Using Technology to Stake Out a Leadership Position

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AN **ECONOMIC** FORCE

- **8,6 MT**
- **13,1 MT**
  - 1,5 M TEUs (Full & empties)
- **35,4 MT**
- **13,7 MT**
- **85,800**
- **2,000 + ships / year**
- **60-80 trains / week**
- **2,500 trucks / day**

**CONTAINERIZED CARGO**
*MILLIONS OF TEUs, FULL AND EMPTY*

- 2007: 1.2
- 2008: 1.3
- 2009: 1.4
- 2010: 1.5
- 2011: 1.6
- 2012: 1.7
- 2013: 1.8
- 2014: 1.9
- 2015: 2.0
- 2016: 2.1

*TEU = Twenty-foot Equivalent Unit*
A Logistics Force

Strategic & Competitive location

- 2nd largest port in Canada
- 5th container port on East Coast
- River port behaving as ocean port
- Supply chains compete against each other moreso than ports do...

<table>
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<tr>
<th>DESTINATION</th>
<th>MONTREAL</th>
<th>TORONTO</th>
<th>DETROIT</th>
<th>CHICAGO</th>
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<tbody>
<tr>
<td>MONTREAL</td>
<td>-</td>
<td>336</td>
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SMART PORT

Governance
- Interport alliances
- Inland ports
- Business incubator

Sustainability (circular economy)
- Industrial clusters
- Logistics centers
- Wealth creation & sharing

Innovation
- Secondary market creation
- 3D printing

Smart infrastructure and equipment
- Contaminated soil encapsulation
- Bio-concrete
- Autonomous Vehicles

Digital environment
- Electronic Navigation
- Big Data
- GHG Project 2.0:
  - Metadata
  - Physical Internet

Business incubator
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THE PROJECT
Problem statement

New Common Entry Truck Portal (RFID technology)

Growing unrest in harbour trucking at several North American ports

Port-wide GHG inventory (no truck specific GHG inventory)

Modal split in favour of trucking

STATE OF THE PORT IN 2012

1. Security: trucker ID, container ID
2. Port-city relation: internalizing truck staging within port boundaries
Objective is to reduce GHG emissions through route optimization methods.

Combining RFID and plate reading technologies to monitor the entire truck transaction within port territory.

Measure total truck processing times from entry to exit and relay wait times to truck drivers and dispatchers in real-time.

GHG reduction: routing optimization through behavioral changes to reduce truck idling and smoothen hourly peaks.

PROJECT OBJECTIVES
• Pilot testing (winter 2014-15)
• Pairing rate 80% à 98% depending on terminals
Greenhouse gas emissions
Current emissions: Low.

GES emission concentration
Calculated per truck crossing

- High: more than 160g CO2/KM
- Medium: from 120g to 160g CO2/KM
- Low: less than 120g CO2/KM

Calculating greenhouse gas (GHG) emissions per truck trip is based on how much time elapses between the various checkpoints on Port territory and how far a truck travels.

With these figures, we can measure the amount of fuel used by road transport at the Port of Montreal and, in turn, the greenhouse gas emissions.

We calculate greenhouse gas emissions when a truck is being driven and also when it’s idling.

https://portmtltrucks.com/
TRUCKER ACCOUNT

https://portmtltrucks.com/
Innovation: Big Data and real-time analytics. IT architecture

Social License: measurable air quality improvements for communities

Competitiveness: increased fluidity means a competitive supply chain
NEXT STEPS

Provide visibility outside port boundaries: Smart City ITS

Introduce container matchback program, create a market

Leverage networking capabilities, IOT

Predictive functions
May 6th 2017
Port of Montreal welcomes its first vessel at its new cruise passenger terminal

On YouTube: «New Passenger Terminal for the Port of Montreal»