

Emerging Technologies: Building Resilient Ports

presented by

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Barbados Port Inc.)

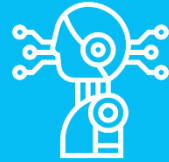
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SHARING THE BARBADOS PORT EXPERIENCE

Port resilience
=
National resilience



OVERVIEW

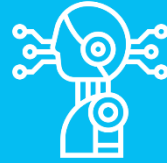


The evolution of 'Resilient' systems

Back in business or Backward business?
The "Chamber of Commerce Conundrum"

Digital Infrastructure

...drives the physical operation



**Six
Complementary
technologies**

OVERVIEW



Fear kills Foresight

Do you remember the BYOD policy?

Knowledge without application is pointless.
Where would business be now without mobile devices?

Cloud Computing

1. Storage & Applications



This is how it started...





Cloud Computing & Mobile Web Apps

All of us...
used to admire this
guy!

Mr. Dot Matrix Spreadsheets



2. Emerging Technology - Big Data Analytics

~~'Predictive'~~ Dashboards will replace static paper reports



Intelligence vs Investigations - Reports vs Real Time Summary of KPIs

PCS Insight Dashboard

Overview

Vessel Statistics

Cruise Calls

60



Cargo Calls

100



Passenger Arrivals

9,582



Personal Packages
Delivered

4,548



Personal Effects



197 mins
Customer
Turnaround
Time



992
Gate Passes
Generated

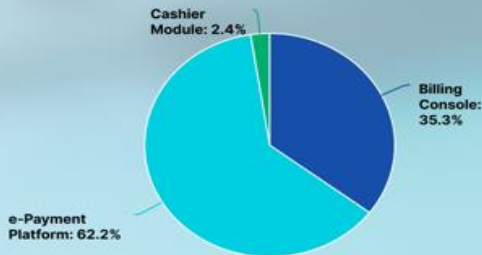


12
Customers
Returned



1011
Documents
OK'ed

Total Revenue



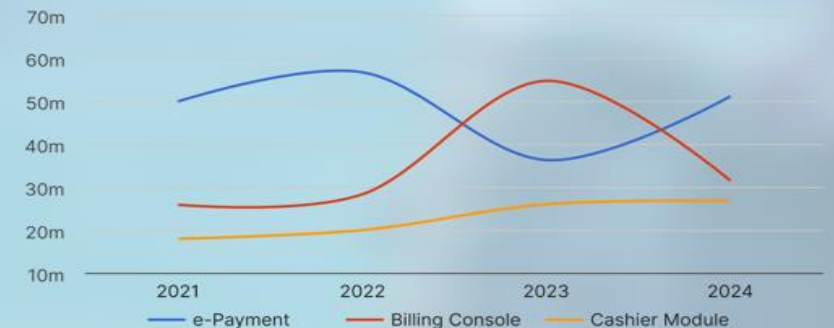
50
Deposit Estimate
Invoices Generated



1005
Receipts Generated



Automated Revenue Collection (last four financial years)



Intelligence vs Investigations - Reports vs Real Time Summary of KPIs

Cargo Handling Statistics



Manifests

53



Degroupages

415



Container

3,134



Vehicles

732

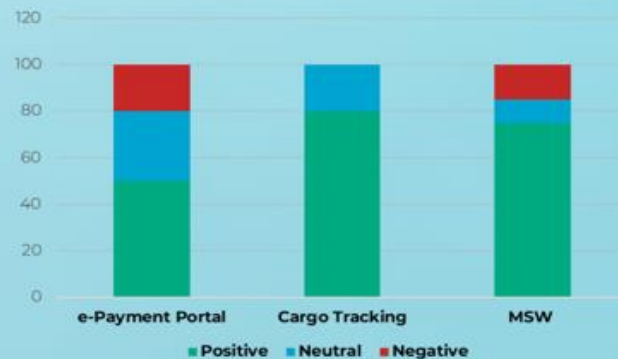


Breakbulk

102



Customer Sentiment



Container Throughput



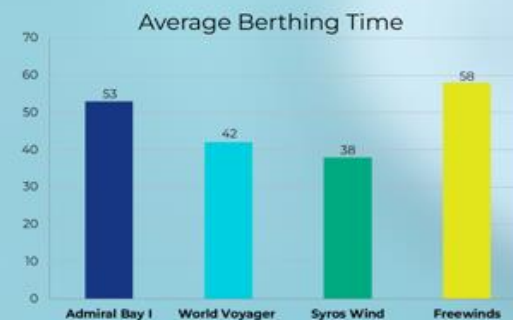
3,030

Terminal

104

Private Warehouses

Berthing



47 mins
Average Berthing Times
For The Last Five Days



35 mins
Average Unberthing Times
For The Last Five Days



Customer confidential real time feed back for every transaction



Dashboard

4283
TOTAL VOYAGES REGISTERED

0
TOTAL PASSENGERS

0
TOTAL CREW MEMBERS

0
SICK COUNT

1446
VESSEL REGISTRY

2024-05-21 12:25:00
LAST ARRIVAL

2024-05-21 11:00:00
LAST DEPARTURE

1/0
INBOUND / OUTBOUND CLEARANCES

VESSELS IN PORT TODAY

BPI #	NAME	AGENT IN	AGENT OUT	BERTH	STATUS
2024050687	TROPIC EXPRESS	Massy Logistics (Barbados) Ltd	Massy Logistics (Barbados) Ltd	5 South	Arrived
2024050685	LUZON STRAIT	Caribbean Int'l Freight & Logistics Ltd.	Caribbean Int'l Freight & Logistics Ltd.	5 North	Arrived
2024050696	ADMIRAL BAY 1	Eric Hassell Shipping Ltd	Eric Hassell Shipping Ltd	Shallow Draught	Departed

VOYAGE PURPOSES

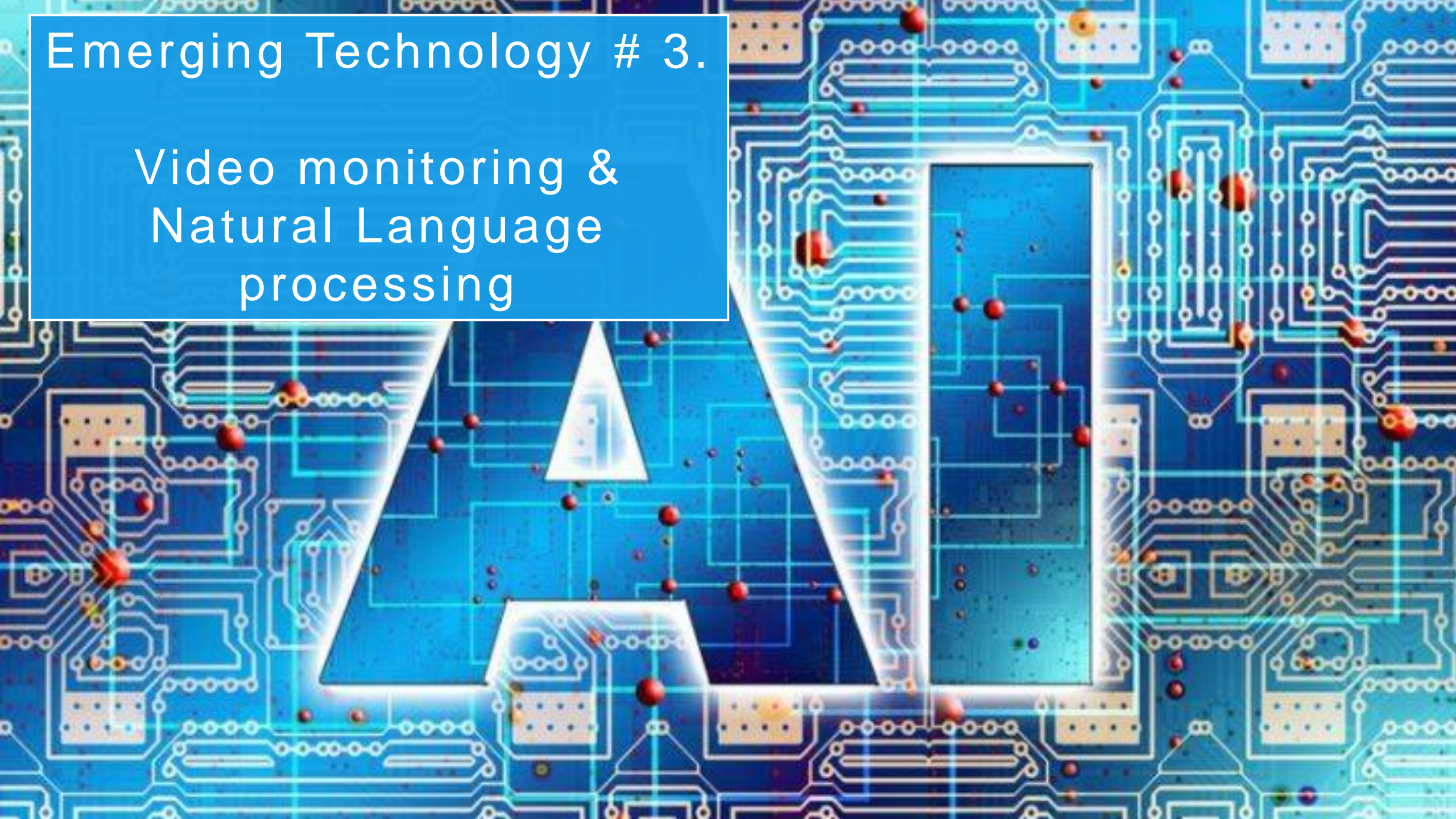


TODAY'S VESSEL ACTIVITY



Emerging Technology # 3.

Video monitoring &
Natural Language
processing



ADOPTION OF AI ENABLED SECURITY VIDEO SURVEILLANCE

THE ROLE OF MACHINE LEARNING ALGORITHMS IN VIDEO CONTENT ANALYTICS



Detection

Object
Identification
within a frame



Tracking

Object(s) Identification
Through Progressive
Frames



Reasoning

Production of logical
inferences (Intelligence)

- **Video Content Analytics vs traditional video monitoring systems**

- Try watching 100 movies at once
- (Ports are large & busy spaces)

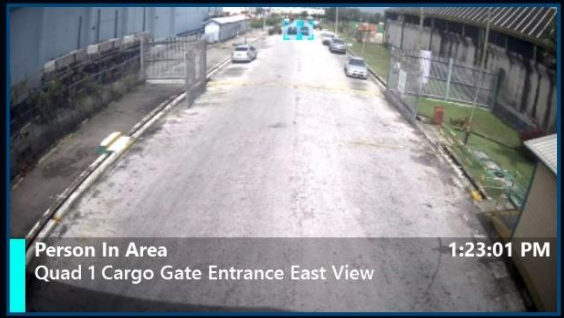




THE PRACTICAL APPLICATION

Traditional systems are susceptible to mental fatigue, distraction, misdirection and bias.

Recent Events [List Icon]

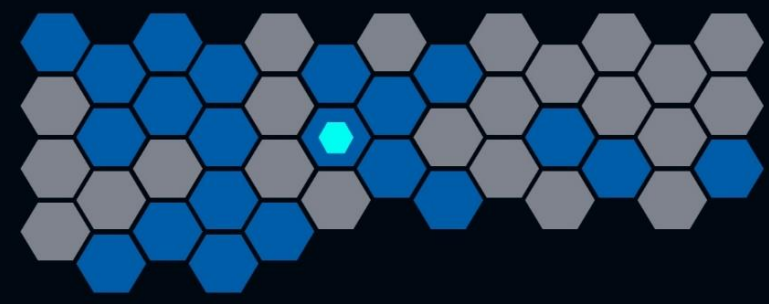


Overview

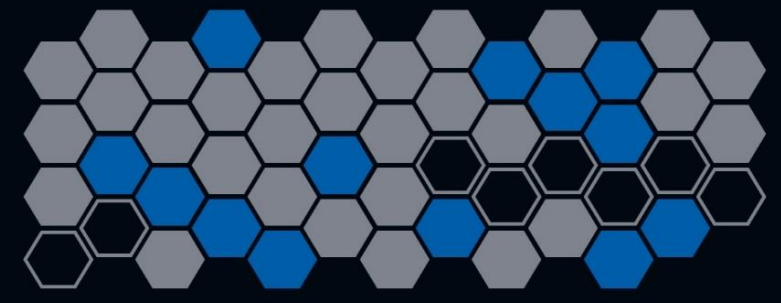
THE PRACTICAL APPLICATION



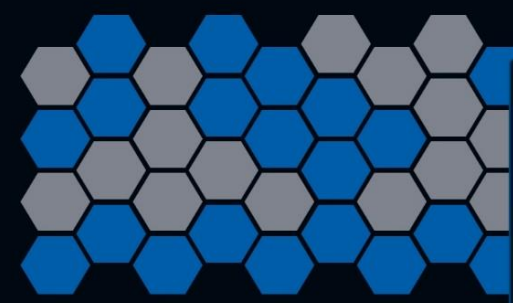
Port Surveillance (1 of 6)



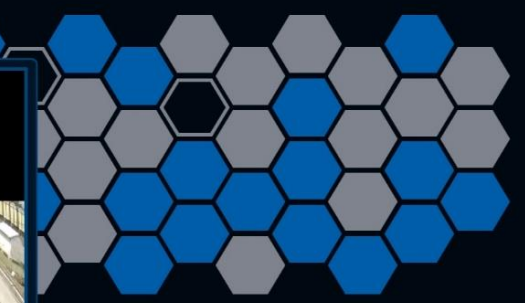
Port Surveillance (2 of 6)



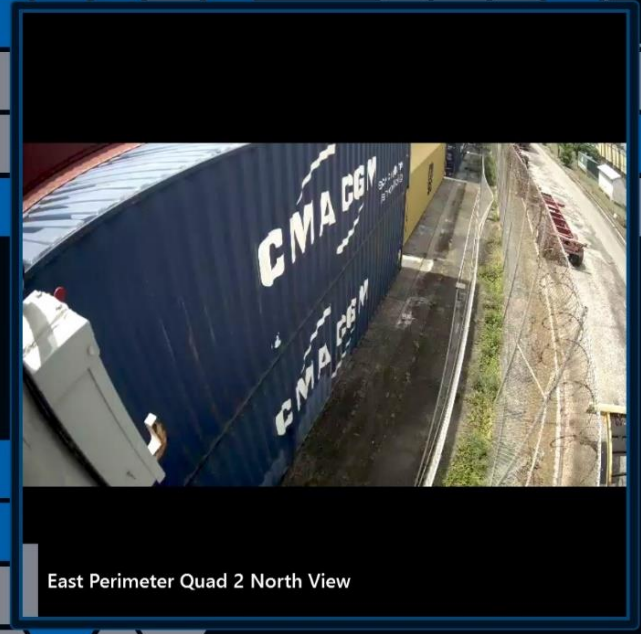
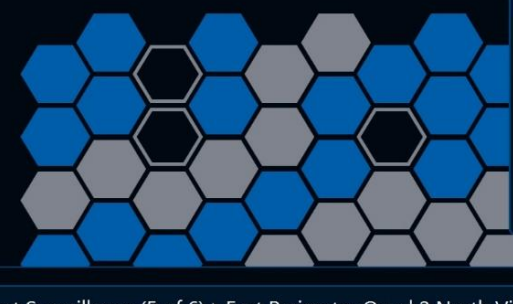
Port Surveillance (3 of 6)



Port Surveillance (4 of 6)



Port Surveillance (5 of 6)



East Perimeter Quad 2 North View

Overall Statistics



Positive
62.92%



Neutral
28.12%



Negative
6.25%

Star Rating Statistics



Positive
88.35%



Neutral
6.25%



Negative
0%

TITLE	ONE STAR	TWO STAR	THREE STAR	
How likely are you to recommend this portal to a friend or colleague.	0	0	1	
Information on the website is clear and easy to understand.	0	0	1	
My online account meets my needs.	0	0	1	
Please rate your satisfaction with your recent online experience.	0	0	1	
The website works well technically, loads quickly and displays appropriately.	0	0	1	
	Sum: 0	Sum: 0	Sum: 5	S

NLP Statistics



Positive
37.50%



Neutral
50.00%

RESPONSE

Everything was fine with the portal. It is quite understandable. No issues confronted.

What can we do better? Not applicable at this time. The online service is very good. Excellent. The staff are very helpful, professional and Knowledgeable.

In the providence drop box it only changes after you answer the country box. For Caribbean persons it then automatically changes to outside of US and Canada.

Every thing was excellent no need to change anything.

Surprise me. :-)

GET CUSTOMS TO ADOPT IT

Emerging Technology #4.



...by design

Emerging Technology #5. UAV (Drone) Technology



Rapid response over large spaces
Uncompromised view
Operator is in safe environment
Leverage thermal imaging



Security Patrols

Surveillance – Protects Unarmed Port Security Officers while providing faster alarm response over large area of land and waterways.





Terminal Operation and Cargo measurements

Emerging Technology #6

Block chain





What is Blockchain?

**The Blockchain
Potential for Port
Resilience?**

Integration of Supply
Chain Flows?

Welcome to the Barbados Port Community System

The Barbados Port Community System (PCS) offers a single smart information gateway through which all agents in the logistics chain can work together to move cargo more efficiently. It brings standardisation and harmonization to agency processes, procedures and documentation connecting you through a smoother, more streamlined, real-time experience while reducing cargo clearance and trade related transactions time and costs.

Please select a service ▾

Our Services

With multiple services now merged into a single platform, it has become so much easier to navigate trade and logistics flows. Discover the full suite of services accessible anytime, anywhere.



Thank
You



A few of our **Digital Innovations**

- **e-Payment Platform**
- **Cargo Tracking and Tracing**
- **Electronic Manifest**
- **Online Booking/ OR appointments**

- **Terminal Operations System**
- **Maritime Single Window**
- **Port Community System (in progress)**
- **Drone technology**
- **Artificial Intelligence**

