



Logistics Efficiency: Why Corridors Should Lead to Open Doors

**Paul E. Kent, Ph.D. , Vice President and Port Specialist, Nathan
Associates Inc., PKent@nathaninc.com**

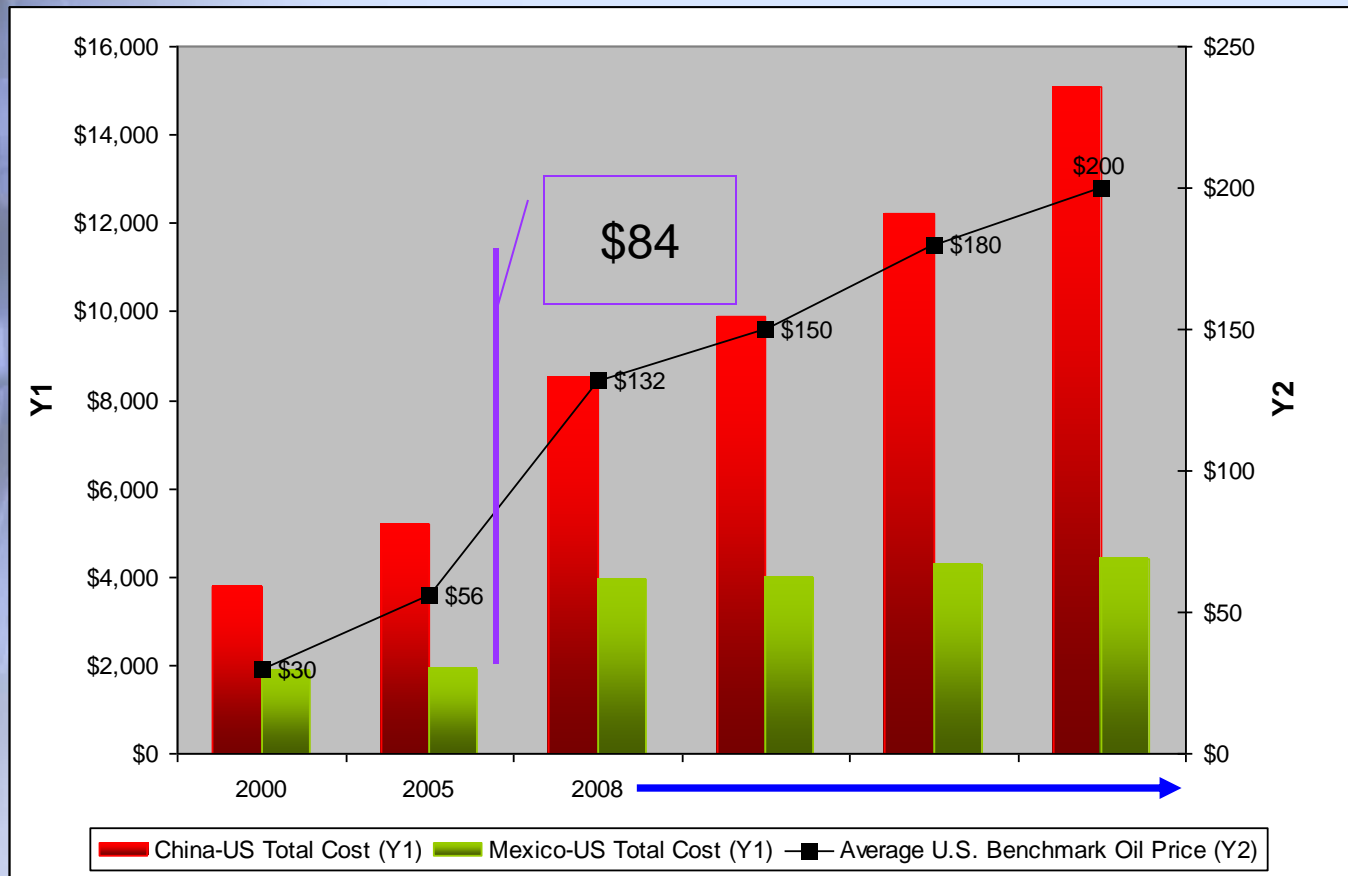
Port and Transport Logistics Chain Efficiency

- Initial interest in shipping/transport costs
 - Limao and Venables – 10 % increase in transport costs reduces trade volume by 20 %
 - Radelet and Sachs – doubling shipping costs slows GDP growth by 0.5 %
- Recent growing (research) interest in port and transport logistics chain efficiency
 - Clark, Dollar, Micco (2001) – port inefficiency increases distance by 60%
 - Wilson, Mann, Otsuki (2003) – efficiency improvement in ports has greater impact than Customs improvements and use of e-commerce
 - Hummels (2001): Inventory costs due to transport delays equivalent to 0.8 %/day of delay of the value of the goods being delivered
 - Kent, Fox (2004) – assess impact of port inefficiency on welfare – port inefficiency, when mitigated, induces GDP growth by 0.47 percent
 - Djankov, Freund, and Pham (2006) -- each additional day required for a shipment imposes “extra” economic distance of 70 km per day

Emerging Trends will Challenge Ability to be Efficient and Competitive

- Port operations performance being constrained by factors outside port gate
- Inter-port competition is evolving towards inter-corridor competition
- Fuel prices negating labor cost advantages – aka the China factor To High Fuel Costs
- Vessel service rationalization
- Introduction of regional security protocols
- Port expansion and access being constrained by urban congestion
- Potential monopolistic or oligopolistic abuses by terminal operators

Changing Economics from High Fuel Costs – China vs. Mexico



Source: U.S. Crude Benchmark Prices, U.S. Department of Energy; Shipping Costs – estimated averages from sample data from shipper manifests/carriers and phone quotes from freightforwarders; projected costs calculated by Nathan Associates Inc.

Logistics costs and fuel prices

- Soaring transport costs, not tariff barriers, pose the greatest challenge to trade today
- Using GTAP model, early results indicate:
 - At \$20/barrel, transport costs equivalent to 3% tariff rate
 - **At \$80/barrel, transport costs equivalent to tariff rate of 9%**
 - At \$150/barrel, transport costs equivalent to tariff rate of 11% (same as tariff rates in 1970)
- Long-distance routes especially vulnerable
 - Every 10% increase in distance = 4.5% increase in total transport cost




How to Improve Performance

- Governments need to know where they stand in terms of transport logistics efficiency
- Performance indices have encouraged governments to improve
 - World Bank *Doing Business* Report – “Trade Across Borders” Index
 - World Bank’s *Logistics Performance Index*



World Bank's *Doing Business* 2010

- Indices include
 - Number of documents for imports and exports
 - Time for imports and exports
 - Cost for imports and exports
- Rankings for 183 countries
 - Of 48 countries in Africa, 38 are ranked below 100
 - The 38 include some countries that have undergone port PPPs (e.g. Tanzania, 108th, Nigeria, 146th)
 - Mauritius (19th), Egypt (29th), and Djibouti (34th) are Africa's top 3
 - Of 14 countries in Middle East, 6 ranked below 100, but UAE ranked 5th worldwide



World Bank's *Logistics Performance Index*

- Focused on components and procedures of transport logistics chain, including
 - Customs (efficiency of the clearance process)
 - Infrastructure (quality of transport infrastructure)
 - International shipments (ease of arranging competitively priced shipments)
 - Logistics competence (quality and competence of logistics services)
 - Tracking and tracing (ability to track and trace shipments)
 - Timeliness (timeliness of shipments reaching destinations)



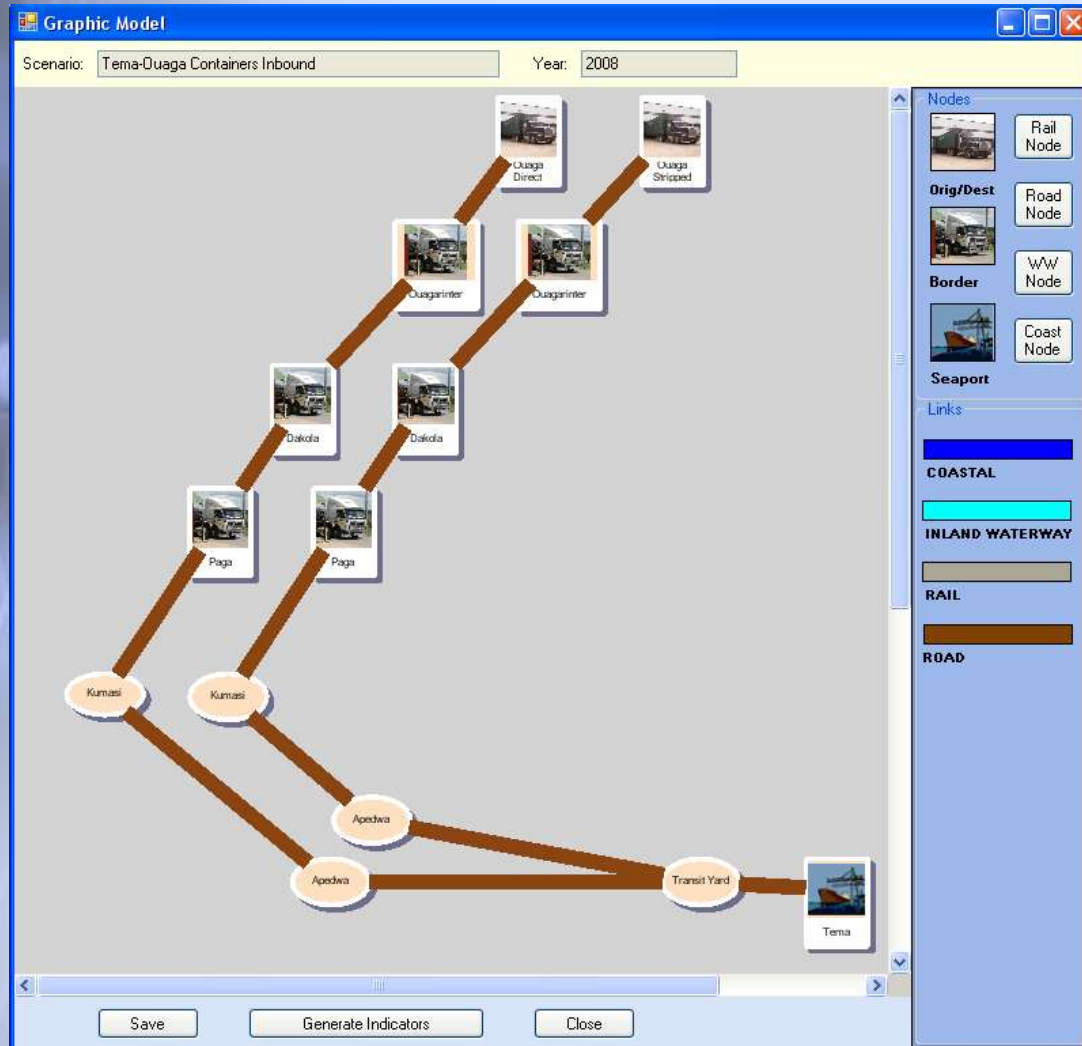
Limitations of the Two Indices

- Perception-basis is a weakness
- Analytical approach needed that measures performance in terms of industry terms – time, cost, and reliability
- World Bank recognizes this and hence
 - Applies *FastPath*®, a transport logistics diagnostics tool
 - USAID sponsors analytical efforts – 6 corridors in Africa and 4 in Asia assessed via *FastPath*
 - *FastPath* has assessed, or is assessing, nearly 20 corridors in Africa

FastPath Approach

- Measure baseline logistics efficiency
 - National Level (audit)
 - Corridor Level (software)
- Compare performance with International Norms
- Monitor changes in logistics efficiency and modernization
- Help identify improvements
- Evaluate improvements in Corridor infrastructure and operations
- Uses links (e.g. road, rail, inland water transport) and nodes (ports, intermodal terminals, distribution centers, border crossings) analytical approach
- Assesses performance in terms of time, cost, and reliability
- In using standardized methodology, allows for consistency and continuity in approach
- Generates overall logistics score and score for each subchain

FastPath Schematic of Tema-Ouagadougou Corridor -- Containerized Inbound Transit Traffic



Data Input Screen for Yard Operation (Time and Cost)

SEAPORT
_ _ X

General Characteristics

Name:

Terminal:

Number of Berths:

Ratio TEU/Cont:

Vessel Size

	%
< 1,000 TEU	20
1,000-2,500 TEU	45
2,500-4,000 TEU	30
> 4,000 TEU	5
Total	100

Components

Exists	Select	Exists	Select
<input checked="" type="checkbox"/> Channel	<input type="radio"/>	<input type="checkbox"/> Consolidation	<input type="radio"/>
<input checked="" type="checkbox"/> Berth	<input type="radio"/>	<input type="checkbox"/> Intermodal Transfer	<input type="radio"/>
<input checked="" type="checkbox"/> Yard	<input checked="" type="radio"/>	<input type="checkbox"/> Gate	<input type="radio"/>
<input checked="" type="checkbox"/> Customs	<input type="radio"/>	Port Price Model	<input type="radio"/>

Data Input Methods

Enter Subjective Ratings
Enter Data Directly

Yard Operations

Norms
 Benchmarks

	Good	Fair	Poor	VeryPoor
Handling-Transfer Fee/TEU	5-15	15-25	25-35	40-50
Storage Fee / TEU	5-15	15-25	25-35	40-50
Dwell Time	5-15	15-25	25-35	40-40
Reliability % Dwell Time	5-40	40-80	90-150	160-400

FastPath Price Data Entry Screen for Tema-Apedwa Road Link

ROAD

General Characteristics

Name:

Start Point:

End Point:

Length - km:

Ratio TEU/Cont:

Terrain

Flat

Flat-Hilly

Hilly

Hilly-Mountainous

Mountainous

Surface Conditions

Good

Fair

Poor

Very Poor

Congestion

Light

Heavy

Factor:

Data Input Methods

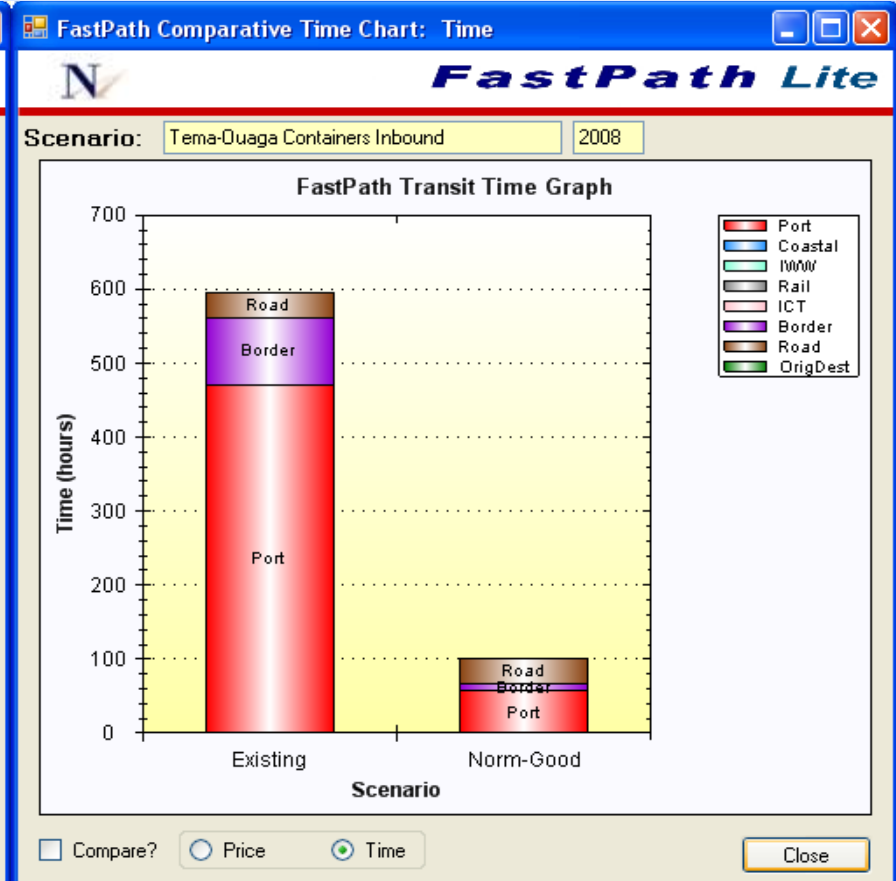
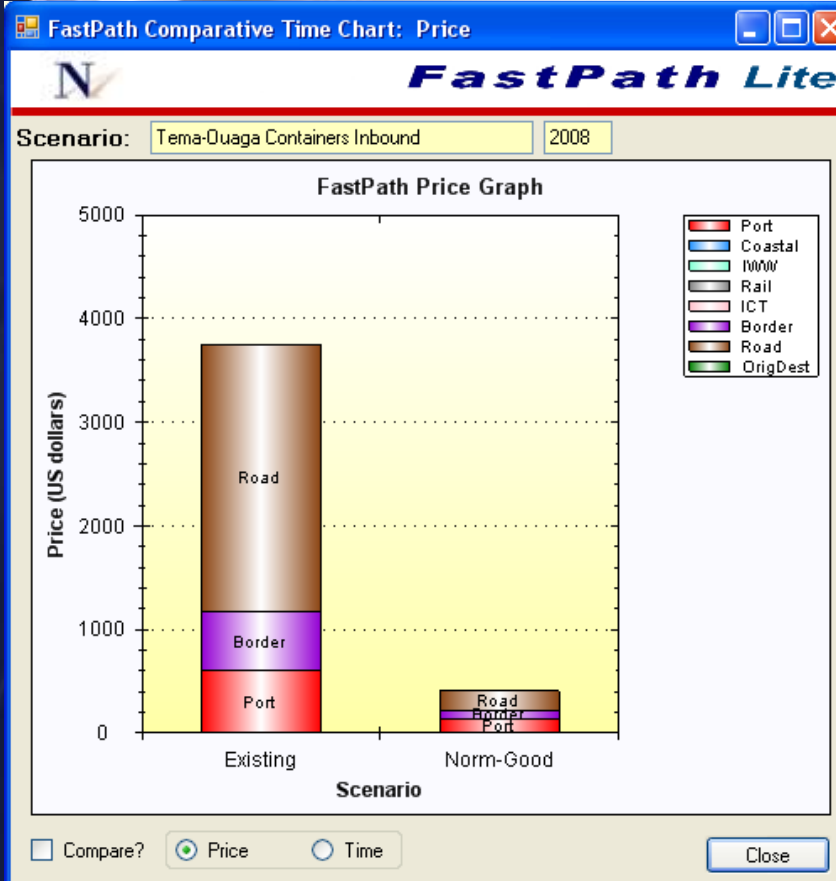
Norms Benchmarks

Average Price / TEU	384.37	US\$/trip	Good	Fair	Poor	VeryPoor	
Average Unit Price / TEU	3.96	US\$/km	0.05-1	1-1.8	1.8-2.8	2.8-10	

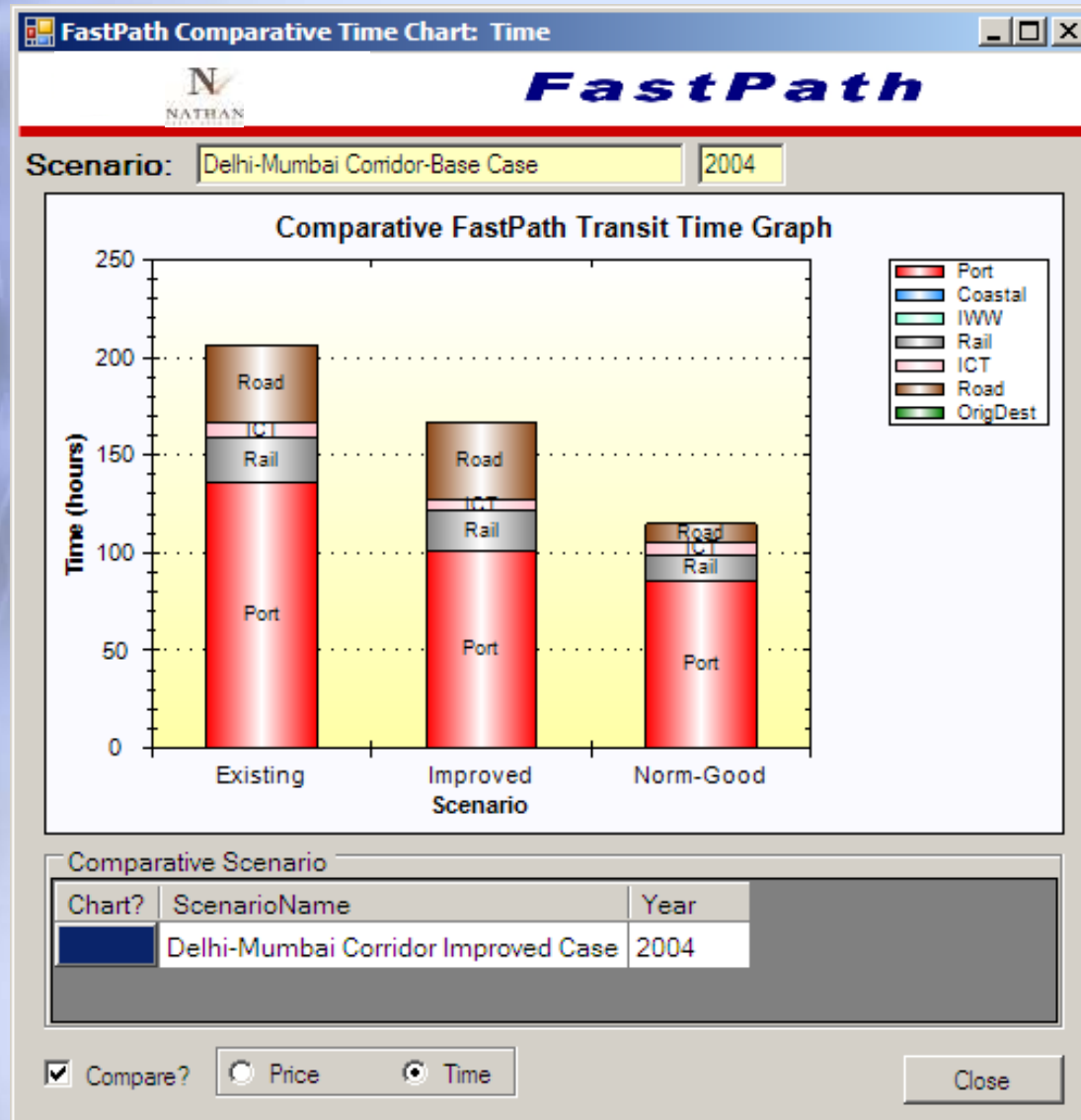
Time, Cost, Reliability Scores for Tema-Ouagadougua Corridor

Component	Performance Measure					
	TEU/Year*	Avg. Price	Av. Time	Reliability	Logistics Score	Rating
INBOUND CONTAINERIZED TRANSIT TRAFFIC (SCENARIO 1)						
Direct Containers	4,743	\$3,554	593 hours	82%	54	Fair-Poor
Stripped Containers	11,064	\$3,662	601 hours	81%	53	Fair-Poor
Total Chain	15,807	\$3,630	599 hours	81%	53	Fair-Poor
OUTBOUND CONTAINERIZED TRANSIT TRAFFIC (SCENARIO 2)						
Direct Containers	259	\$1,689	63 hours	35%	66	Fair-Good
Consolidated Containers	603	\$1,745	69 hours	32%	64	Fair-Good
Total Chain	862	\$1,729	67 hours	33%	65	Fair-Good
INBOUND NONCONTAINERIZED TRANSIT TRAFFIC* (SCENARIO 3)						
Total Chain	148,385 tons/year	\$112 / ton	658 hours	84%	N/A	N/A

Existing Conditions and Norms



Improved Scenario Graphic



Comparing Results with Other Corridors

Logistics Component	Tema-Ouagadougou	Laem Chabang-Vientiane	Dacca-Chittagong (a)	Durban-Nelspruit (a),(b)	Maputo-Nelspruit
INBOUND					
Overall logistics chain	51	64	59	63	62
Port	55	55	49	60	51
Road transport	55	70	58	65	51
Border post 1	73 (Ghana)	67 (Thailand)	n/a	n/a	73 (Mozambique)
Border post 2	20 (Burkina Faso ¹)	63 (Laos)	n/a	n/a	73 (South Africa)
OUTBOUND					
Overall logistics chain	62	66	54	68	60
Port	72	65	52	70	57
Road transport	70	70	58	65	51
Border post 1	53 (Ghana)	67 (Thailand)	n/a	n/a	67 (Mozambique)
Border post 2	53 (Burkina Faso)	63 (Laos)	n/a	n/a	63 (South Africa)



Benefits of Comparative Measurements

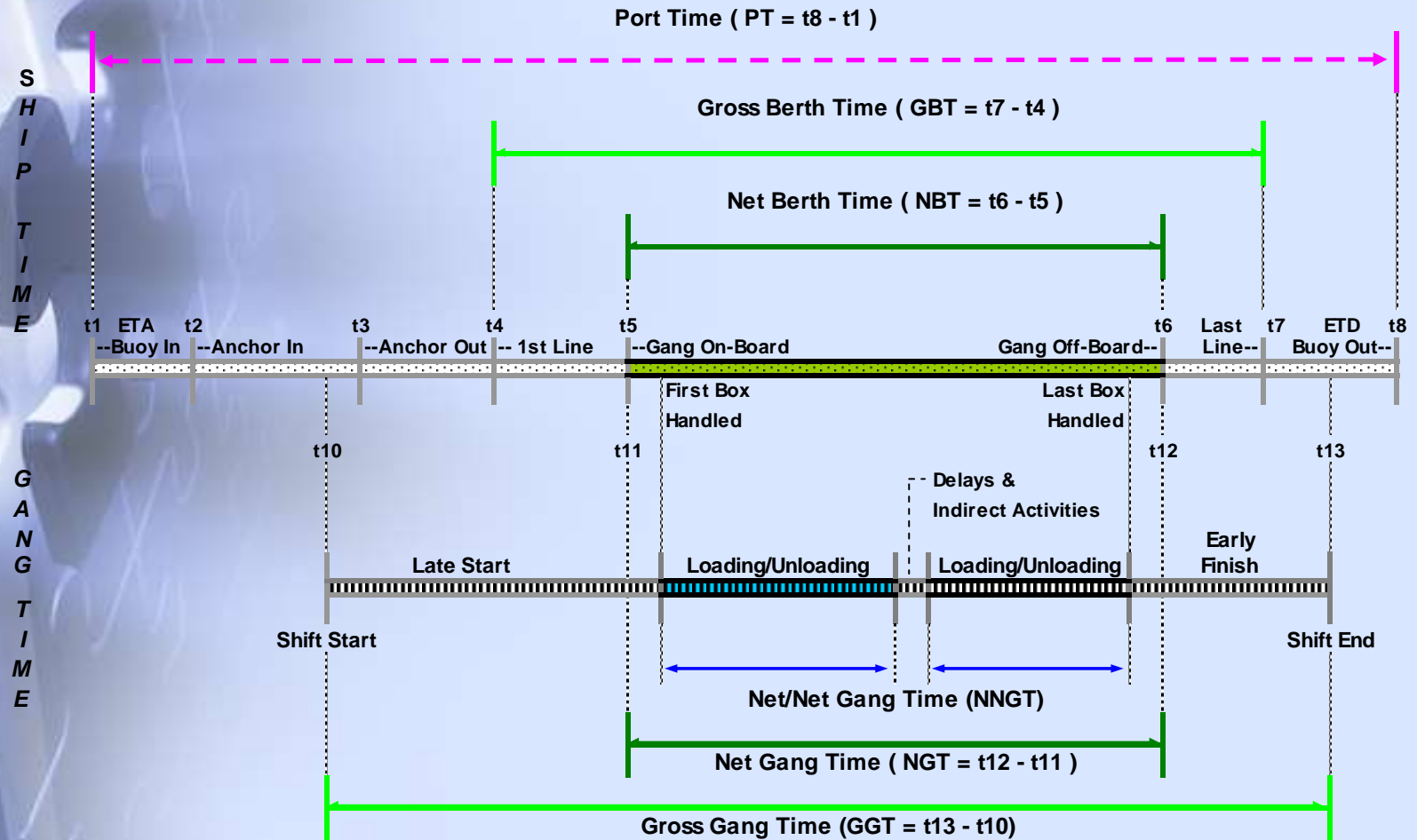
- Allows for benchmarking against other corridors, including rivals
- Enables benchmarking against previous years' performance to gauge impact of interventions (or not)
- Scenario testing allows for assessing impact for various interventions
- Encourages competition

Shukran!
Thank you!
Merci!
Asanteni!
Obrigado!

Economics of Corridor Performance

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Port Time Accounting System – Focus on Berth Performance



Port Time Accounting System – Gate Performance Added

