CORRITEK
An Extensible CVO* Platform for Canada’s Trade Corridors

Mohammed El Darieby
Lina Kattan
Baher Abdulhai

UNIVERSITIES OF REGINA
UNIVERSITY OF CALGARY
UNIVERSITY OF TORONTO

* Commercial Vehicles Operations
Today we will present:

- Objectives and Scope of CorriTek
- Application Components of CorriTek
  - A comprehensive Commercial Vehicle Traveller Information System (CVTIS)
  - Sustainable CVO
  - Safe CVO
  - Extendable Data Management Services
  - Strategic Planning Forum & Exchange

- Potential Benefits
Objectives and Scope

Canada-Asia/Oceania trade: $149B in 2013, grew by 4.6% from 2012

Canada-U.S. trade: $583B in 2013, grew by 5.6% from 2012

Canada-Europe trade: $102B in 2013, decreased by 3.4% from 2012
Platform: Application and Services

CorriTek: APCGI Commercial Vehicles Operations Platform

Application Layer
- KPI services
- APCGI Portal
- Community-based strategy planning services

Service Layer
- Efficient ITS Services
- Safe ITS Services
- Sustainable ITS Services

Data Layer
- APCGI Data Integration Services
- CorriTek Commercial Vehicle Infrastructure Integration

CorriTek Commercial Vehicle Infrastructure Integration

Other databases (e.g., AMA Policy Data)

Road-side Equipment (e.g., ACTIVE-AURORA)

Other Legacy CV operations Systems

Compute Canada Servers

CANARIE Fiber Optics

APCGI Decision makers & Operations Engineers

APCGI Policy Drafters & stakeholders

APCGI Operations Portal

Community-based strategy planning services
1. CVTIS: Commercial Vehicle Traveller Information Systems

- CorriTEK will provide snapshots of real-time performance of the Canadian trade corridors.

- Snapshots are captured through:
  - Web-Based “Dashboard”
    - Performance indicators over longer periods of time
    - used by decision makers and strategic planners
  - “information portal”
    - Real-time performance measures
    - used by Truckers and operational engineers
2. Performance Measures and indicators

- Economic competitiveness/ mobility and connectivity
- Quality of life/ environmental stewardship
- Safety and security
- Service maintenance and sustainability
3. Sustainable CVO

- Monitoring fuel consumption and emissions
- Gathering and analyzing fuel consumption and emissions based on:
  - accelerometer and driving behavior parameters such as traveled speed, braking, gear shifting, idle time, cold start, etc.
- Providing customized traveled speed, length of idle time and routing recommendation to reduce fuel consumption, cold start and GHGs emissions.
- Develop a smartphone app and centralized software service
4: Safe CVO (policy enforcement)

- Gather and provide policy information
- Advising Truckers on:
  - customized alternate route
  - In-vehicle advisory on speed limit based on weather road condition and traffic conditions
  - Speed and curve speed warning
  - Log data linking driver, vehicle and carrier information
- Develop smartphone apps and centralized software services
5. Data Management

A one-stop shop for APCGI data!

**Historical Freight Database:**
- shipment origin and destination,
- commodity characteristics,
- Weight
- modes of shipment,
- routing and time of day,
- vehicle type and configuration
- Type of equipment

**Real time Integrated Freight Traveller Information Systems, Data fusion and Dissemination:**
- Open data for interprovincial network wide Monitoring (planned events, incidents, speed weight and height, restrictions, weather, etc.)
- Road side infrastructure: WIM, RWIS
- Cloud sourcing, CCTV, queue times at gates, etc…
6:Forum & Exchange

A national priority is to create critical mass in innovation via **connected centres of excellence**, research society, web tools to share data, applications, expertise etc.

- Effective coordination is required among APCGI stakeholders for:
  - revision of short and long-term transportation plans by the province and large municipalities;
  - definition of inter-provincial policies (e.g., truck weight and dimension limits where most current policies are intra-provincial);
  - involvement of the stakeholders in decision making activities;
  - analyze provincial governments’ revenues from fuel taxes and expenditures on roads;
  - development of goals and objectives for the freight program
  - project list review and prioritization,
  - evaluation of commodity flows and industry logistics patterns,
  - identification of bottlenecks and other physical and operational deficiencies and impediments.

- CorriTek proposes a set of socio-technical software services
  - This expands on Lower Mainland Container Logistics Stakeholder’s Forum
  - The CorriTek portal acts as repository for online **technical knowledge**
ONE-ITS: Building on a strength

- ONE-ITS can provide a virtual regional traffic management centre
Potential Impacts

- Building a Platform for Commercial Vehicle to enhance Canada’s trade corridor Competiveness

- Realizing substantial road safety, economic and environmental benefits over the next few decades.

- Researching, developing and testing innovative solutions

- Training HQP