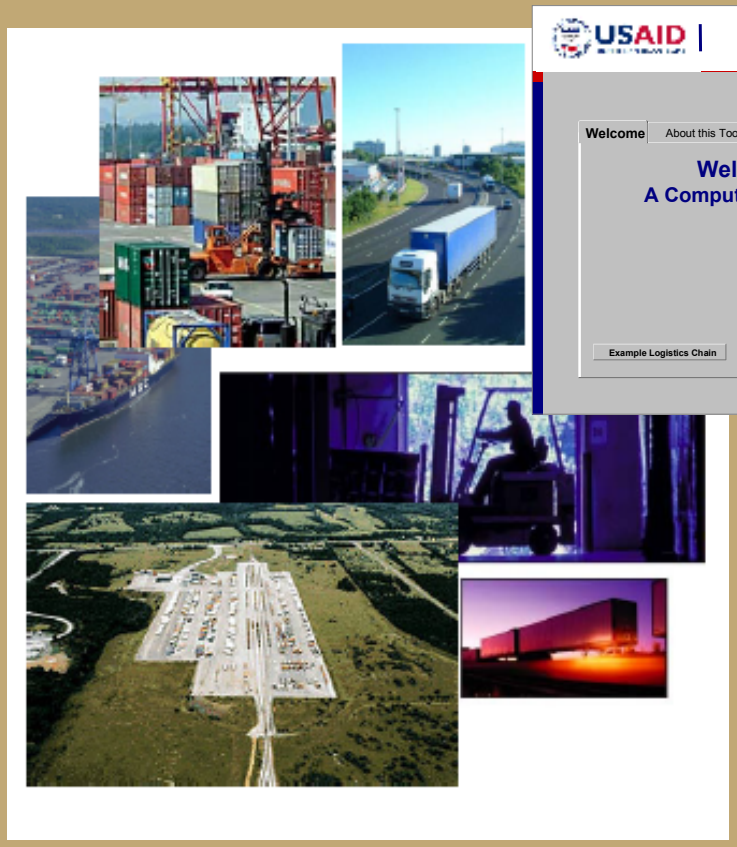
The Logistics Chain and Competitive Strategy



Organization of American States'
8º Meeting of the
Inter-American
Committee on Ports

Presentación de:
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Presentation Topics

- Back to Some Business School Basics
- Applying Business School Concepts to Transport Logistics Chains
- Upcoming Challenges in Latin America
- Possible Solutions for Greater (Logistics) Competitiveness

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Back to Some Business School Basics

Back to Business School Basics

- Michael Porter underscored the need to assess competitive advantage in terms of the various component activities and processes
- Value chain comprised of primary and support activities:

Primary	Secondary
- Inbound logistics - Operations - Outbound logistics - Marketing and sales - Customer service	- HR management - Technology development - Procurement

- Each activity assessed in terms of competitive advantage
- "Extended enterprise" is the vehicle to gain or lose competitive advantage -- the supply chain thus becomes the value chain

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Companies Have Changed Behavior in View of Competitive Realities

- Companies traditionally sought cost reductions or profit improvement at the expense of supply chain partners
- Now companies seek to make the entire supply chain more competitive through added value and cost reduction – real competition has transitioned from company vs. company to supply chain vs. supply chain

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The New Realities

1. New rules of competition – the need to create value delivery systems that are more responsive to fast-changing markets and are more consistent and reliable
2. Industry globalization – supply chains are lengthened; time compression is a priority
3. Downward pressure on price
4. Customers take control

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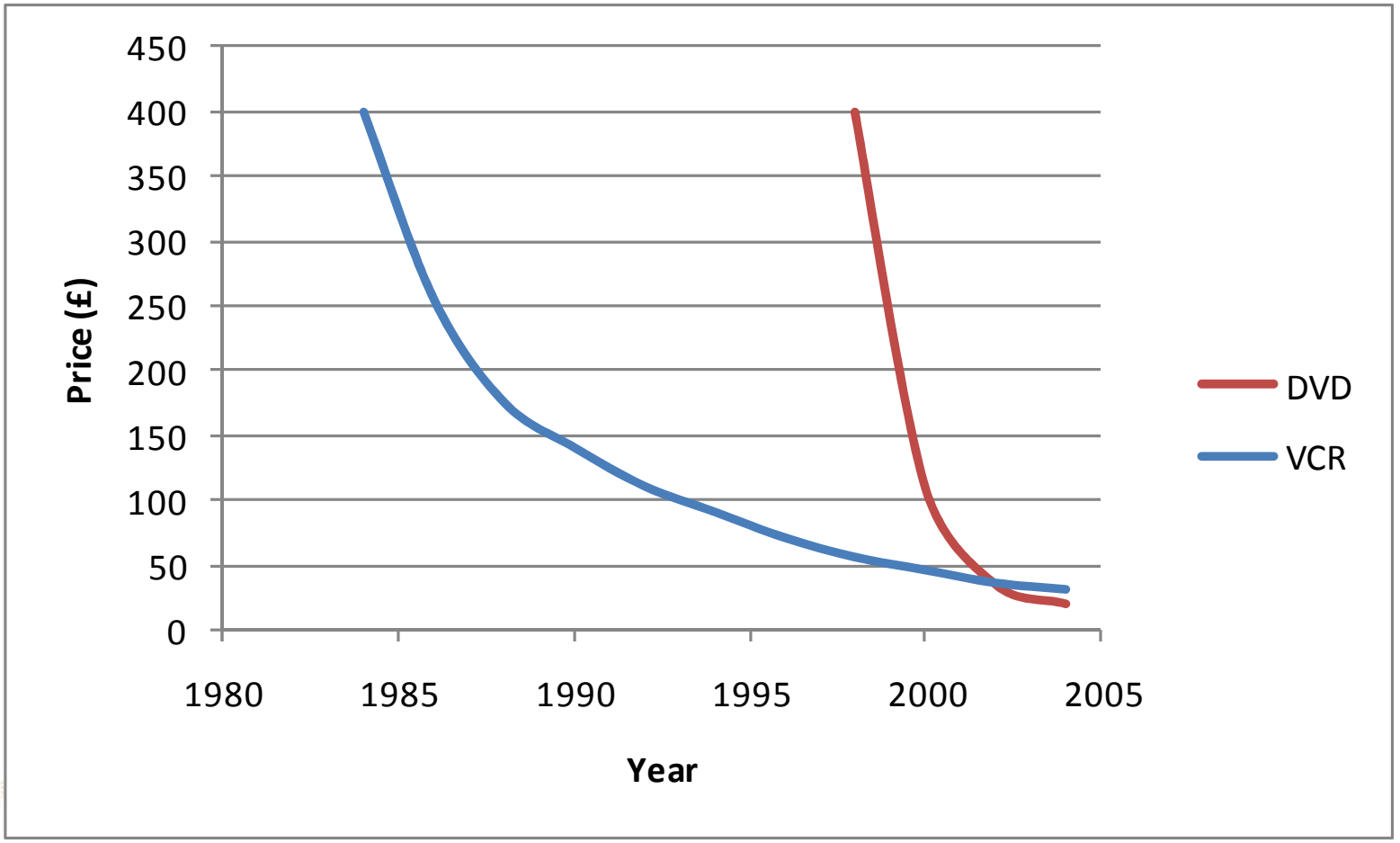
Downward Pressure on Price



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Downward Pressures on Price (*continued*)

- focus on JIT shifted inventory costs elsewhere in the supply chain -- to suppliers and customers
  - True cost of inventory can be 25% or more per year of its value; inventory costs include
    - Cost of capital
    - Storage and handling
    - Obsolescence
    - Damage
    - Pilferage
    - Insurance
    - Management costs

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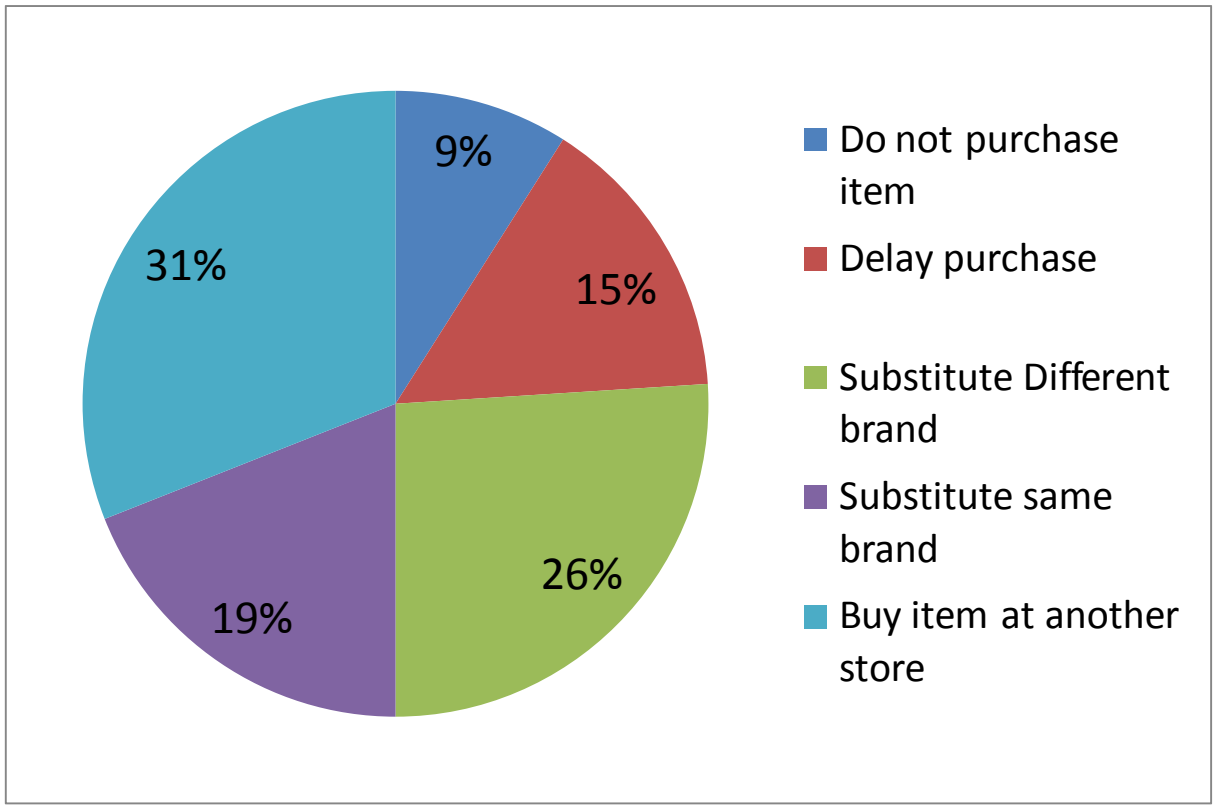
Customers Take Control



Source: D. Corsten and T. Gruen, “Stock-outs cause walkouts”, *Harvard Business Review*, May 2004

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New Realities, Old Story

"In 50 years. . .the cost of distributing necessities and luxuries has nearly trebled, while production costs have gone down by one-fifth . . . What we are saving in production we are losing in distribution"

Ralph Borsodi, The Distribution Age, 1929 (!)

- The wider supply chain is perhaps the remaining opportunity for significant cost reduction

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Applying Business School Concepts to Transport Logistics Chains

Why Transport Logistics Chain Efficiency is Important – Economics Perspective

- Initial interest in shipping/transport costs
  - — Limao and Venables (2000) – 10 % increase in transport costs reduces trade volume by 20 %
  - — Radelet and Sachs (1998) – 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

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The Transport Logistics Chain

- Transport logistics chain consists of assets (links and nodes) and processes associated with moving freight
  - — links are associated with freight movements (roads, rail, inland waterways)
  - — nodes refer to where freight is processed (ports, distribution centers, dry ports, border crossings)

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Supply Chain Concepts Are Applicable to the Transport Logistics Chain

- Need to get away from port-centric thinking
- Majorit **important** cs chain (links a e control of port operator
- Majority of assets are outside control of supply chain managers

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Clarity in the Transport Logistics Picture

Entre, entre, por favor, toma un asiento

Between, between, please, drink a chair

Come in, come in, please have a seat

Understanding of transport logistics needs clarity

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The need for a transport logistics diagnostics tool

- Vast majority of logistics software devoted to supply chain planning and management
- Most assessment tools devoted to single mode or node
  - Lack holistic approach to transport logistics chain analysis
- Government and industry need ability to:
  - Benchmark performance relative to historic performance and global standards
  - Measure impact in industry terms
  - Identify and optimize solutions

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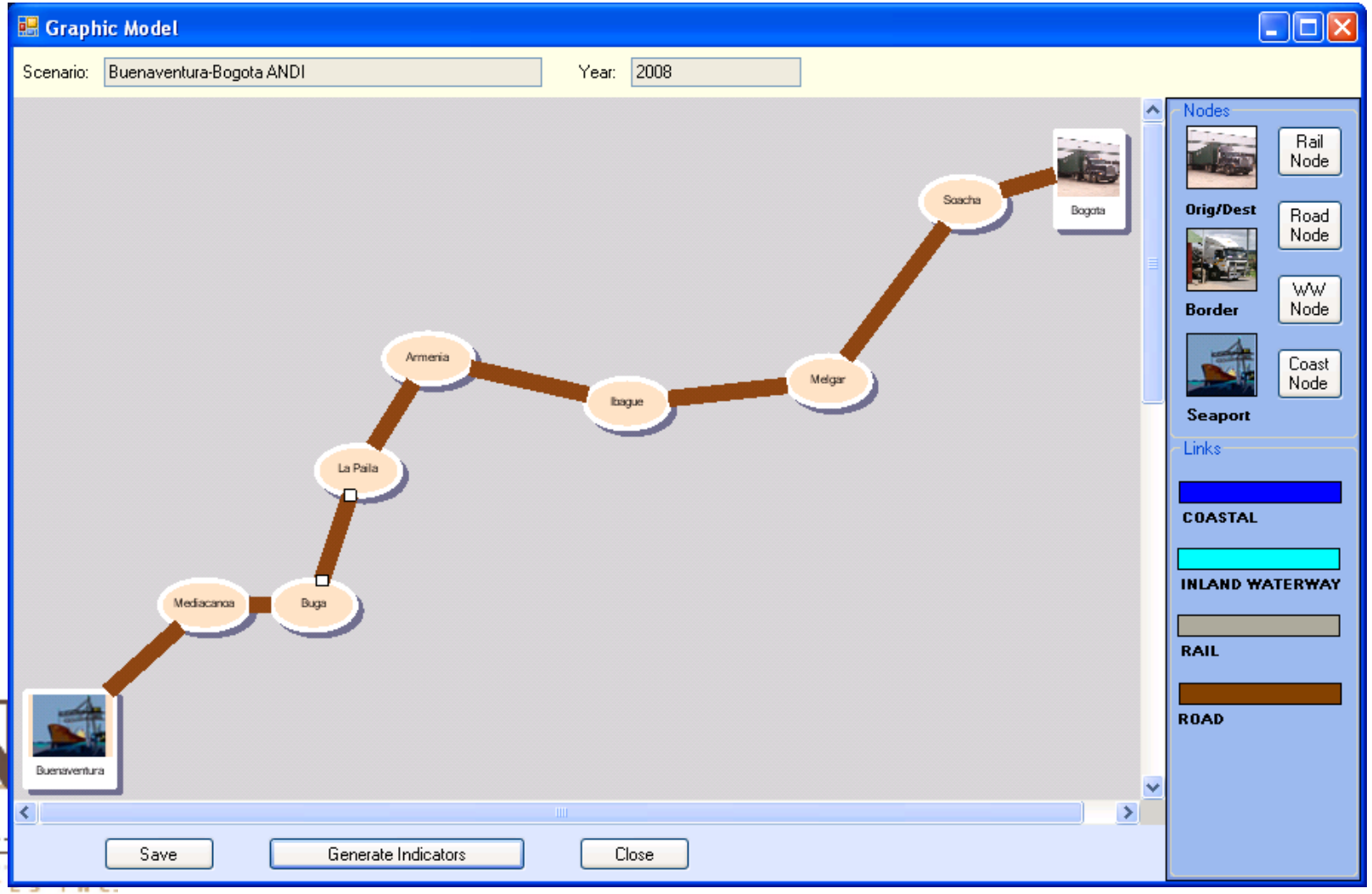
FastPath Schematic of Buenaventura-Bogotá Corridor



Impact of Reducing Congestion Delay by 30 Minutes at Each Point

- Bogota-Buenaventura Route
  - Total volume = 351,322 TEUs
    - Imports – 175,661 TEUs
    - Exports – 32,934 TEUs
  - Import truck trips - 112,696 TEUs
  - Full export truck trips: 22,226 TEUs
  - Empty TEU export truck trips: 71,363 TEUs
  - **Total truck trips in both directions: 206,285**
- 6 road bottlenecks
- Reducing congestion delay by 30 minutes at each bottleneck: total potential saving time is 3 hours. Current travel time between Buenaventura and Bogota is 30.5 hours, assuming 10 hours rest time

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Upcoming Challenges in Latin America

Reduced Congestion Delay Impact (*continued*)

- With the reduction of travel time and resulting truck productivity improvement, the same volume of containers could be handled using only 185,995 truck trips
- If the original number of trucks remains constant, the number of additional cargo volume that could be transported is about 34,500 TEUs
- Assuming a 100 truck company, operating costs reduced by 8 percent

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Colombia's Transport Logistics Challenges

- Panama Canal effect
  - —Deployment of larger fleets
    - Decreased frequency of calls
    - Higher peak load volumes

Period	Workload Factor Increase
1975-2013	700+%
- mid-1990s (introduction of K and S Class Ships)	49%
- 2006 (introduction of E Class Ships)	69%
- 2012 (CMA CGM Marco Polo + EEE Class in 2013)	17% (estimated)
Source: Jeffrey Martin, Sally Martin, and Stephen Pettit, "Container ship size and the implications on port call workload", presented at IAME Conference, France, 2013 (based on experience in Northern European terminals)	

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Challenges (*continued*)

- Higher peak load volumes

—Challenge terminal efficiency

—Require increased investment

—Who pays? Costs likely to be passed on to shippers

—Greater stress on hinterland routes

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Possible Solutions for Greater Competitiveness

Possible Solutions for Improving Transport Logistics Chain Performance

- Eliminate bottlenecks in national transport logistics system
  - — Identify problems by conducting transport logistics diagnostics
  - — Assess efficacy of proposed solutions
  - — Truck entry control system in port cities?
- Consider integrated *Intelligent Logistics System*
- Promote partnerships/collaboration
  - — Rationalize logistics assets, marketing, services via “co-opetition”
  - — Promote collaboration among public and private logistics players
    - Consider establishing National Logistics Council
- Increase trucking fleet utilization efficiency
  - — Establish freight auction exchange

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Intelligent Logistics System

- **Port/truck staging area**
- **Dry port**

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Source: ILS concept developed by Paul E. Kent, Ph.D., Nathan Associates Inc., PKent@nathaninc.com

Components of Intelligent Logistics System

- Network of dry ports and truck staging areas
- Monitoring and control IT technologies – GPS/smart seals, data exchange technologies
- Services to trucks, cargo, and drivers

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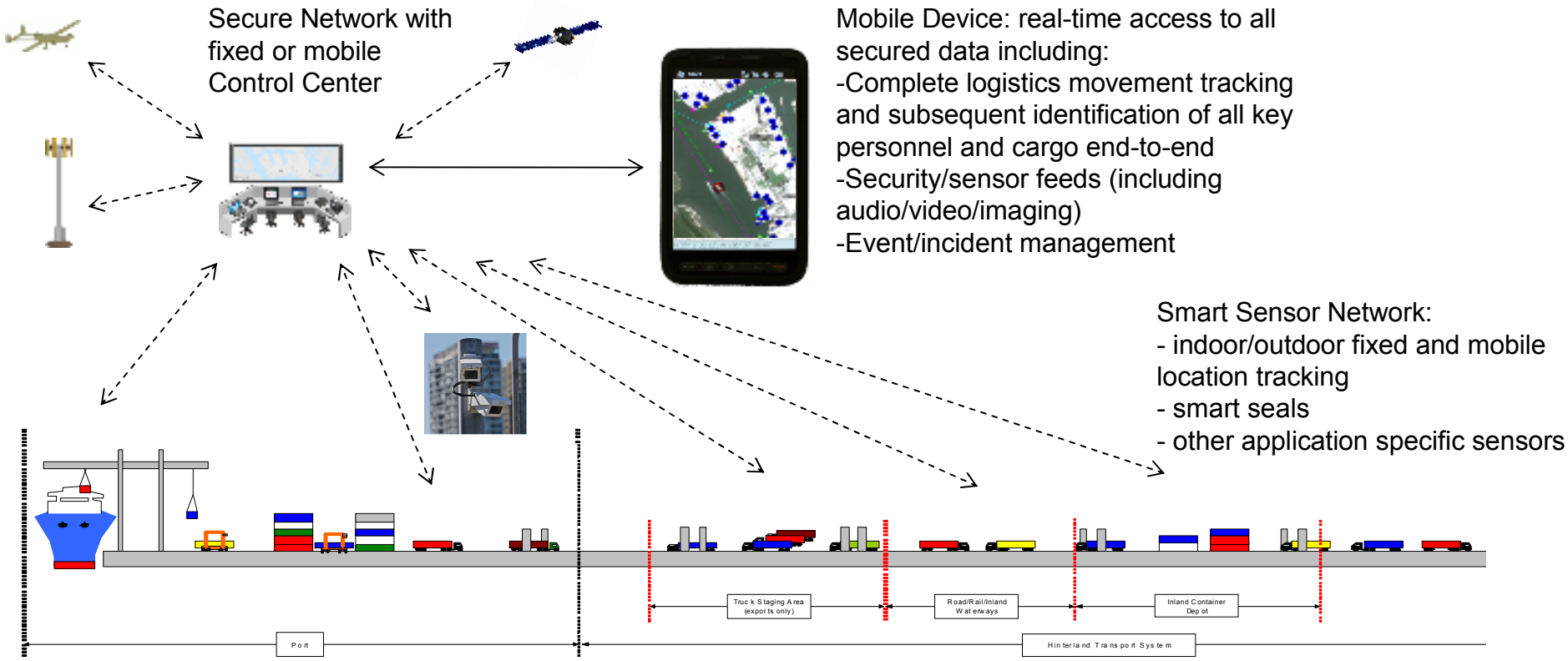
Framework for the Intelligent Logistics System



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Truck Staging Area / Dry Port

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