Update

Ministry

Treasury Board and F inance

Describe: Basic Job Details

Position

Position ID _____

Position Name (30 characters)

Data Solutions Analyst

Current Class

Program Services 4

Job Focus _____

Supervisory Level _____

Agency (ministry) code   Cost Centre   Program Code: (enter if required)

Employee

Employee Name (or Vacant)

Division, Branch/Unit

Supervisor's Position ID   Supervisor's Position Name (30 characters)   Supervisor's Current Class

Design: Identify Job Duties and Value

Changes Since Last Reviewed

Date yyyy-mm-dd

Responsibilities Added:

Responsibilities Removed:

Job Purpose and Organizational Context

Why the job exists:

The Alberta Office of Statistics and Information (OSI) is a branch within the Economic and F iscaPolicy division in Treasury Board and F inanceTBF).The OSI is Alberta's statistical agency and the Statistical F ocaPoint for Statistics Canada. Our mandate is to plan, promote, consolidate, and develop social and economic statistics relating to Alberta. In general, the OSI develops and analyzes social, demographic, and

economic statistics, as well as geospatial statistics on social and economic issues. We also provide analytical and data support to other government ministries, helping to inform policy and decisions making, as well as, providing information to the public.

Reporting to the Manager, Data Services, the Data Solutions Analyst is responsible for maintaining and improving OSI's data production infrastructure and creating data pipelines to advance the analytical capacity of the branch. This work will involve establishing data linkages among the OSI's numerous and diverse data sources and producing sophisticated analytical products, including using visualization tools to effectively present information and data to both internal and external stakeholders/users. The role will support evidence-based decision-making and strategic planning to deliver a fair and innovative system. At the same time, it will increase the OSI's ability to integrate and report on data from multiple sources, including data external to the branch. This multi-faceted role also works both internally and externally to ensure focal point support for stakeholders is readily available, and the data analytics community of practice has knowledgeable support.

Responsibilities

Job outcomes (4-6 core results), and for each outcome, 4-6 corresponding activities:

Create, expand, and maintain optimal data pipeline architecture for the OSI.
- Develop and maintain scalable data pipelines and build out new API (application programming interface) integrations to support continuing increases in data volume and complexity.
- Act as the liaison with GoA IT departments to ensure the OSI has access to the technological infrastructure required to support advanced data analytics.
- Implement and oversee robust data security measures to protect sensitive government information and ensure compliance with relevant security requirements.
- Identify and implement internal processing improvements to data pipeline and architecture, including automating manual processes, optimizing data delivery, and controlling data access.
- Create and maintain comprehensive documentation of data engineering processes and workflows for reference and auditing purposes.

Build the infrastructure required for optimal extraction, transformation, and loading of data from a wide variety of data sources, such as Statistics Canada website and other internal and external databases.
- Clean, aggregate, and organize data from disparate sources and transfer it to the OSI's data warehouse.
- Extract and transform data from multiple data sources to storage and use in the OSI data warehouse.
- Clean, structure and format datasets to make data consumable for processing and analysis.
- Manage data and meta-data stored in the OSI data warehouse.
- Build ETLs (extract, transform and load)/ELTs (extract, load and transform) and translate business logic into code.

Build analytics tools that utilize the data pipeline to provide actionable insights and analytics to support evidence-based decision making for policy and program development and refinement, operational efficiency, allocation of budget and resources.
- Create data tools for data scientist/analyst that assist them in building and optimizing data to answer emerging business questions.
- Work with data and analytics experts to implement leading practice and functionality.
- Provide data-access tools to view data and generate reports and visualization for data scientists and data reporting analysts.
- Deploy algorithms designed by data scientists in production environments, including providing the model with data stored in the OSI data warehouse or direct from sources, configuring data attributes, managing computer resources, and setting up monitoring tools.
- Enhance OSI's website to incorporate interactive functions and visualization tools.

Oversee the administration of OSI's secure data analysis lab to ensure ongoing access to sensitive and secured datasets like Canada Revenue Agency tax filer data.
- Manage data sharing and access agreements for secure datasets.
- Develop standards and procedure for tracking and auditing secure data management within the lab.

- Providing training and documentation on lab procedures, standards, and best practices.

Work with internal and external stakeholders to assist with data-related technical issues and support their data needs.
- Review data initiatives and project plans to recommend data sources or identify potential data gaps.
- Maintain awareness of Statistics Canada data releases, government data systems, and datasets available
- represent the OSI on cross-ministry data linkage and infrastructure projects.
- Serve as the OSI's subject matter expert in all data development projects.

Support the OSI's role as Alberta's statistical agency and the Statistical Focal Point for Statistics Canada.
- support data acquisition, delivery, publishing, security, license agreements, and analytical support, relating to data from Statistics Canada, Canada Revenue Agency, other GoA departments, and external GoA stakeholders.
- Manage data requests through the Real Time Remote Access (RTRA) and the Virtue Data Lab (VDL) from Statistics Canada.

Problem Solving

Typical problems solved:

Situations faced are often unstructured and unplanned when dealing with database architecture and pipeline development. This position will be faced with having to address challenges related to multiple. legacy data systems, as well as a lack of documentation, and complex relationships between stakeholders and programs. At times, this position will be required to solve problems with limited, missing, or incomplete data, as well as limited access to subject matter experts in an environment where timelines are often short. The role deals with a sensitive data and complex issues closely related to ministries business plans and program reporting. Issues involved are often unique in nature, with limited precedence available within the ministry or in other jurisdictions.

Types of guidance available for problem solving:

The position requires an understanding of problem-solving tools and techniques, including risk based. decision-making processes, consultation, collaboration, and consensus-seeking processes. Solving problems requires a strategic approach and needs to draw on a wide network of contacts and subject matter experts. The position also needs a strong understanding of stakeholder interests as well as the perspective of the OSI to ensure the data infrastructure meets the requirements. This position requires a strong analytical and technical understanding to identify issues and create innovative solutions.

Direct or indirect impacts of decisions:

This position is responsible for providing guidance on data availability and the development of data infrastructure that is critical for the accurate and timely reporting of social demographic and economic data that will support program areas and Executive Teams in GoA in making informed, evidence-based decisions related to resource allocation, policy and program development, and the Alberta economy. Senior Executive leaders, elected officials, and at times the public, academics, and the media, will rely on system trends and business insights that emerge from the use of data extracted from the OSI's data infrastructure. If not done with attention to detail, timely problem solving and technical precisions, the OSI is at risk of providing unreliable or incomplete information for decision-making.

Key Relationships

Major stakeholders and purpose of interactions:

Assistant Deputy Minister/Executive Director/Director
- As needed, to provide updates on project initiatives, technical briefings and respond to concerns and inquiries.

Manager, Data Services

- Daily, to receive direction on strategies and plans; to receive input on performance and advice on projects/initiatives; to provide advice on analytics solutions; to provide updates on status of projects, risk mitigation or unresolved issues.

Colleagues in OSI/EFP
- Daily, to provide, leadership, direction, expertise, and advice on data infrastructure projects; to exchange information, receive/provide guidance/direction, and collaborate on strategic and tactical solutions.

Colleagues in other government departments and external stakeholders
- frequently, to provide data support and advice, exchange information; to provide/receive direction/ guidance; share leading practices, lessons learned, issues and challenges, solutions as well as related opportunities.

Required Education, Experience and Technical Competencies

Education Level	Focus/Major	2nd Major/Minor if applicable	Designation
Bachelor's Degree (4 year)	Science	Other	

If other, specify:

Computer Science, Information Technology, Applied Mathematics, Statistics, or a related field

Job-specific experience, technical competencies, certification and/or training:

Technical Competencies:
- 2+ years of SQL experience. NoSQL experience is considered an asset.
- Advanced SQL skills and comprehension of complex relational database schemas and query authoring
Job Specific Competencies
- Hands-on knowledge of ETL/ELT and data warehouse tools, concepts, and processes, including data modeling, data mapping, and data integration.
- Experience building data pipelines.
- Experience with SQL stored procedures and python scripts.
- Experience working with business to identify data storage requirements.
- Experience working with either a Map Reduce or an MPP (massively parallel processing) system on any size/scale.
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- Experience performing root cause analysis on internal and external data.
- Experience in building processes supporting data transformation, data structures, metadata, dependency, and workload management.
- Successful history of manipulating, processing, and extracting value from large, disconnected datasets.
- Expertise in data analysis, including using unstructured datasets.
- Strong project management and organizational skills.
- Experience supporting and working with cross-functional teams in a dynamic environment.
- Strong communication skills, both written and verbal.
- Experience with visualization tools such as Power BI and Tableau.
- Excellent knowledge of Statistics Canada and Canadian Revenue Agency data products and services.
- Expert knowledge of publishing, privacy, security and data management policies and processes within the GoA.
Good understanding of effective client support and project management. Education
Bachelor's degree in computer science, information technology, or a related technical field, such as applied mathematics, statistics, and economics. Master's degree is considered an asset

Behavioral Competencies

Pick 4-5 representative behavioral competencies and their level.

Competency	Level A B C D E	Level Definition	Examples of how this level best represents the job
Drive for Results	○ ◉ ○ ○ ○	Works to exceed goals and partner with others	-Strong project coordination and

Competency	Rating	Description	Requirements
		to achieve objectives: • Plans based on past experience • Holds self and others responsible for results • Partners with groups to achieve outcomes • Aims to exceed expectations	management skills, including ability to assess priorities, coordinate diverse projects and make optimal use of resources to achieve outcomes. -Forecast potential challenges within evaluation planning and implementation and communicate and negotiates in advance. -Apply strong time management skills. -Function independently as well as lead and contribute effectively in a team environment.
Systems Thinking	○ ◉ ○ ○ ○	Considers inter-relationships and emerging trends to attain goals: • Seeks insight on implications of different options • Analyzes long-term outcomes, focus on goals and values • Identifies unintended consequences	-Strong strategic orientation, including ability to conceptualize and support a common vision/direction. - Apply their understanding of economic, social and demographic data in order to accurately link records and model outcomes for advanced reporting.
Agility	○ ◉ ○ ○ ○	Works in a changing environment and takes initiative to change: • Takes opportunities to improve work processes • Anticipates and adjusts behaviour to change • Remains optimistic, calm and composed in stressful situations • Seeks advice and support to change appropriately • Works creatively within guidelines	-Lead and coordinate multiple complex projects with competing and strict deadlines. -Work in a dynamic environment with shifting priorities. -Proactively anticipate and plan for program area requirements.