



Smart Freight Centre Data Warehouse Update

Hasan Bayanouni, Ph.D



SMART FREIGHT
CENTRE



Freight Data
Warehouse

THE 2020 SMART FREIGHT SYMPOSIUM



What is the Freight Data Warehouse?



Purpose is to enable freight analytics, modelling, monitoring and research



Consolidate, manage, and distribute freight data in a secure environment



Ensure freight data confidentiality and security requirements of providers



Addresses the long-standing need to make private freight data available for evidence-based research that improves goods movement in the Greater Toronto and Hamilton Area

Freight Data Warehouse Objectives:



* As per the data sharing policy

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Data hosted in the Freight Data Warehouse

- Data provided as a contribution from Transport Canada
 - Here Inc – Travel speeds by time of day by road segment
 - ATRI – GPS traces of commercial vehicles
 - SHAW/Omnitracs – GPS traces of commercial vehicles
- Other data sources:
 - Commercial Travel Survey data (shipper based survey conducted by Metrolinx and University of Toronto)
 - Others to be announced

SFC Freight Data Warehouse - Data Policy

Data Policy is a document that aligns with requirements of: Universities, funding organizations & private sector data providers.

- Data Acquisition Requirements (e.g. ethics and privacy)
- Data Sharing Legal Agreements
- Authorization / User Access
- Cyber-security
- Acknowledgement

The Data Governance Team

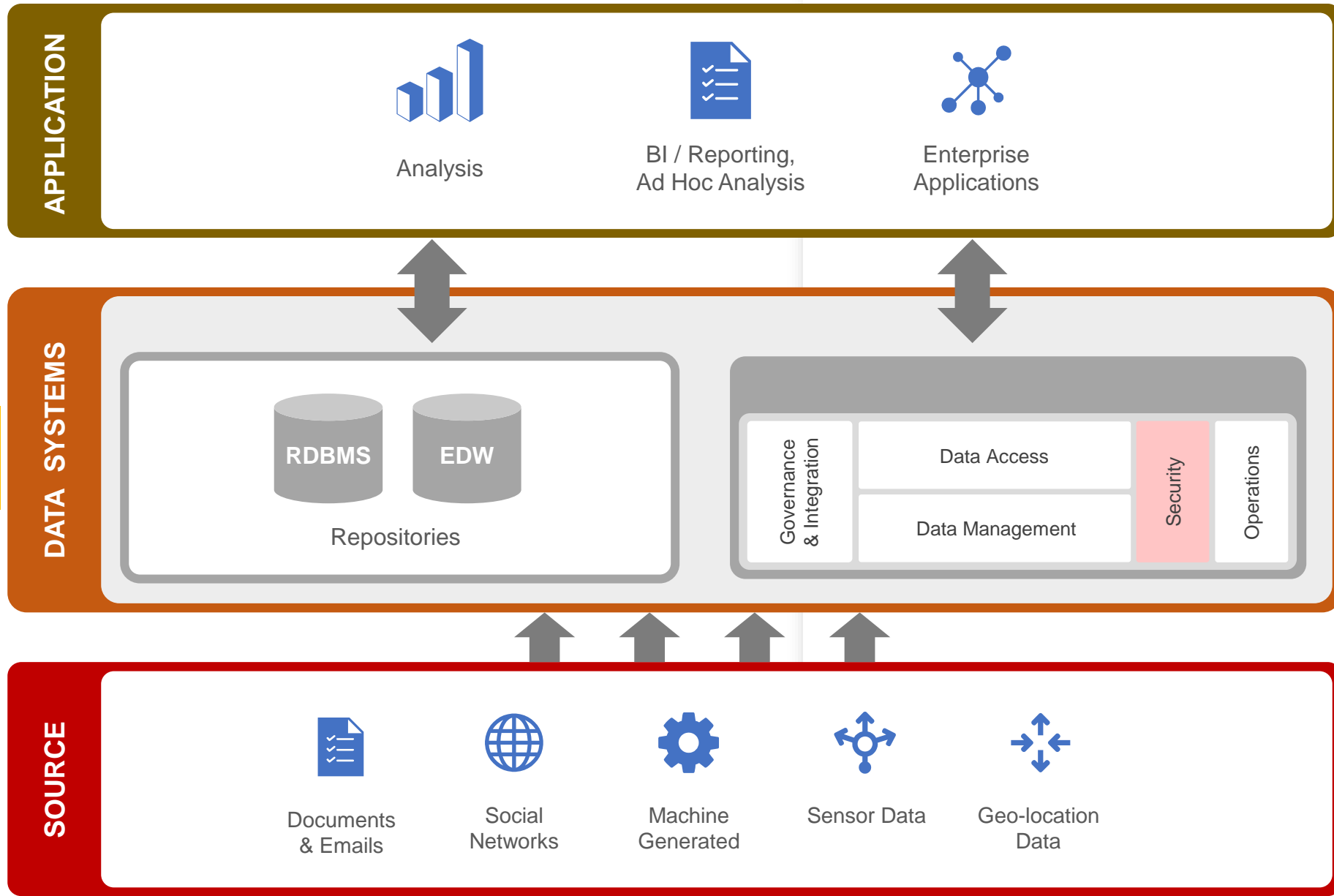
- Oversees the implementation of the data policy in accordance with the Data Owners' legal and business rules.
- A subcommittee of the SFC Governance Committee

Data Classification

Classification	DESCRIPTION
PUBLIC DATA	Data that may be broadly distributed without causing damage to the Data Owners, SFC, or other stakeholders
INTERNAL DATA	Data available to SFC researchers. Requires moderate aggregation or anonymization
RESTRICTED DATA	Raw data that are highly confidential, may not be disclosed outside of a secure environment. Only accessible via secure queries moderated by the Freight Data Warehouse steward.

Three Data Handling Areas

Areas	DESCRIPTION
Hosting Area	Restricted Data Restricted data stored securely on the U of T Secure Private Cloud. Only accessible directly by the SFC Data Steward and Custodian. Data users access indirectly by approved queries.
Staging Area	Anonymized Data for Research Resembles the restricted data, with modifications to preserve confidentiality. Allows SFC Researchers to understand the structure of the data, and to develop queries, which can then be used on the restricted data.
Web Portal	Online querying system Allows data users to make data access requests and to view data that are approved for public viewing.



Staging/Testing Environment

Build & Test

OPERATIONS TOOLS

Provision, Manage & Monitor

Portal

SFC data warehouse

Username: _____

Password: _____

Login

Web portal access example:

User Request from: York University

Data Set: HERE Data

Duration: 1 Month => Oct. 2019

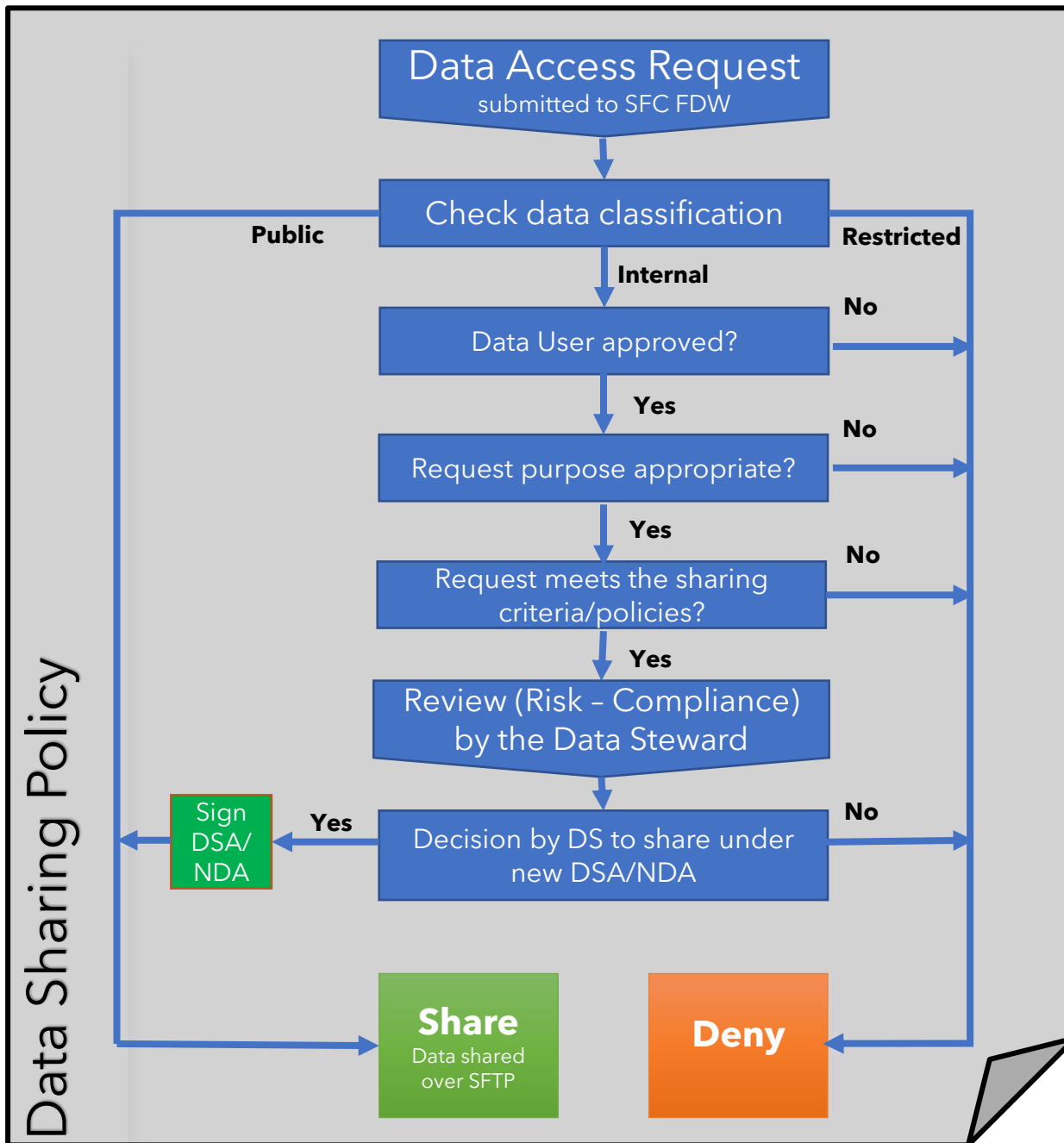
Geographic Area Requested: Peel Region

Purpose of Request: Congestion data analysis

Time Resolution Requested: Peak hours



This user request triggers the following governance process



Tools

Pointer Brush Query

Tooltip **Small** Large Hide

Selection management

0 total links selected

Save Load Restore Clear

Date range

From To

Sun Mon Tue Wed Thur Fri Sat

Confirm and continue

User menu

Richmond Hill Markham Vaughan Brampton Toronto Pearson International Airport



