivers

- Expanding knowledge and deepening understanding of organizational structures within administrative entities
- Respond to the gaps in the knowledge of organizational structures within administrative entities

Goals / Objectives / Needs

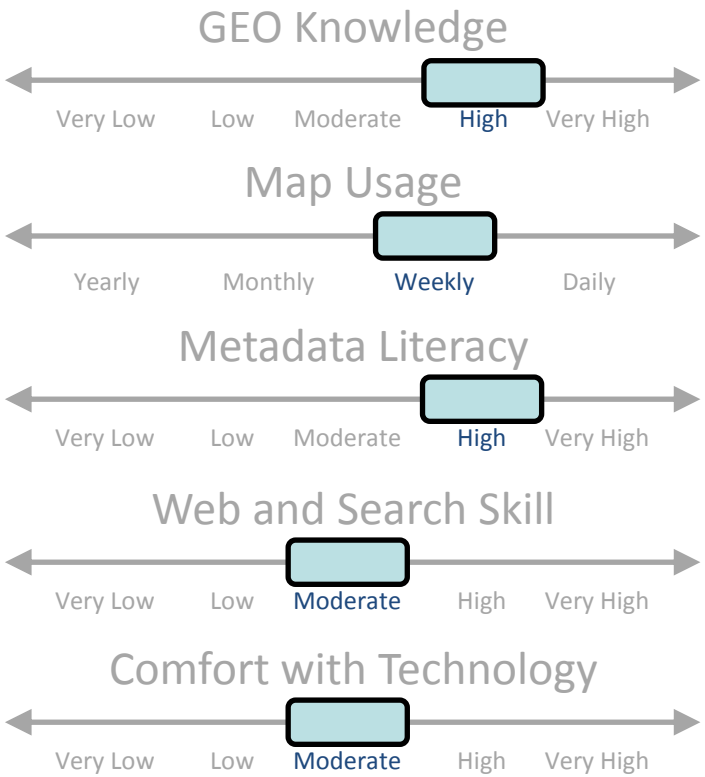
- Write reports, peer reviewed articles and attend conferences about organizational structures of administrative entities
- Respond to direct requests for review and analysis

Concerns / Frustrations

- Better access to data and metadata
- Concerned with the accuracy and currency of information
- Access to researchers doing similar work
- Access to more analysis tools and better data processing

Relationships

- Bernard works with Liam, Philip, Rimona and occasionally Jennifer to conduct research in the area organizational structures of administrative entities
- Bernard goes to conferences and networks with organizational structures of administrative entities researchers in academia, and other government departments as well as internationally



Sierra, IT Professional

Place holder – insufficient input to create a persona

Sierra works for the Chief Information Officer Branch of AAC.

"

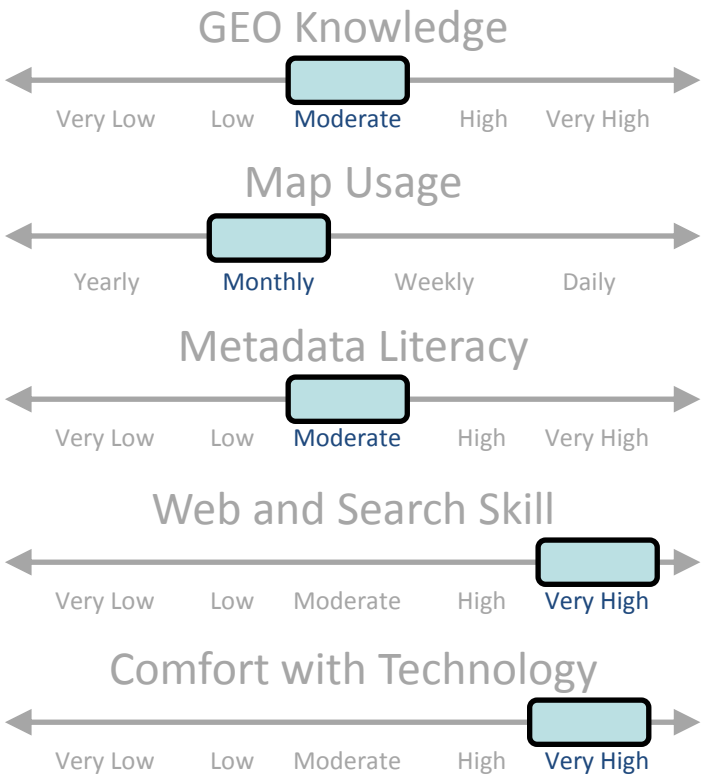
Motivations / Drivers

Goals / Objectives / Needs

Concerns / Frustrations

Relationships

- Sierra, through consultations with Sonya and Joseph, negotiates with SSC to obtain the IT infrastructure support required by AAC
- Sierra works with her contacts in SSC to navigate the process and effectively communicate the needs of AAC



Rimona, Geomatics Professional – Heavy User

Rimona, as a new member of the Data Analysis and Research group of *Administrative Affairs Canada (AAC),* has been tasked with providing Geomatics support to both her group as well as the Strategic Policy and Economic Analysis group. Rimona needs to have access to large number geospatial datasets that are related to the business of administrative affairs but AAC does not own these datasets. Finding, obtaining, and checking for updates for all these datasets are a large part of her work. The other parts include make custom maps on demand as well as providing access to and support for simple Geomatics tools.

"How do I help bring Geomatics to all my colleagues? I am only one person."

Motivations / Drivers

- Bring Geomatics to more of AAC
- Unlock the geospatial aspect of existing AAC datasets

Goals / Objectives / Needs

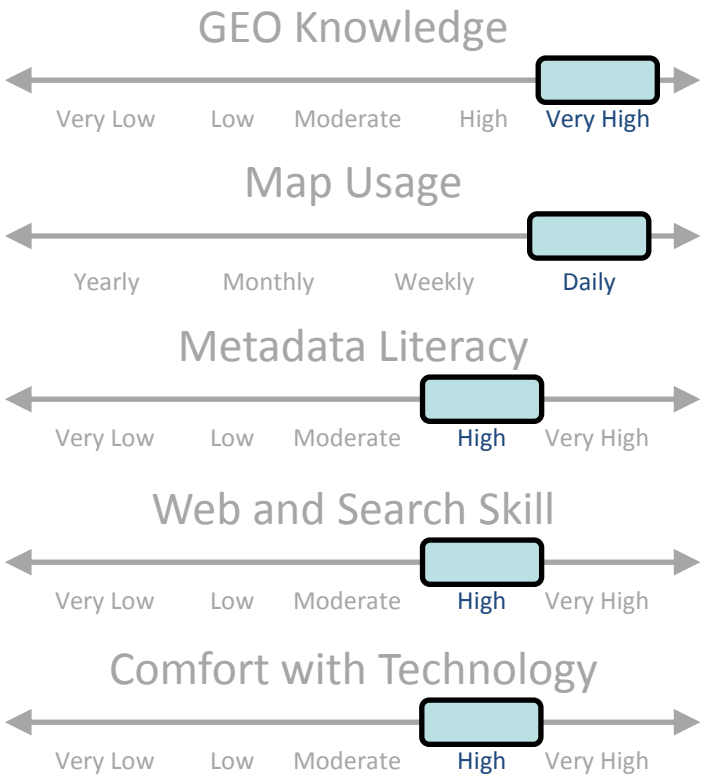
- Build and maintain a great collection of geospatial datasets for use by AAC
- Create custom maps, provide access to Geomatics tools and analyze geospatial data on demand

Concerns / Frustrations

- "Finding all the datasets that we need is difficult."
- "Can I find a way to enable my colleagues to make simple maps so they don't have to come to me every time?"

Relationships

- Rimona provides Geomatics support to Liam, Bernard, and occasionally Philip and Jennifer
- Rimona works with Joseph and Sonya to provide access to Geomatics tools and data
- Rimona maintains contacts in other federal departments as well as with other data providers to obtain the geospatial datasets required by AAC



Joseph, Geomatics Data Manager

Place holder – insufficient input to create a persona

Joseph works for the Geomatics group of AAC.

"

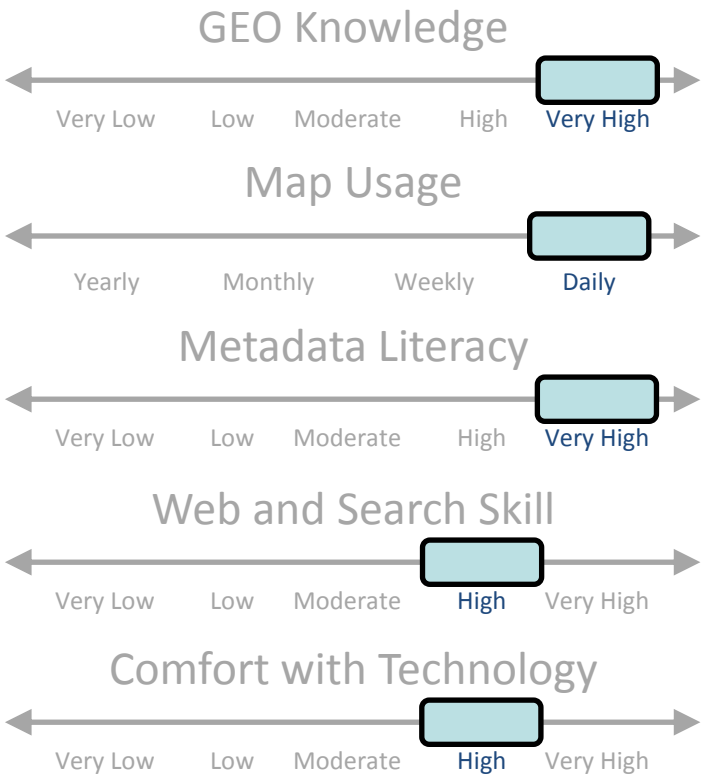
Motivations / Drivers

Goals / Objectives / Needs

Concerns / Frustrations

Relationships

- Joseph creates, maintains and provides access to AAC geospatial datasets to support to Rimona, Sonya, and occasionally Bernard and Liam



Sonya, Geomatics Developer

Place holder – insufficient input to create a persona

Sonya works for the Geomatics group of AAC.

“”

Motivations / Drivers

Goals / Objectives / Needs

Concerns / Frustrations

Relationships

- Sonya creates Geomatics tools to support to Rimona, Joseph, and occasionally Bernard and Liam