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USING TECHNOLOGY TO STAKE OUT A LEADERSHIP POSITION

Nyariana Maiko (Panel Discussion Leader)
CIO, Port of Long Beach



Welcome

Panel Introduction

Goals & Objectives

Individual Presentations

Panel Discussion

Panel Introductions



Nyariana Maiko (Panel Discussion Leader)
Chief Information Officer,
Information Management Director
Port of Long Beach

Master of Science - Computer & Information Science
concentration in contrastive linguistics
Certified Kaizen Master, Scrum Master



Daniel Dagenais
Vice President
Operations
Montréal Port Authority

Management Undergraduate
Diploma in Transportation &
Logistics
Certificate of executive training



Diegane Dione (DiDi)
Logistics Offering Lead
Digital Practice IOT
Accenture

Founder of Dione Systems,
HW and SW start-up
Awarded 2 United States
Patents

Nyariana Maiko – over 32 years of progressively complex experience in technology, data, business strategy, process and change management in private and public sector. This includes leadership experience in a large US healthcare company that is dealing with fast changing ACA, large automotive, financial sector, management consulting experience at LADWP for example, Target parent company, Allergan and many others.

Daniel Dagenais – brings over 25 years of shipping industry experience to his position. Before joining the Montreal Port Authority, he accumulated a wealth of experience as a terminal operator for bulk, non-containerized and containerized terminals. He oversees the Environment, Infrastructure Management, Port Logistics, Marine Operations, Security and Fire Prevention.

Diegane Dione – has 19 years of management consulting and technology implementation for Fortune 500 and SMB across various industries. As part of the Internet of Things (IoT) practice at Accenture, he serves as the North American Lead. His role include innovation, commercialization and identification of ecosystem partners. He brings expertise in HW/SW for real-time tracking for building emergency evacuation management based on proprietary RFID systems and a mobile command center.

A True Story - Stealing Data Efficiently



Pirates hacked shipping company to steal information for efficient hijackings

Shipping company incident:

Pirates had exploited an unpatched vulnerability in the shipping company's **homegrown Content Management System (CMS)** to create a backdoor, which they used to access records of shipping routes, schedules and container contents. Pirates then discovered the contents of every crate being shipped, using bar codes on the shipping containers to identify and steal only certain items, leaving the rest. The pirates were in and out in a matter of hours, instead of hijacking the ship and holding the crew hostage for days. **Pirates knew contents of every crate. Used barcode on shipping containers to IDENTIFY, STEAL only certain containers- leaving the rest.**

Write up:

The cyber-attack aftermath can range from
Stealing Cargo or funds
Widespread disruption to a ship's operations and systems
Holding sensitive data to ransom
THINKING outside the BOX- Insider the Container

The size of the data grows everyday as a vessel leaves a port or calls a port. The cyber-attack vulnerability grows proportional to the data.



We have a long history of environmental leadership.... 2nd Busiest Port in the United States.

- Commitment to the Environment
 - Air emissions greatly cut across the board.
 - Most significant health-related risk is diesel particulate matter - down 85(?)% over the past decade.
 - Already **achieved State's 2023 attainment goals.**
 - **Now focused on achieving the State's 2050 goals.**

Objectives

Today

POLB's Environmental Stewardship Enabling Technology

Future

Port of

LONG BEACH

The Green Port

Data Visibility & Reliability across the Supply Chain

Opportunities & Challenges

Lessons Learned





The Port's Green Flag Program is a **voluntary vessel speed reduction program** that rewards vessel operators **for slowing down to 12 knots or less within 20 or 40 nautical miles** of Point Fermin (near the entrance to the Harbor).

Because **the ships emit less when they travel more slowly**, the program has been **highly successful in reducing smog-forming emissions and diesel particulates from ships**.

In return for their participation -- at least 90 percent of the time in a calendar year -- the vessel operators **can earn dockage rate reductions**.

We had a good idea – needed technology to make it happen. – OUR SYSTEMS work!

USER FRIENDLY – CONVENIENT, SECURE for operations. We do the DATA CRUNCHING.

2001 Purely voluntary – LEADER Who is in compliance – tie into financial applications 90% dockage fee based on

2005 Incentive- Financial discount to increase participation

Now – 20 nautical miles 97% of vessels, 40 nautical miles 90% of vessels

Highly successful emission reductions for international fleet, POLA
incentive 1-2 years after that, **Part of a successful environmental
program.**



The **Green Ship Incentive Program** is a voluntary clean-air initiative targeting the reduction of **smog-causing nitrogen oxides (NO_x)**. It rewards qualifying vessel operators for deploying today's greenest ships to the Port of Long Beach and accelerating the use of tomorrow's greenest ships.

Ships with Tier 2 engines receive \$2,500 per call and ships with Tier 3 engines receive \$6,000 per call.

TECHNOLOGY-

Easy for industry

We gather the data

Calculate the incentive-vised

**NEED Technology BACKBONE to SUCCESSFULLY IMPLEMENT.
INFRASTRUCTURE AND RESOURCES TO SUPPORT
NEEDS to be SEAMLESS-ECOSYSTEM**

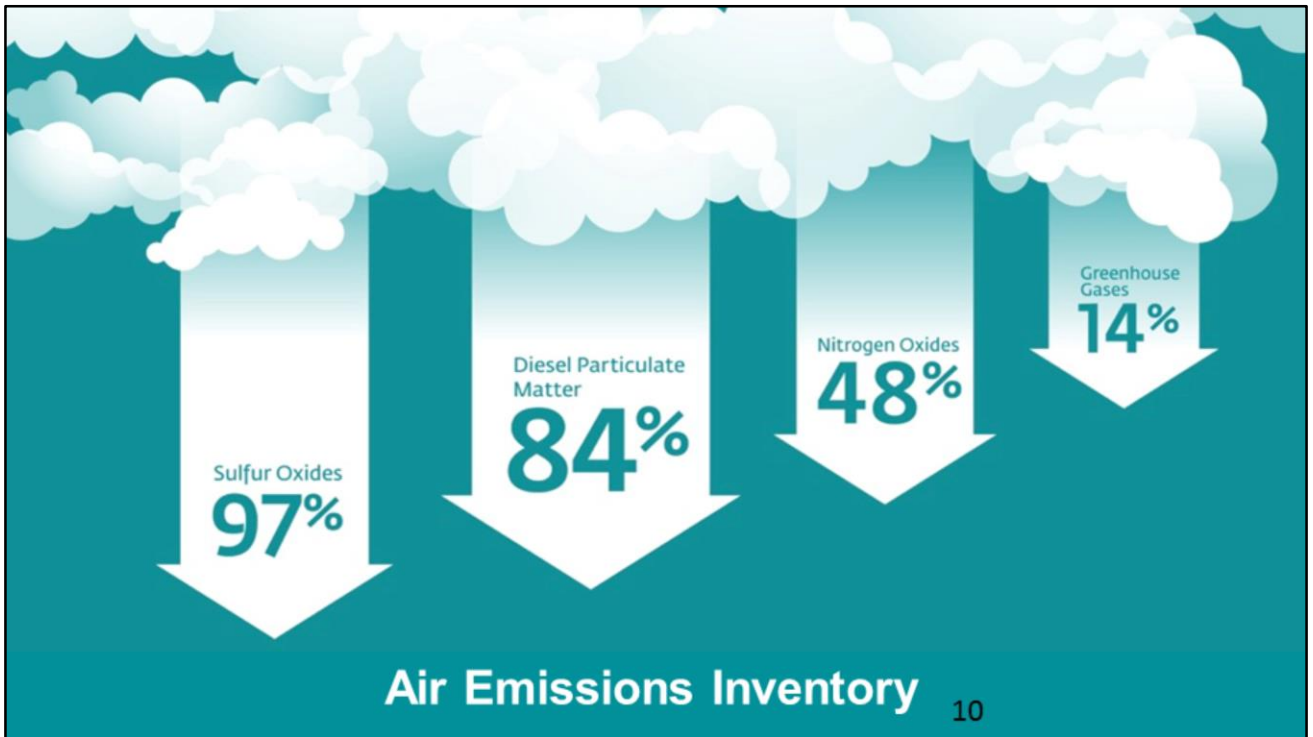


Certainly at the **top of the list of our green successes is the Clean Trucks Program.**

Adopted in 2007, the Clean Trucks Program progressively banned the use of older trucks. As of 2012, all trucks in the port are required to meet 2007 or newer engine standards.

Today, all of the 16,000 drayage trucks that serve the Port of Long Beach are newer, cleaner models. About 40% meet the even newer 2010 engine standards.

And the best news is that there's a **95% reduction in air pollution from the truck fleet.**



Since 2005, the Port has cut diesel particulates by 84 percent. In addition, nitrogen oxides were down 48 percent and sulfur oxides were down 97 percent over the same period. These results, from data collected through 2016?, represent six straight years of improving air quality in the harbor area.



*"I never think of the future ..
... it comes soon enough."*

— Albert Einstein

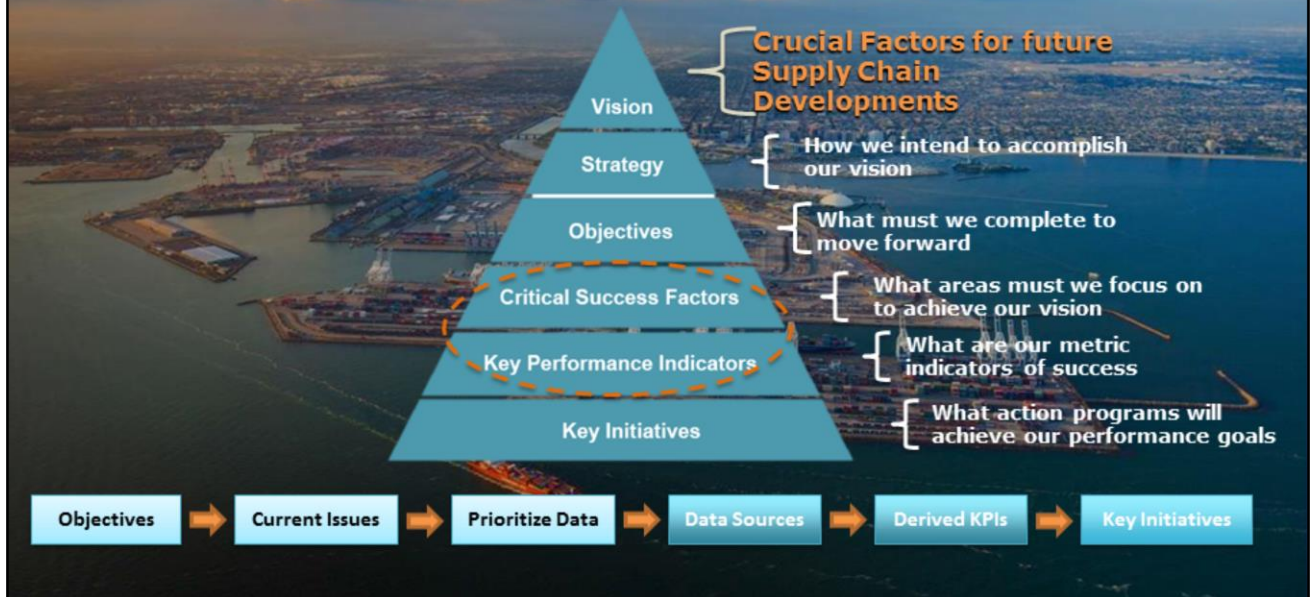
*"The future depends on
what you do today."*

— Mahatma Gandhi

FUTURE



Future – San Pedro Bay Data KPI Working Group across the Supply Chain



Collaborative KPI/Data Solutions Group:

Mission: Enable cargo velocity and efficiency by providing meaningful KPIs and metrics across the goods movement supply chain.

Objectives: Collaboratively identify, collect and report reliable, relevant, and timely KPIs/metrics to help increase end-to-end supply chain efficiencies.

- Critical Success Factors: Visibility, Reliability, Predictability, Data Integrity

Established a Foundation – An EcoSystem of Stakeholders Across the Supply Chain

File - 2013 Mallico San Pedro Bay SCO/KPI
supplement

- ❑ Identified and established stakeholders expectations
- ❑ Collaboratively developed Data/KPI mission, objectives, and critical success factors
- ❑ Identified challenges to end-to-end supply chain efficiency and reliability
- ❑ Derived 19 Key Performance Indicators (KPIs)
- ❑ Pilot Collaborative KPI/Data Working Group Portal
- ❑ Recommended Initiatives to help Increase Transparency & Efficiency

Mission: Enable cargo velocity and efficiency by providing meaningful KPIs and metrics across the goods movement supply chain

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Critical Success Factors: Visibility • Reliability • Predictability • Data Integrity

These KPIs are beneficial in helping all stakeholders achieve our mission of “Enhancing cargo velocity and efficiency throughout the supply chain at the San Pedro Bay port complex”

Initiatives: Develop a PILOT “Port Information Portal” (PIP), a consolidated portal with relevant and available information. These KPIs are beneficial in helping all stakeholders achieve our mission

Opportunities & Challenges

Port Role

Data -> Information > Knowledge

Resources

Cybersecurity

Hacking - Stealing Information Efficiently



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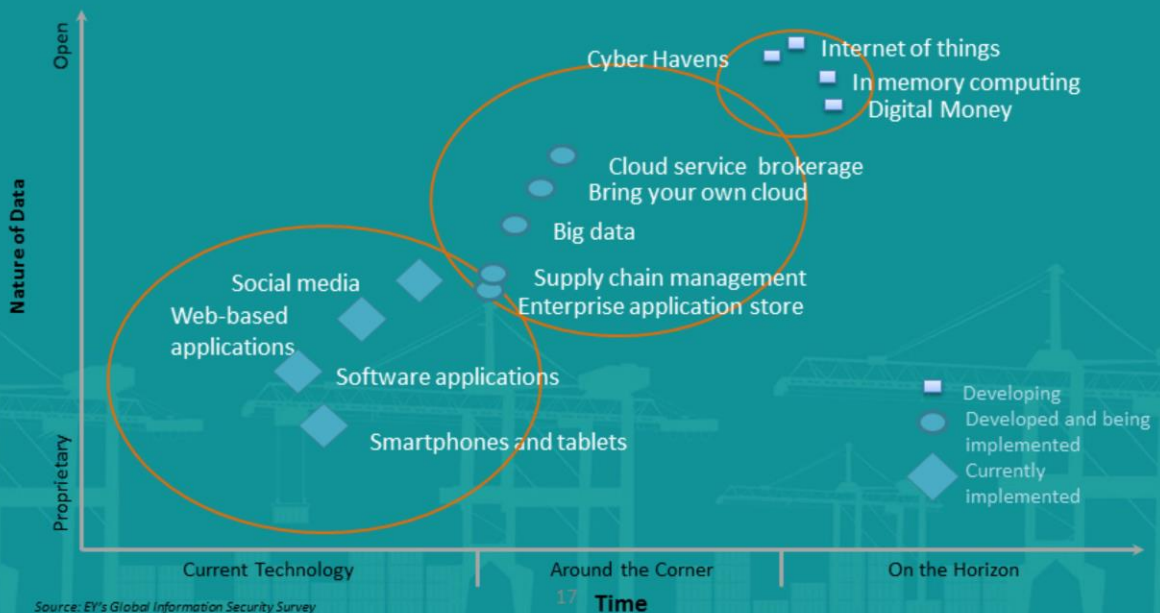
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Write up:

The cyber-attack aftermath can range from: Stealing Cargo or funds, Widespread disruption to a ship's operations and systems, Holding sensitive data to ransom.

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Emerging technology is working towards delivering open, relevant data in real-time



This purpose of this slide is to show emerging trends in enterprise technology and what changes to expect in the future. Key message is **that technology is becoming more ingrained in all operations and open data will allow for smooth information flow.**

Definition Key:

Internet of things- network of “things” embedded with electronics, software, sensors, and network connectivity which **enables these objects to collect and exchange data.**

In Memory computing- storing information in short term random access memory, rather than relational databases.

Digital Money- any means of payment that exists in solely electronic form- electronic transfer of funds.

Cyber Havens- Incorruptible storage site for data.

Cloud Service Brokerage- business model in which a company adds value by offering 3rd party cloud services.

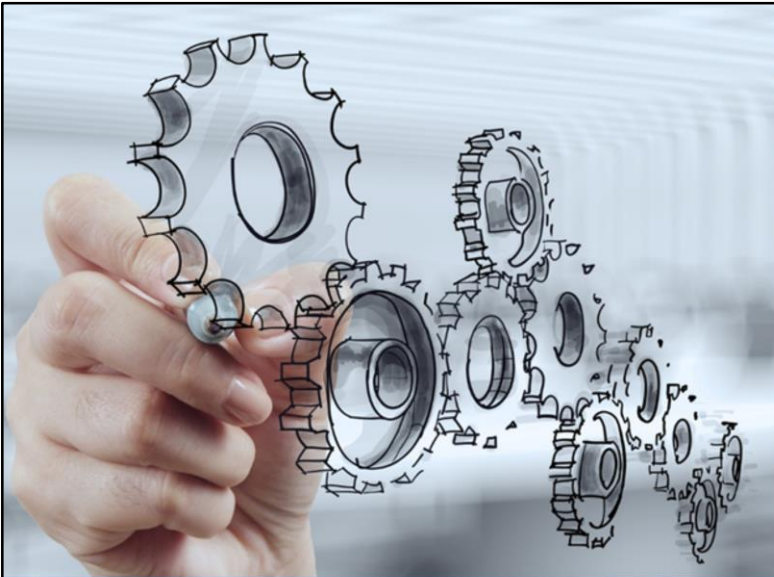
Bring your own cloud- employees are allowed to use public/ 3rd party private cloud services to perform certain job roles.

Big data- broad term for data sets so large that traditional data processing methods are inadequate- ideally can **offer insights and information that may not be visible in smaller data sets.**

Supply Chain management- using data to track the flow of goods and materials.
Enterprise application store- a platform for employees to access and download approved applications.



We continue to be the most cost effective route for cargo coming from China. Even with the expansion of the Panama Canal, we will not lose business because we are the most direct route.



Governance
and Process
Will Help to
Realize
Business
Value Chains

Future - Operations Based on Meaningful Data

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▶ You Need
Executive
Influence to
Link Strategy
to Operations

APPENDIX

Port Of Hamburg Example

Digital Business Network Innovations in Supply Chains

Example Today — The smartPORT in Hamburg

Opportunity:

IoT and big data enable smooth trade flows

Digital business actions:

Traffic managed with 300 sensors in bridges and roads

Water way information, tides, occupancy of docks, container ID and location processed centrally

Results:

Truck queuing on the dock for faster processing

Pilot run productivity increased by more than 12%



#tags:

#Port Authority #Transport #Fleet management #IOT #Big Data #Germany #Hamburg

Sources:

<http://www.hamburg-port-authority.de/en/smartport/energy/Seiten/Unterbereich.aspx>

<http://www.portstrategy.com/news101/insight-and-opinion/port-talk/hamburg-smartport>

http://internetofeverything.cisco.com/sites/default/files/pdfs/Hamburg_Jurisdiction_Profile_final.pdf

https://www.iaph2015.org/downloads/IAPH2015_Konferenzbroschuere_online2.pdf

<http://www.hamburg-port-authority.de/en/press/Brochures-and-publications/Documents/port-development-plan2025.pdf>

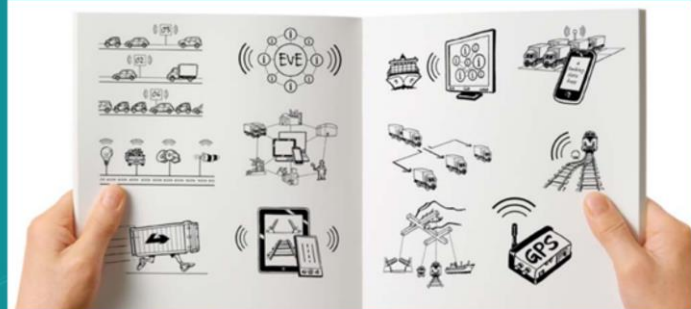
smartPORT Energy focus on renewable energy for main port operations, battery electric heavy goods vehicles, reducing fossil energy and CO2 emission

smartPORT logistics is synonymous for smart traffic and trade flow solutions in the Port of Hamburg, taking account of both economic and ecological aspects.

Operations Based on Meaningful Data



- 150,000 employees work in a connected mode within the seaport business
- 14 km fiber optics
- Sensors: Park and road management, maintenance
- EVE: 200 inductive loops, 31 video detectors, 14 Bluetooth detectors to determine the traffic situation
- Measuring location for 880 intelligent railway switch point
- Mobile GPS sensors for infrastructure and containers
- Vessel traffic center links port information to mobile port monitor application
- Marketplace services and smartPORT logistics



Source: Hamburg Port Authority