U.S. Department of Transportation

Overview

Freight Logistics Optimization Works (FLOW)

June 2022

Agenda

Today's agenda:

1. What is the benefit of participating in FLOW?
2. What is the FLOW Index?
    1. What is the unique value the federal government is providing?
3. What is next?

FLOW

What is the benefit of participating in FLOW?

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Outcomes

1. FLOW is focused on the optimal balance between capacity and demand of the National Logistics System (NLS) through:
    1. An independent indicator of health of the supply chain
    2. A preview of performance for improved operational planning

FLOW

What are the benefits of participating in FLOW?

Principles

1. FLOW is a voluntary, secure national exchange for operational freight information
2. FLOW analysis is available only to Stakeholders who participate and share data
3. FLOW is sustained by benefit to commercial operations of Stakeholders

What are the benefits of participating in FLOW?

What the FLOW Index is NOT

- Cargo visibility tool
  - FLOW measures demand against supply at nodes, it does not track where individual cargo is; all information is aggregated and deidentified
- Standard setting process
  - FLOW is not setting industry standards for container movement events

Think of Consumer Price Index (CPI), P/E ratio, Purchasing Manager's Index (PMI), etc. FLOW is an independent indicator of operational health for decision makers.

FLOW

What is the FLOW Index?

What is the FLOW Index?

Indicator of the Health of the Supply Chain

What is the FLOW Index?

Indicator of the Health of the Supply Chain

- Aggregate demand over aggregate supply at a node
- Node is defined by terminal/port (marine, rail, etc.)
- To simplify:

$$FLOW\ Index = \frac{Aggregate\ demand\ at\ node}{Aggregate\ supply\ at\ node}$$

FLOW

What is the FLOW Index?

Indicator of the Health of the Supply Chain

We are starting with three calculations

$$FLOW \text{ Waterside } Index = \frac{Aggregate\ demand\ at\ node}{Aggregate\ treminal\ supply\ at\ node}$$

$$FLOW \text{ Landside } Index = \frac{Aggregate\ demand\ at\ node}{Aggregate\ drayage/chassis\ supply\ at\ node}$$

$$FLOW \text{ Regional } Index = \frac{Aggregate\ demand\ at\ node}{Aggregate\ warehouse/OTR\ supply\ at\ node}$$

FLOW

What is the FLOW Index?

Indicator of the Health of the Supply Chain

1. Pilot Nodes: LA/LB, PONYNJ, Savannah
2. Demand:
    1. BCOs: Purchase orders 96 days to destination (weekly)
    2. Ocean Carriers/NVOs: Bookings (weekly pre-departure, daily in-transit)
3. Supply:
    1. MTO: Available and total terminal yard slots for containers (daily)
    2. IEP: Total chassis serving a terminal (daily)
    3. Drayage: Total trucks serving a terminal (daily)
    4. Warehouse: Available and total space in defined region around terminal (daily)
    5. OTR: Total trucks in a defined region around terminal (daily)

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What is the FLOW Index?

Indicator of the Health of the Supply Chain – Current Partners

Albertsons	Land O' Lakes
CH Robinson	MSC
CMA CGM	Port of Long Beach
DCLI	Port of Los Angeles
FedEx	Prologis
Fenix Marine Services	RoadOne
FlexiVan	Target
Gemini Shippers	True Value
Georgia Ports Authority	UPS
Global Container Terminals	Werner

What is the FLOW Index?

Indicator of the Health of the Supply Chain

How is USDOT uniquely suited to support supply chain?

- Ability to be a trusted independent steward of information
- Central location for a national view of supply and demand
- Broader demand visibility (beyond an individual participant's supply chain) and deeper visibility (starts with purchase orders)
- Currently, historical performance is a proxy for capacity, FLOW aggregates units of supply in near-time (for which there is little commercial incentive)

FLOW

What is the FLOW Index?

Performance Preview

FLOW Index Calculation FAQ

Performance Preview – Illustrative

- To preview performance, the FLOW Index can be compared to performance indicators at a node

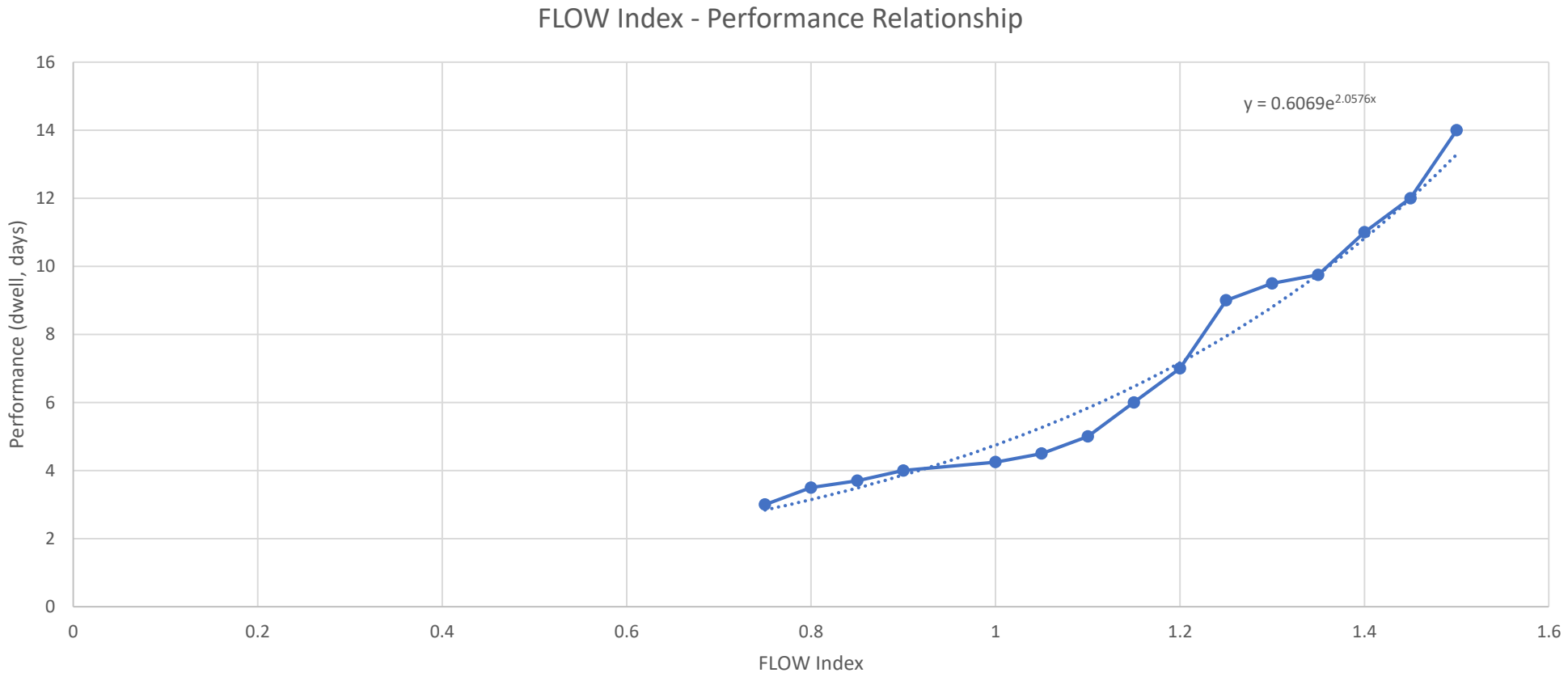
FLOW Index at Node	Performance (e.g. dwell, in days)
0.75	3
0.8	3.5
0.9	4
1	4.25
1.05	4.5
1.1	5
1.15	6
1.25	9
1.3	9.5
1.4	11
1.5	14

FLOW

FLOW Index Calculation FAQ

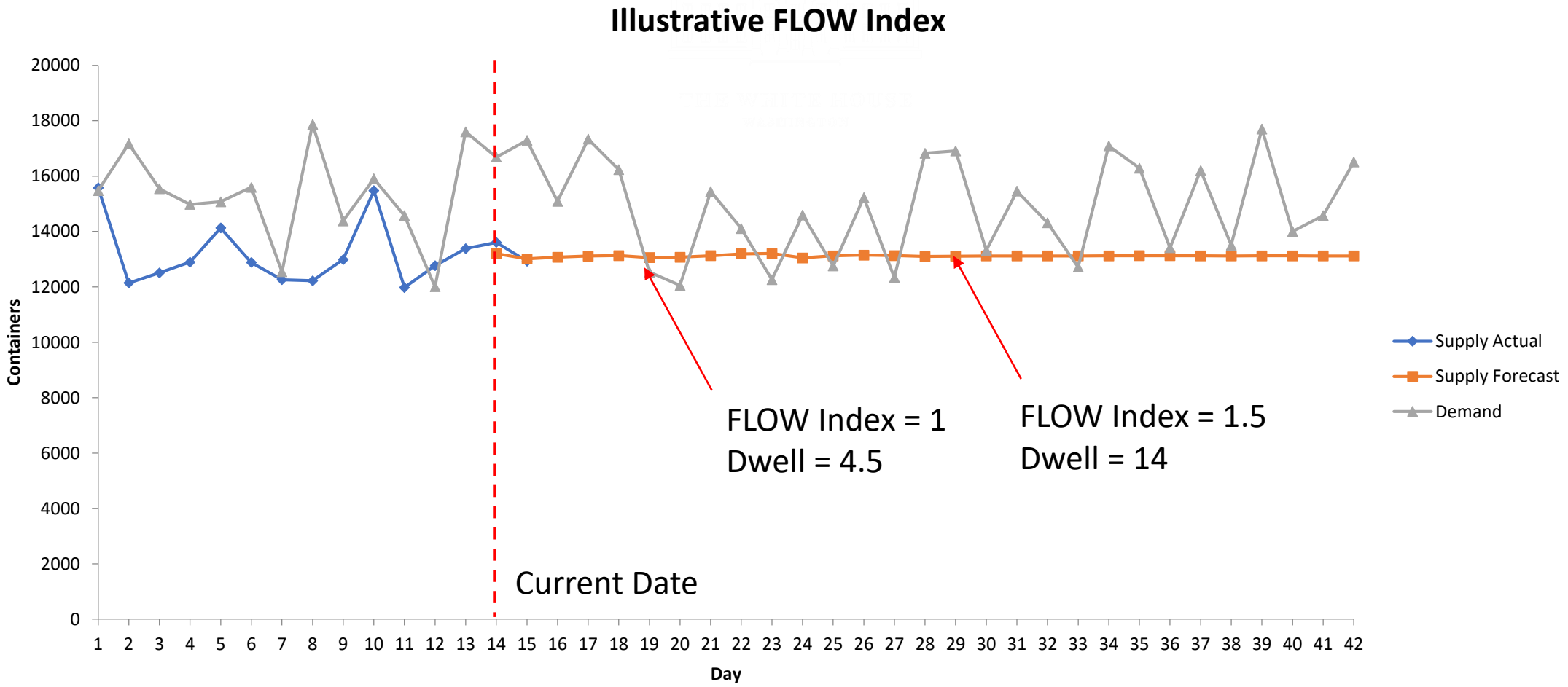
Performance Preview – Illustrative

- This creates a relationship between the FLOW Index and performance metrics for each node and participant



What is the FLOW Index?

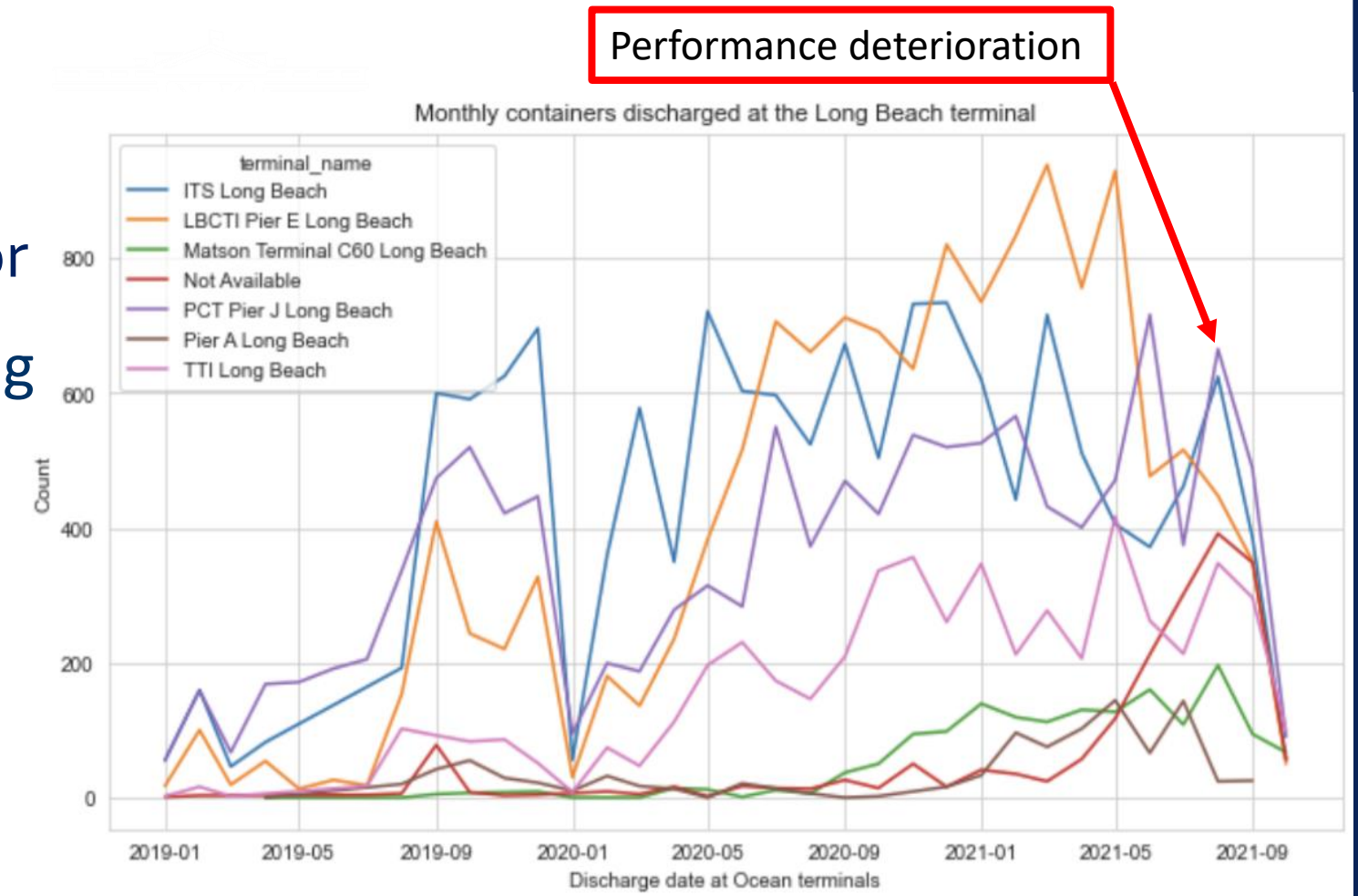
Performance Preview – Illustrative



What is the FLOW Index?

Performance Preview

- This is current practice; and a lagging performance indicator
- The FLOW Index, by comparing supply to demand, is a precursor to the chart
- That precursor will give participants earlier insight to act



What is the FLOW Index?

Performance Preview

- We are starting with historical information to build out indices (math problem)
  - We can test and poke the system
- We simultaneously are working on data submission infrastructure (IT problem)
  - Daily and/or weekly reporting

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What is Next?

What is Next?

Database Standup and Onboarding

1. Bureau of Transportation Statistics (BTS) is working with sample data from participants, signing MOAs
    1. We have a pilot website
2. When we have a "load-bearing structure" we will add more members

FLOW

What is Next?

Long-term Vision

FAA's Collaborative Decision Making is a thirty-year industry / government partnership

1. Manages demand and capacity of national airspace system (NAS)
2. Robust model to learn from (CDM is supporting FLOW)

FLOW aims to model the success of CDM, for the national logistics system (NLS)

1. Three months into a thirty+ year journey

FLOW

What is Next?

Recap

1. This is a unique federal government role to support supply chain operations

2. Captures and institutionalizes the spirit of collaboration started by the Supply Chain Disruption Task Force

3. Long-term global leadership; building a commercially competitive and operationally cooperative supply chain

FLOW