

Jornada de Innovación en LOGÍSTICA PORTUARIA

Tecnología e Innovación en el Puerto de Algeciras

Francisco de los Santos

fsantos@apba.es

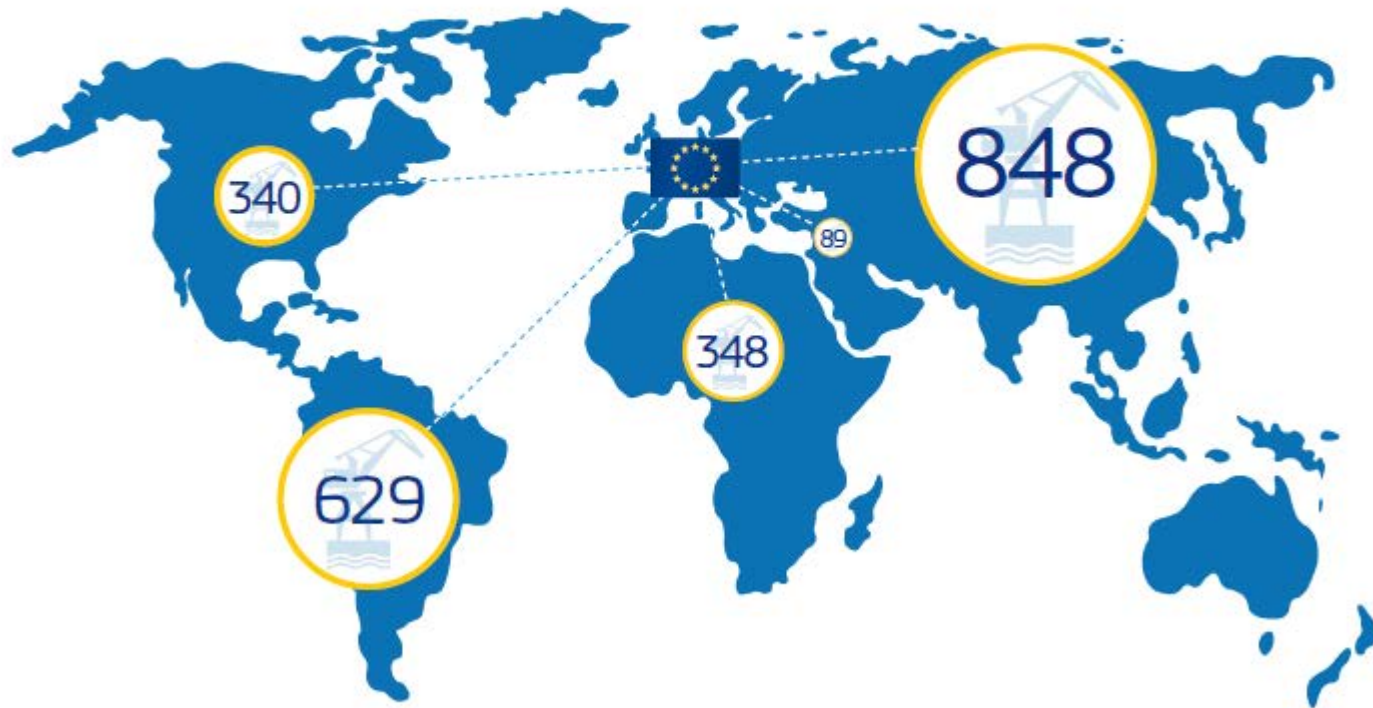


Sevilla, 6 de Abril de 2016

Algeciras Port Logistics Context

74% of EU trade goes by ship.

Ports in Europe are directly connected to **848** ports in the Far East and **629** in Central and South America.



Source: ESPO, European Port Performance Dashboard, 2012

Algeciras Port Logistics Context

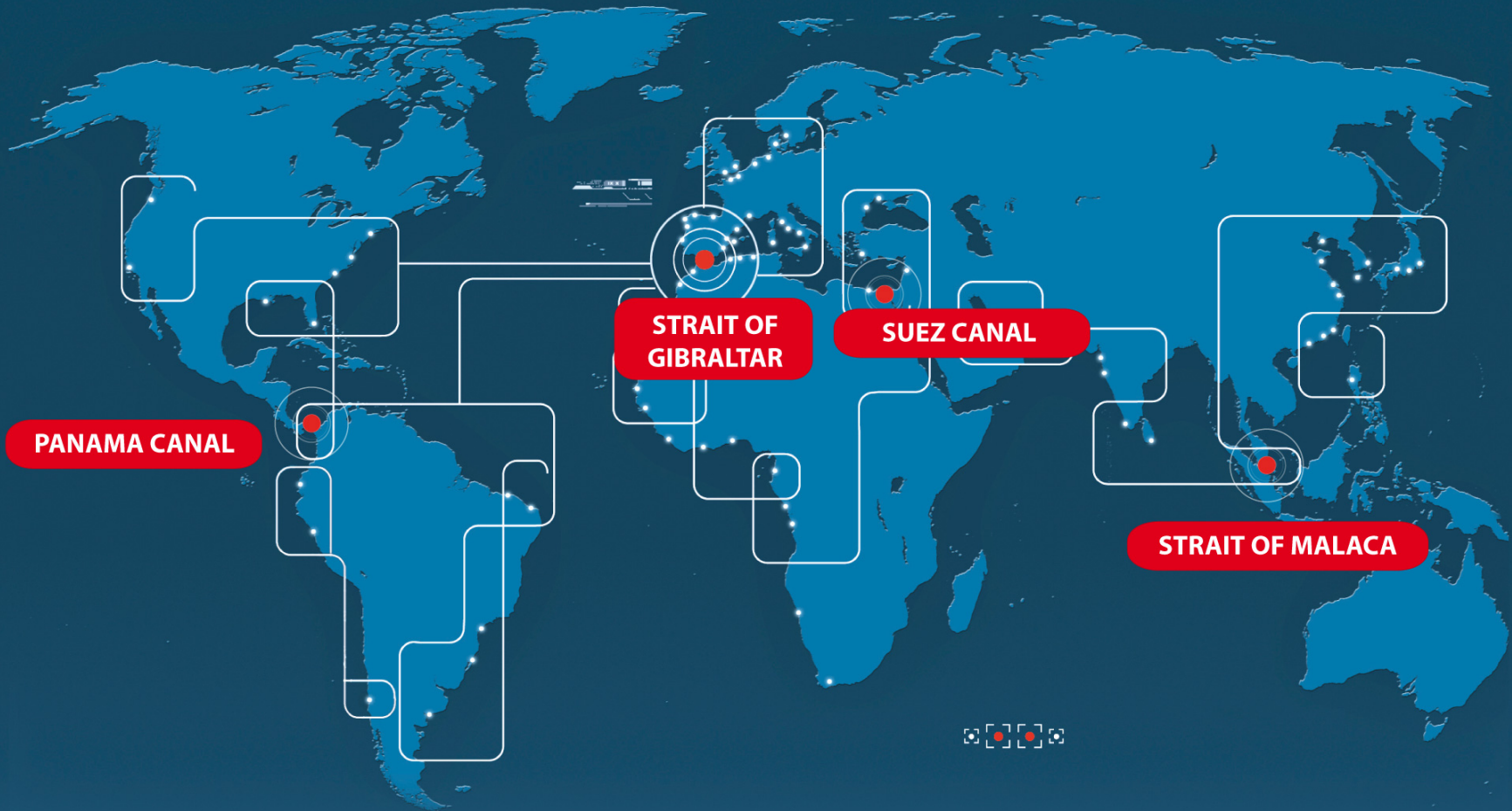
20% of traffic in the EU
is handled by only 3 ports.

**By 2030 traffic
is predicted to
rise by 50%.**



Source: Impact Assessment accompanying the proposal for a Regulation establishing a framework on market access to port services and financial transparency of ports, 2013

Algeciras Port Logistics Context

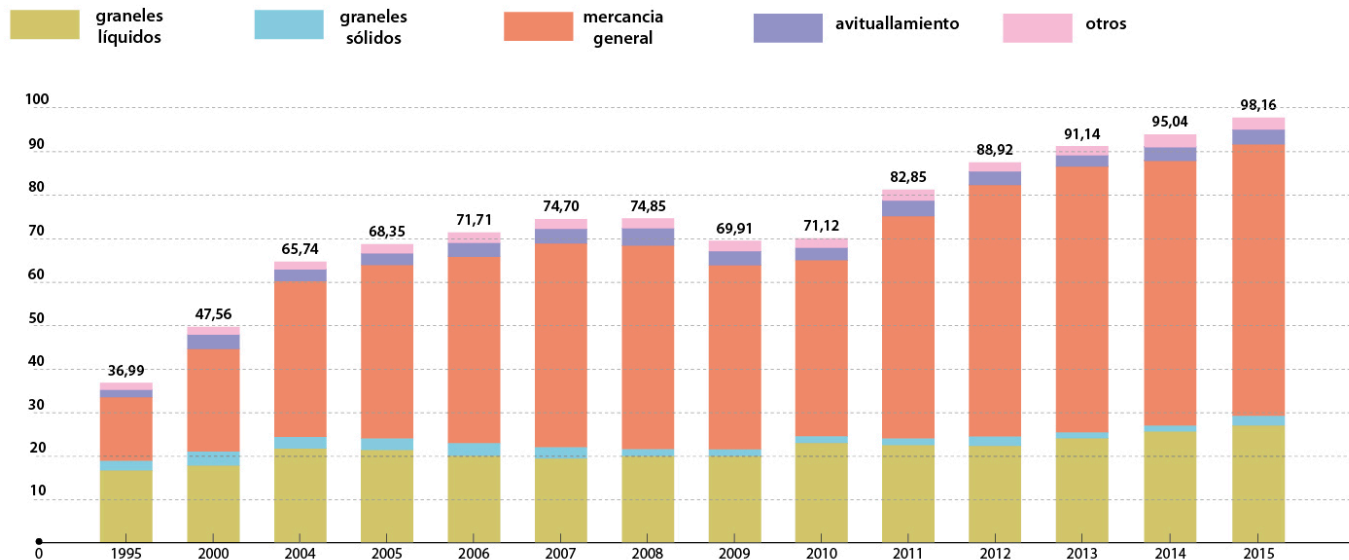


Key global maritime artery linking Europe with Africa and the Mediterranean with the Atlantic

Algeciras Port Logistics Context

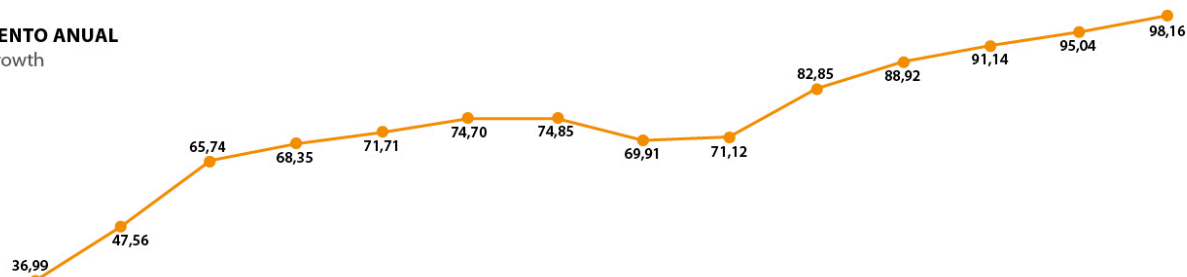
EVOLUCIÓN HISTÓRICA TRÁFICOS PUERTO BAHÍA DE ALGECIRAS [EN MILLONES DE TONELADAS]

HISTORICAL THROUGHPUT DEVELOPMENT PORT OF ALGECIRAS BAY [IN MILLION TONS]



CRECIMIENTO ANUAL

Annual growth

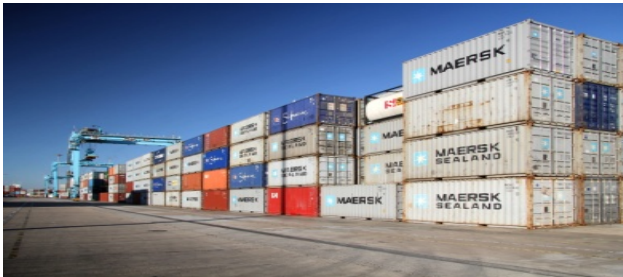


Algeciras Port Logistics Context

2015



TOTAL THROUGHPUT
98,2 MILL TON



CONTAINERS
4,5 MILL TEUs



RO-PAX
Trucks : 290.142
Passengers : 5,2 MILL

Algeciras Port Logistics Context



TOTAL THROUGHPUT 2013

N.	PORT	COUNTRY	2013
1	ROTTERDAM	NETHERLANDS	440,4
2	ANTWERP	BELGIUM	190,8
3	HAMBURG	GERMANY	138,5
4	AMSTERDAM	NETHERLANDS	95,0
5	ALGECIRAS	SPAIN	91,1
6	MARSEILLE	FRANCE	80,0
7	BREMERHAVEN	GERMANY	78,8
8	LE HAVRE	FRANCE	68,0
9	VALENCIA	SPAIN	65,0
10	GRIMSBY-IMMINGHAM	UNITED KINGDOM	63,2
11	CONSTANTZA	ROMANIA	55,2
12	GENOA	ITALY	49,5
13	GHENT	BELGIUM	48,2
14	DUNKERKE	FRANCE	43,6
15	LONDON	UNITED KINGDOM	42,9
16	ZEEBRUGGE	BELGIUM	42,8
17	BARCELONA	SPAIN	42,4
18	CALAIS	FRANCE	41,2
19	GOTHEMBURG	SWEDEN	38,9
20	MILFORD HAVEN	UNITED KINGDOM	38,7
21	SINES	PORTUGAL	36,1
22	TEES & HARTLEPOOL	UNITED KINGDOM	36,0
23	RIGA FREEPORT	LATVIA	35,4
24	LIVERPOOL	UNITED KINGDOM	32,0
25	SOUTHAMPTON	UNITED KINGDOM	30,9

Algeciras Port Value Proposition

Algeciras Port: Container and Ro-Pax mega-hub located at Strait of Gibraltar, promoting a **Full Service Port** role at **Geostrategic location**.

Value Proposition: Infrastructure & Operational Excellence at Zero-Deviation
Round-the-World Maritime **Route**.

- **Operational Excellence** through **Technology & Innovation**
- Development of **Next Generation Port (NGP)** Concept

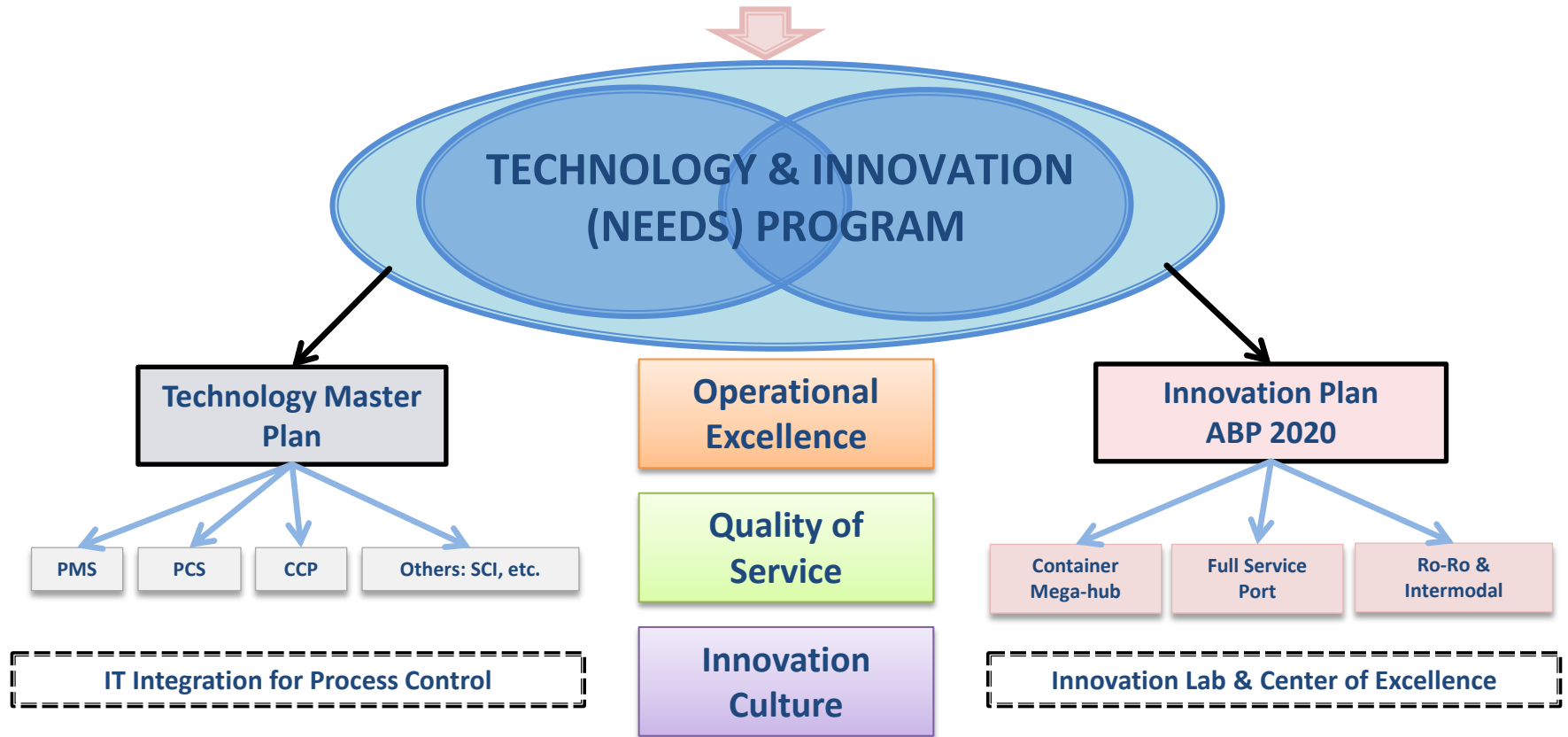
Technology & Innovation Department (ADT) Mission & Vision

Mission: Lead **Digital Transformation**, stream **Innovation** and develop **NGP** Concept to Increase Algeciras **Port Business Competitiveness**.

Vision: Recognised brand as International **Maritime Technology & Innovation Cluster**, impacting Algeciras **Port Business**.

Port Technology & Innovation Program 2014-2020

ALGECIRAS PORT STRATEGIC PLAN 2020



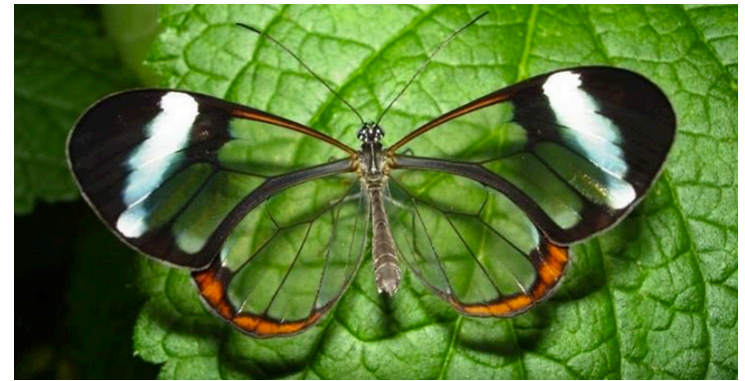
Technology & Innovation to the Core for Operational Excellence & Continuous Improvement Mindset With and For Algeciras Port/Logistics/Trade Community

Technology & Innovation Master Plan Principles

Technology & Innovation to the Core



Visibility & Transparency



Port Collaborative Decision Making



Technology & Innovation Master Plan Principles

To Be Ready for the Future



Next Generation Port Concept – “Smart/Brain Port”



Rafael Yuste, científico español que ha inspirado el Brain Activity Map Project (BAM) y firmante sénior del artículo de *'Neuron'*

Algeciras Last Generation Port Concept

NGP Next Generation Port Concept: BrainPort Vision

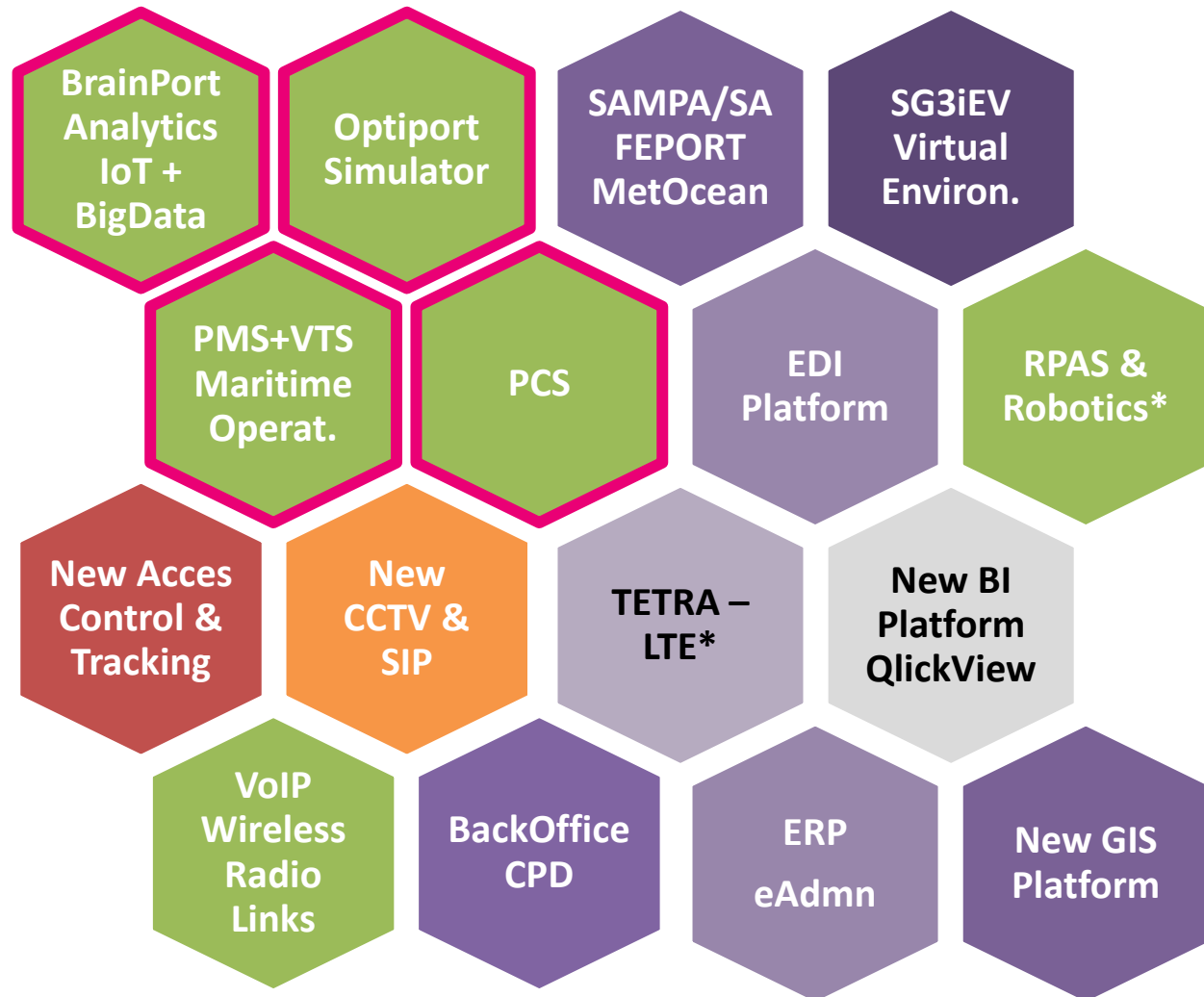


- **Port Digital Layer: Real Time Info & Efficiency of Every Business Process**
- **Business Analytics Platform: Learn & Take Better Decisions**
- **Port Collaborative Platform: Smart Integration of Systems and Agents to Share Information => Towards a High Quality Seamless Logistic Chain**
- **Holistic Port Processes Simulator for Planning (years) and Management (hours) => What if scenarios?**
- **Systematic Innovation Culture at Port Community Challenges the Status-Quo => Continuous Improvements Mindset & Ready to Adopt New Business Models**

What's going on in practice?

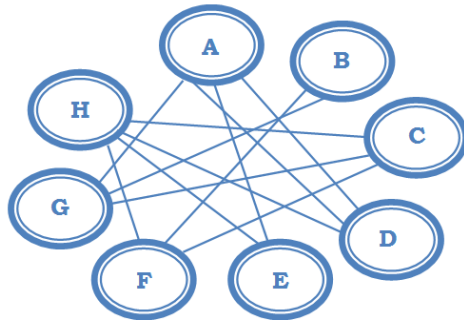
2014 - 2015

20% PCS & PMS
25% TELCO Inf.
25% Security & Tracking
30% Innovation



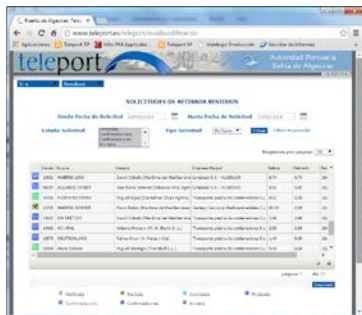
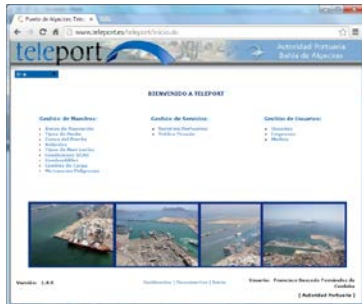
Port Community System TELEPORT

Information and Documentation Exchange Platform

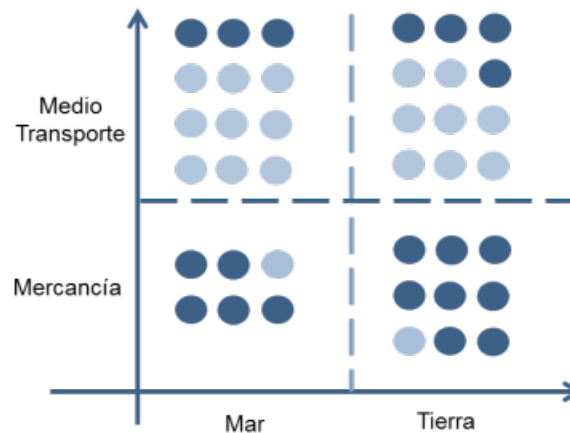


Teleport

From **Port** Community System To **Logistics** Community System To **Trade** Community System

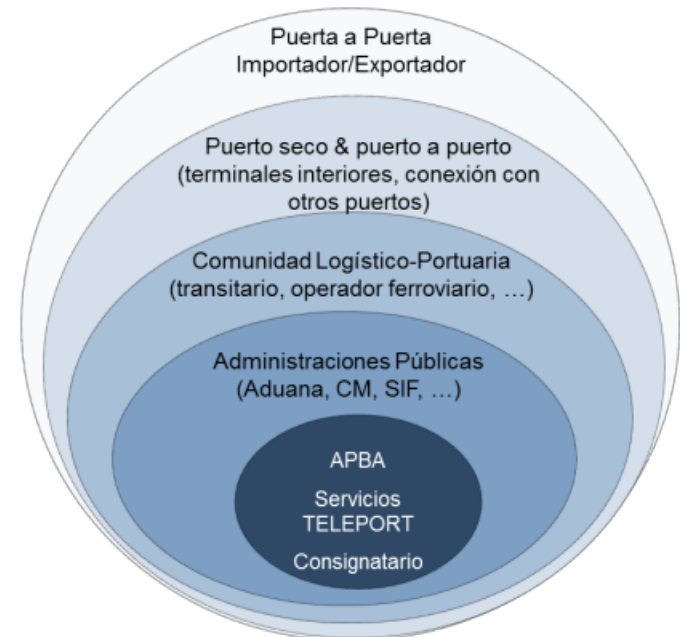


Cobertura PCS a nivel de servicios

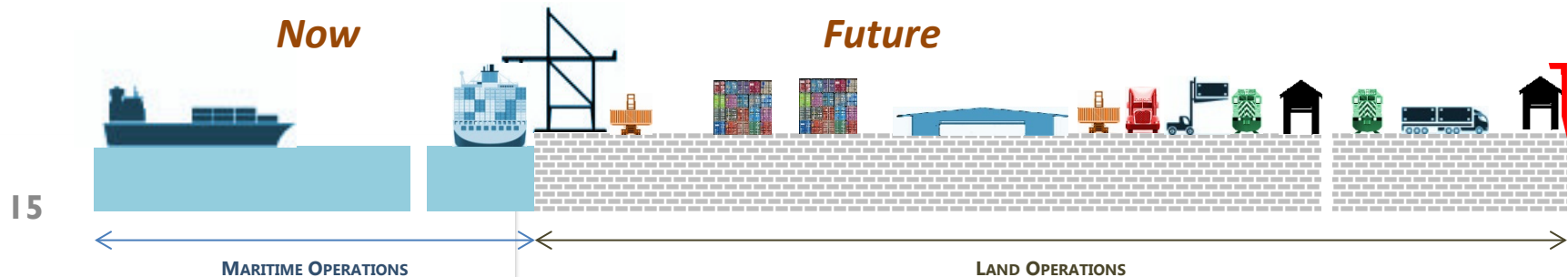
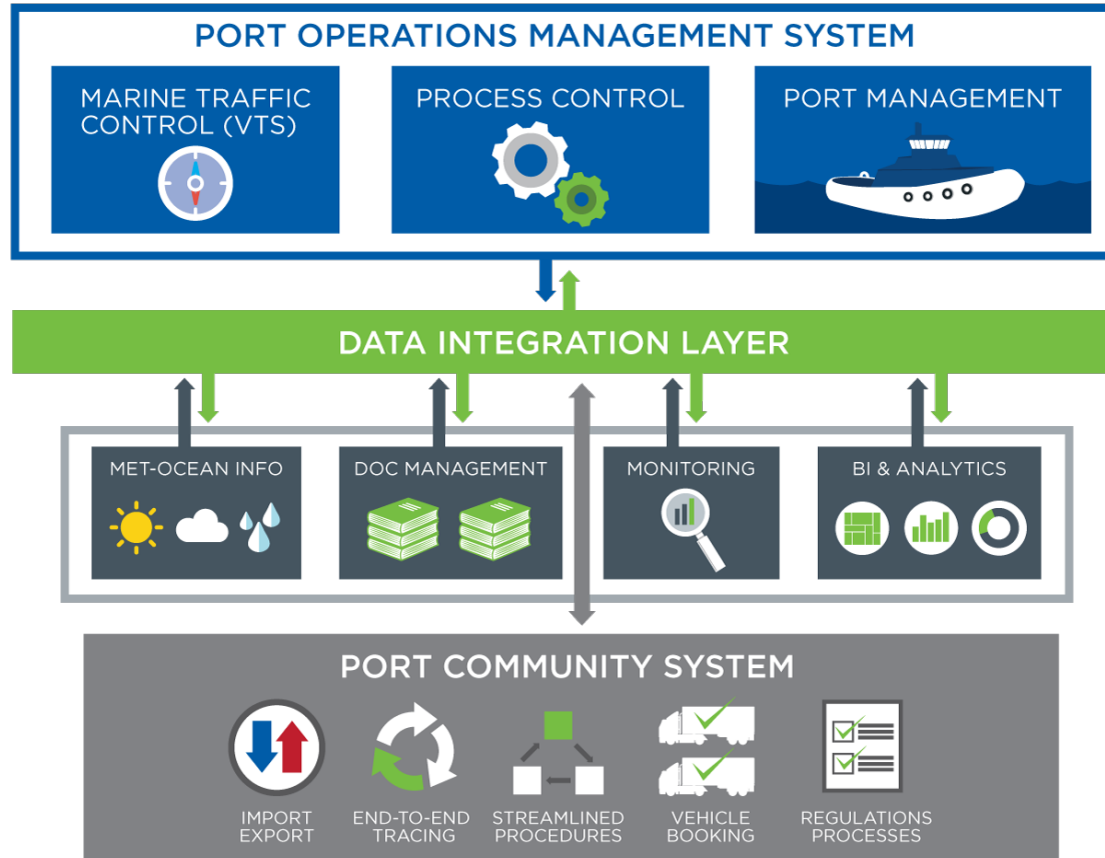


● TELEPORT
● NUEVO PCS

Cobertura PCS a nivel de clientes

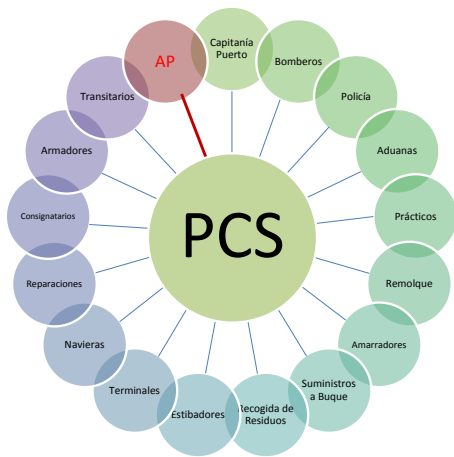


Port Operations Management System: Phase I



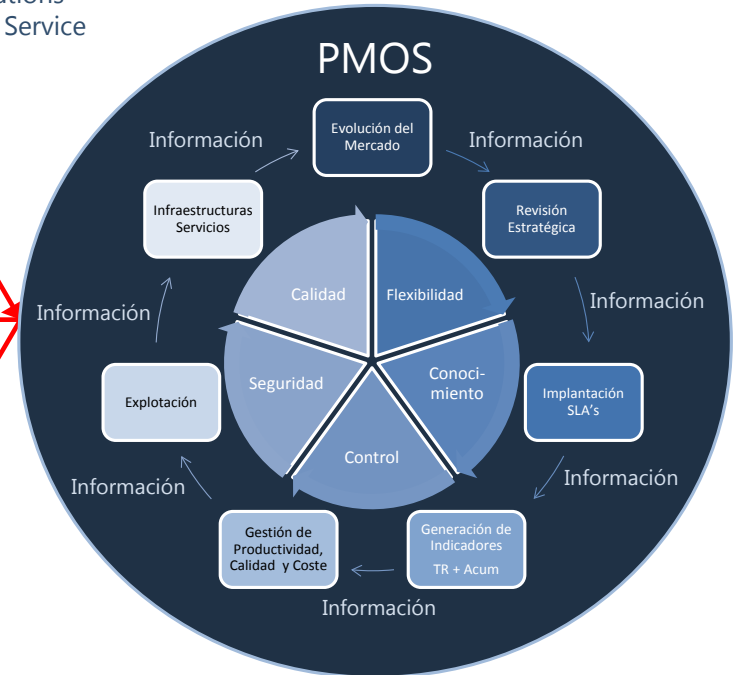
PMS-PCS Integration

Interface With Port/Logistics Community



Monitoring, Control & Management Port Operations

- ✓ Vessel Calls
- ✓ Bunkering
- ✓ MARPOL
- ✓ Reparations
- ✓ Water Service
- ✓ ...



**Better Information – Better Coordination – Better Operations
More Shared Value!**

BrainPort Analytics: Processes, IoT, Big Data & BI

Operations + Meaningful Information = "Process Intelligence"

Advanced Sensorization



IT supporting network

BrainPort Analytics

Sensor Data

Processed Data

Real Time communication – Sensor Network management



Real-time Data

Historical Data

Processed Data

Balanced Scorecard

INTEGRATION PLATFORM – BUS EAI

PCS

PMS

GIO

SIP

x

x

x

...

BrainPort Analytics: Processes, IoT, Big Data & BI

Puerto de Algeciras | ESTADÍSTICAS | EXPLORAR | GESTIÓN ALARMAS | INDICADORES | ADMINAD | BRAINPORT ANALYTICS

SIGCA Cámara CAMS_PIF-OUT
 Unnamed Road, 11201 Algeciras, Cádiz, Spain

LOCALIZACIÓN
 Map showing sensor locations around the port of Algeciras.

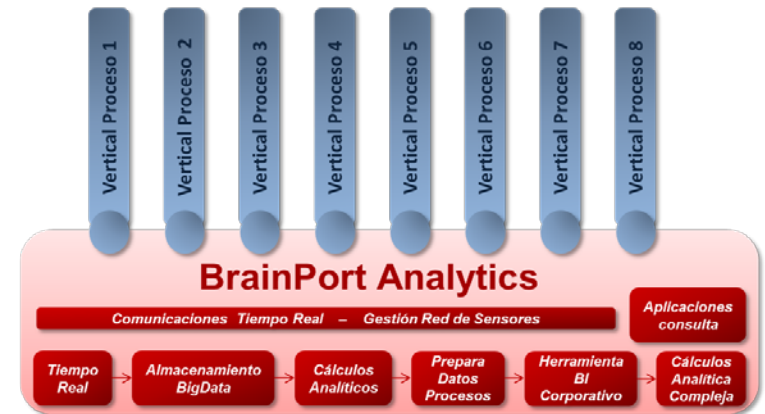
IMÁGENES
 Image of a camera sensor.

MÁS RECIENTE
 AF132 Imagen
5654-FRH
 Última actualización: 11/11/2015 15:02:00

ACTIVITY

Fecha	Actividad	Sensores
11/11/2015 14:28:00	5678-CFN	
11/11/2015 14:33:40	3958-CMC	
11/11/2015 14:39:30	9024-AOG	
11/11/2015 14:39:30	3839-ADM	
11/11/2015 14:41:10	2034-AGG	
11/11/2015 14:43:10	0122-DPS	
11/11/2015 14:44:50	1320-ACV	

Descripción: Fecha de creación: 09/10/2015 Ubicación: Estático



BRAINPORT ANALYTICS



Access to BPA



Cuadro de Mando | Análisis | Informes | Configuración | Ayuda

Puerto de Algeciras | Fecha Actual = 11/11/2015 10:45 | Última Recarga = 10/11/2015 15:05 | BRAINPORT ANALYTICS

2013 | 2014 | 2015 | ene | feb | mar | abr | may | jun | jul | ago | sep | oct | nov | dic | Día

Naviera	Nº Equipamientos	Var Nº Equip: 12,9%	Nº Escalas	Var Nº Escala: 15,5%	Tiemp Med Levante-Import
Acciona	18.267		1.142		2d 14h 41m
Balearia					
Benzú					
Frs	20.976		1.352		0d 11h 44m

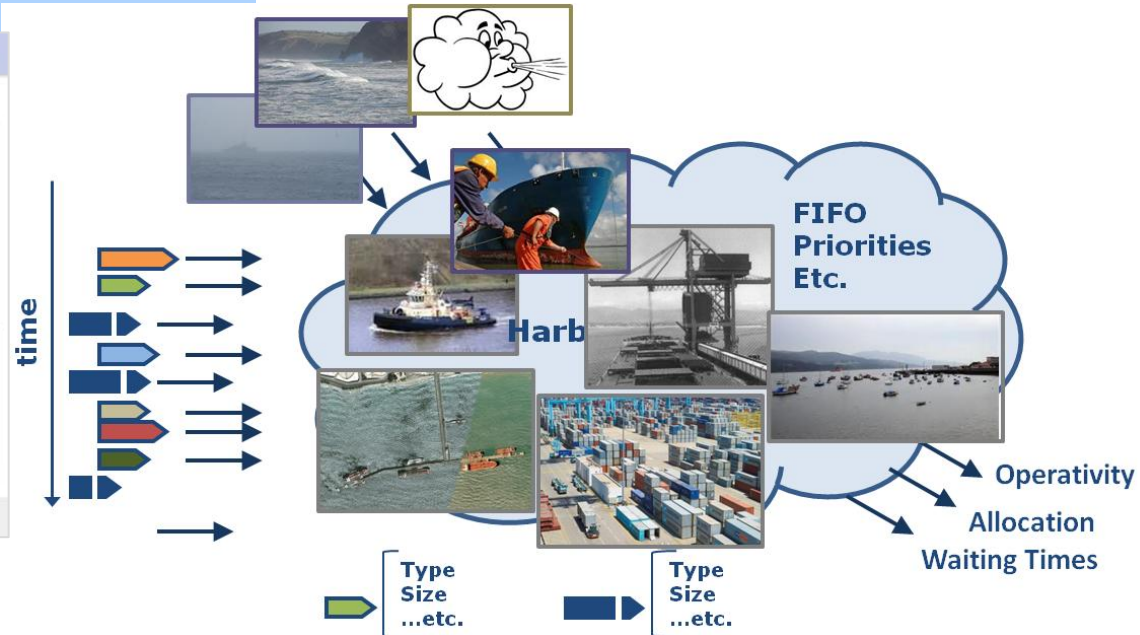
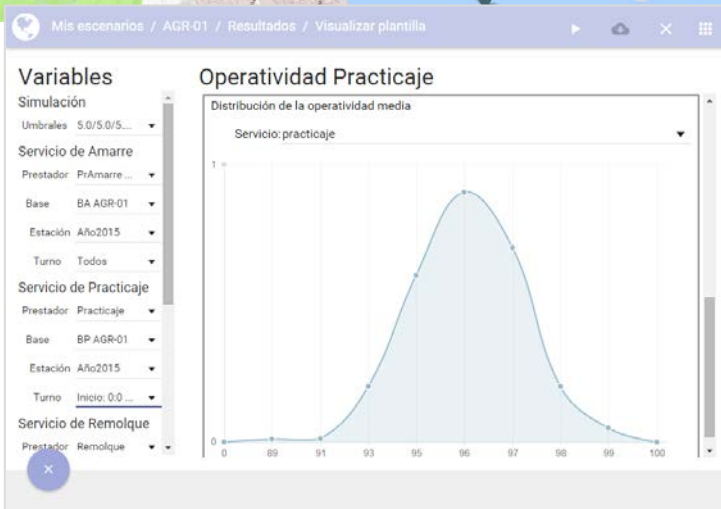
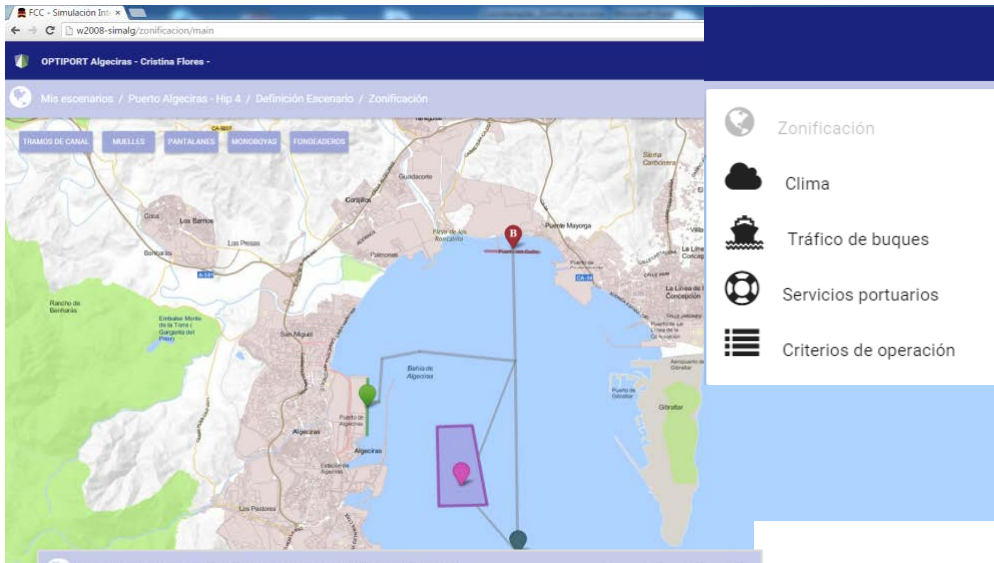
Nombre Buque	Retraso medio Llegada Buques (hh:mm)	Retraso medio Salida Buques (hh:mm)	Tiempo medio Atraca Buques (hh:mm)
Alboran	ago 2014: 01:22	ago 2014: 01:13	ago 2014: 02:25
Alcantara Dos	ago 2015: 01:04	ago 2015: 00:52	ago 2015: 02:34
Algeciras Jet			
Amman			

Muelle Atraca	% Medio Ratio Ocupación PIF	Var % Ocupac PIF: -9,6%	Tiempo Medio PIF (hh:mm)	Var Tiempo Med PIF: 18:15	% Med Ausencia Cita Escáner
Dique Norte	21,1%		15:14		3,6%
Galera Atraca 1					
Galera Atraca 2					
Galera Atraca 3					
Galera Atraca 4	11,6%		09:29		1,8%
Galera Atraca 5					

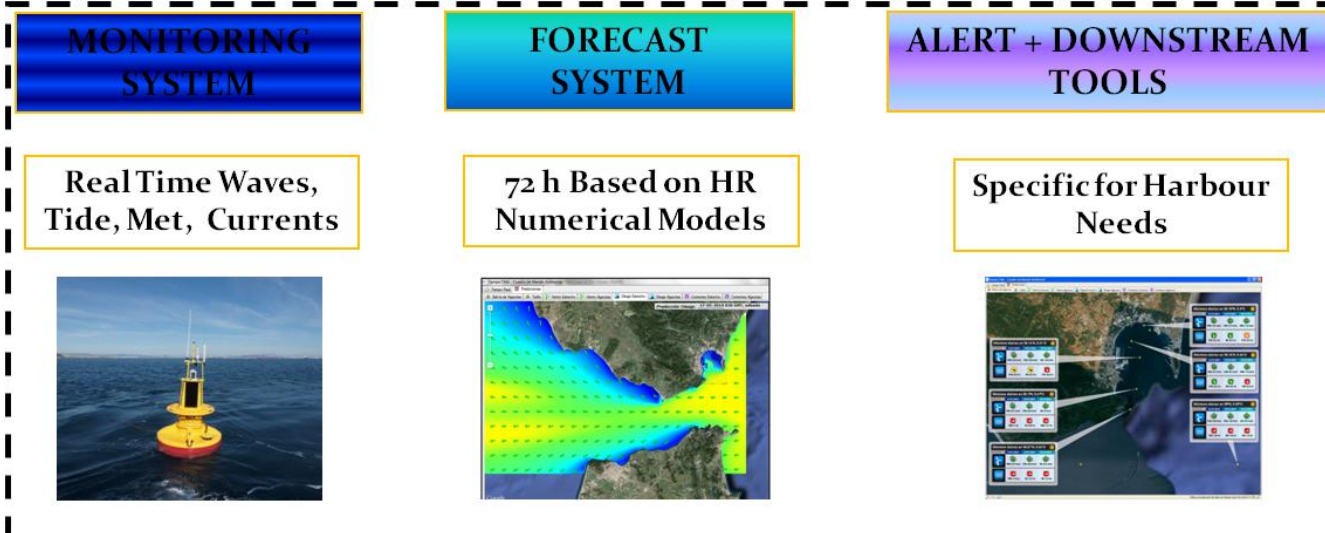
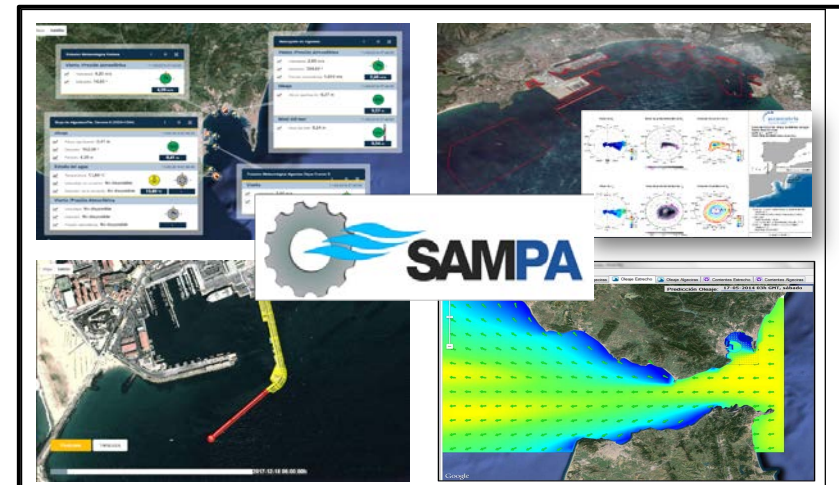
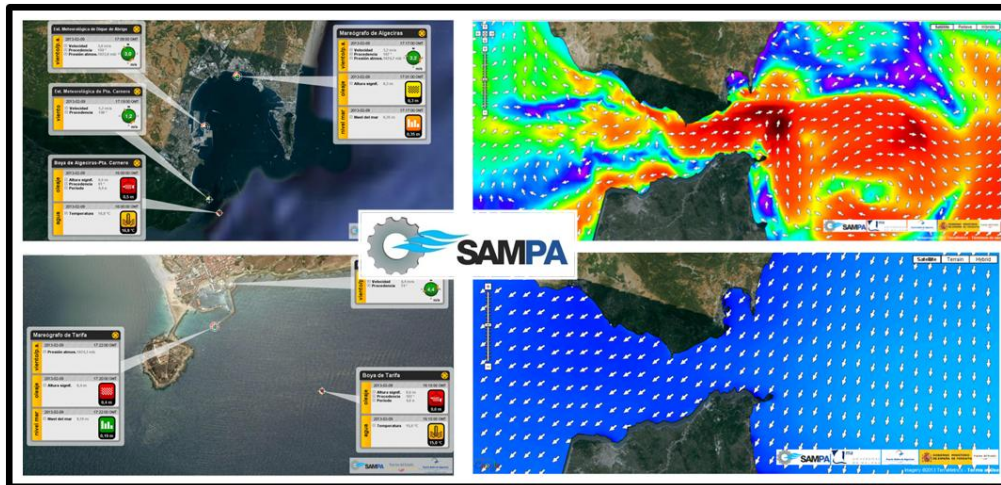
OPTIPOINT: Integral Simulations of Port Operations

What If Scenarios for Planning!

[Access to Optiport](#)

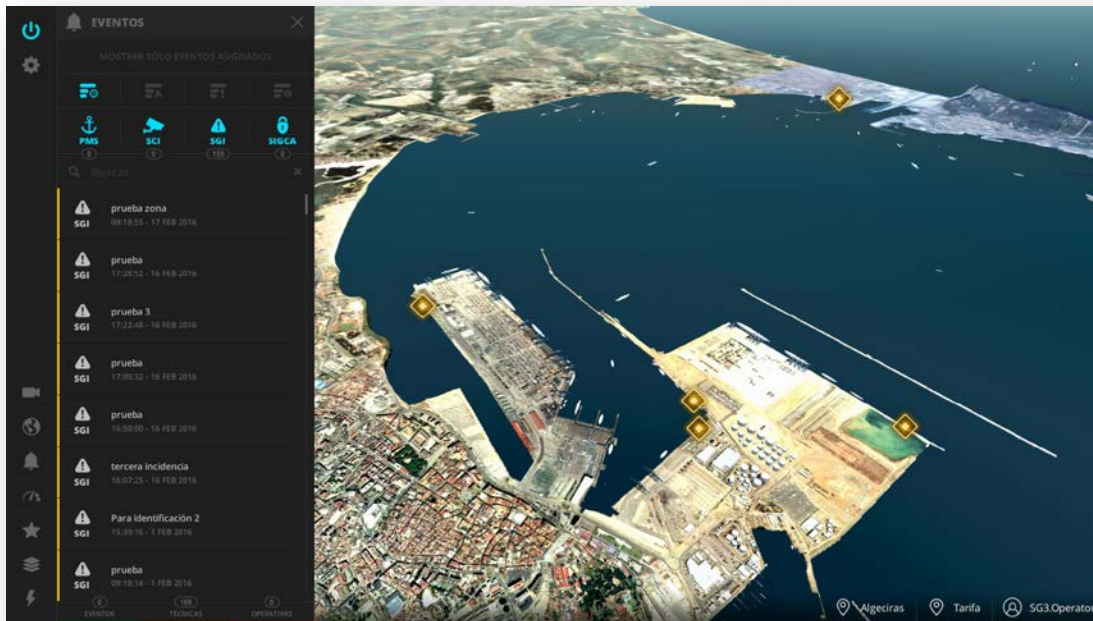


SAMPA: Advanced Met-Ocean Monitoring and Forecasting



SG3iEV: Virtual 3D Infrastructure Management Platform

GIS – 3D – Real Time Integration – Complex Event Processing
TOWARDS UNIQUE INTUITIVE 3D PORT INTERFACE
From System Operators To Business Operators

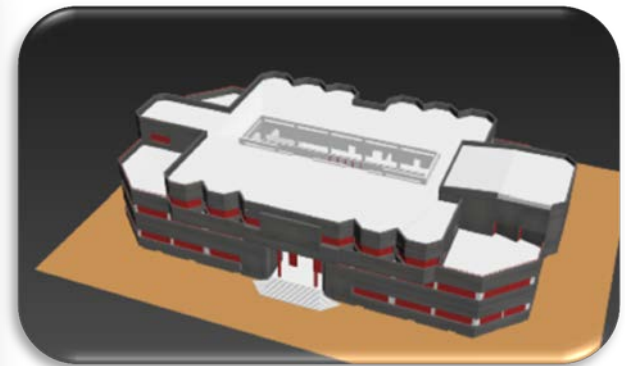
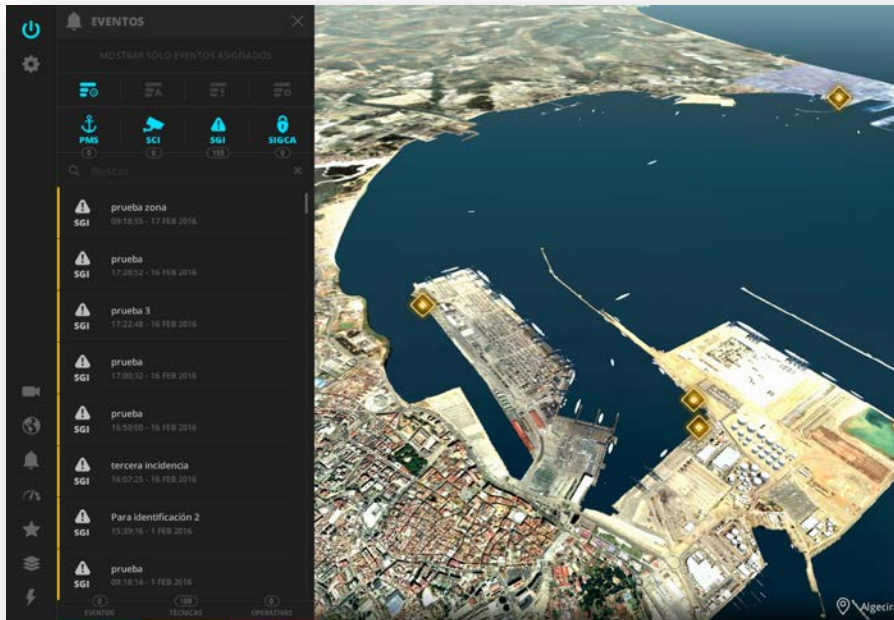


[Video SG3iEV](#)

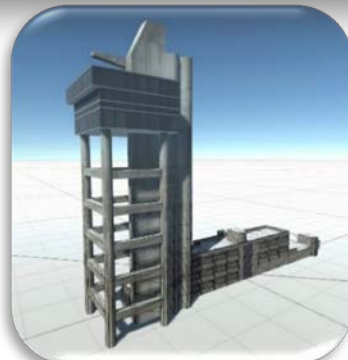


SG3iEV: Virtual 3D Infrastructure Management Platform

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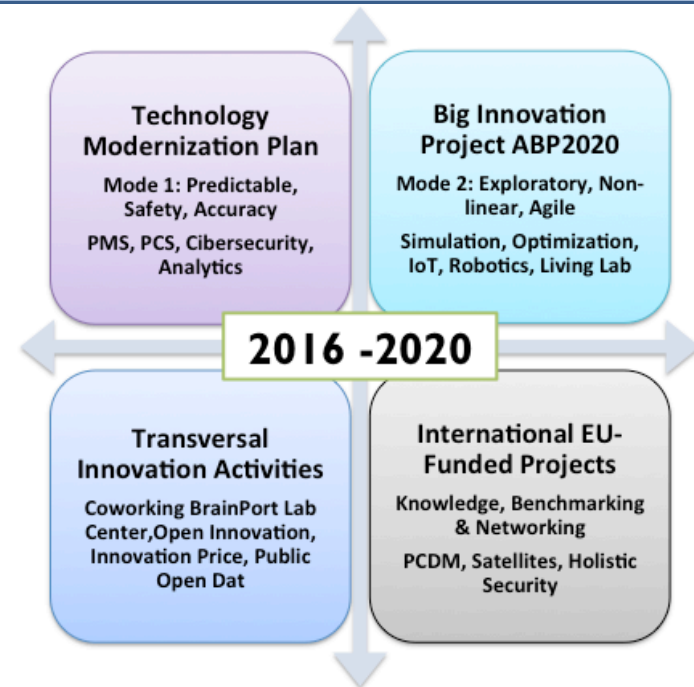
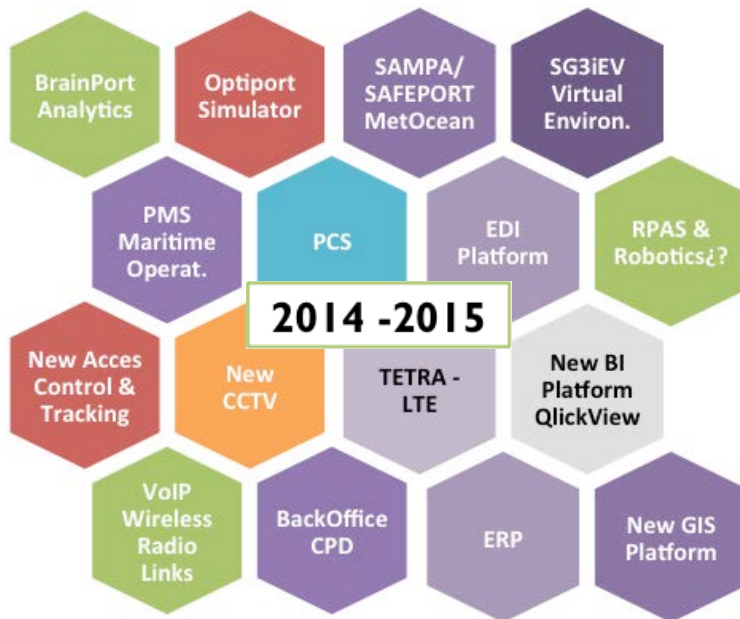
Technology & Innovation Master Plan Next Steps

Phase I (2014-2015)

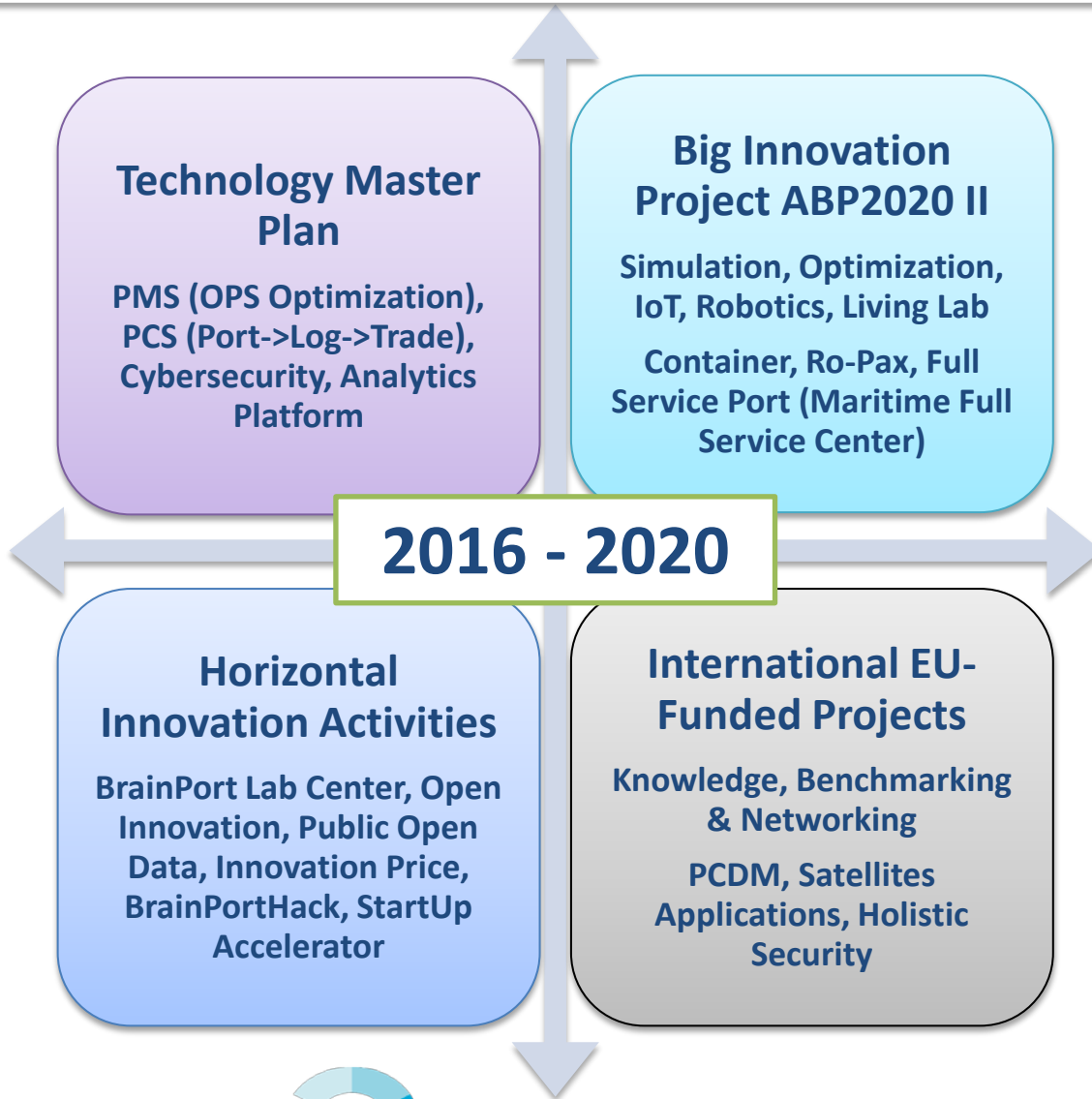
- **IT Infrastructure & Corporate Platforms**
- **Innovation Framework**
- Digital APBA Eco-system
- Core Foundation + Quick Wins

Phase II (2016-2020)

- **Integrated Operational Excellence (QS)**
- **Port Collaborative Decision Making**
- **Maximize Impact on Port Community**
- **Systematic Innovation Culture**



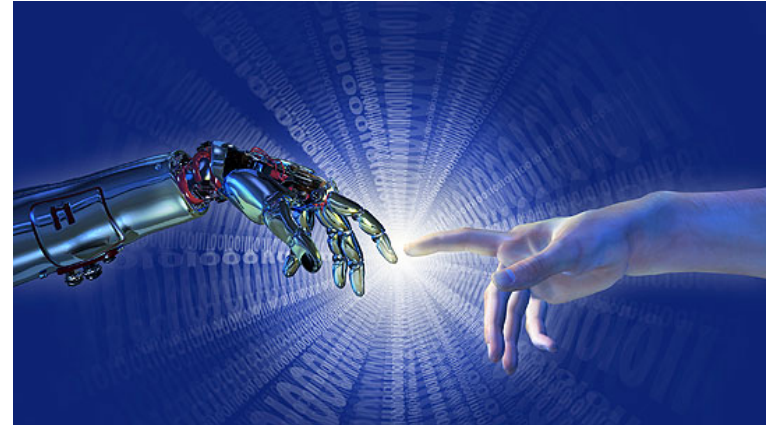
Technology & Innovation Master Plan Next Steps



i-momentum

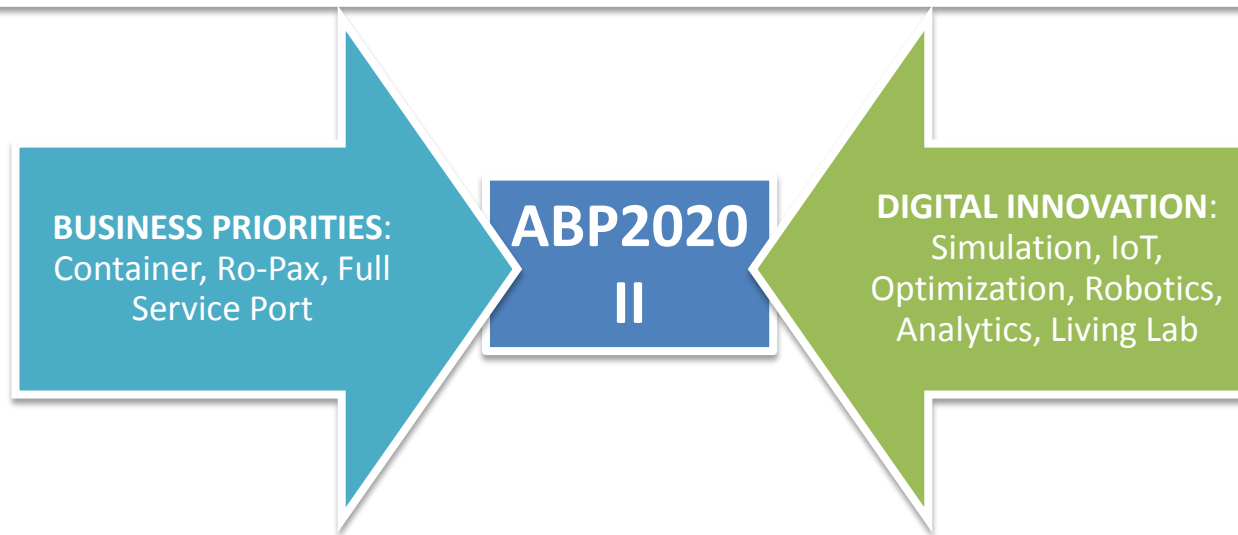


Big Innovation Project ABP2020 II with 10 Initiatives



1. Transshipment Container Mega-Hub Optimization
2. Full Service Port (Vessel Services) Simulation and Optimization
3. Ro-Pax Fast Scanning Techniques
4. Port Emergency Management and Planning Tool
5. Land Operations & Cargo Flow Holistic Simulator
6. Meteo-Routing, Vessel Motions & Operational Risk Forecast System
7. Logistics Sensoring Lab & Advanced Data Analytics
8. Robotics & Unmanned Vehicles for Port Operations
9. Advanced TELCO for Port Environments
10. BrainPort Lab Center: Innovation + Coworking + StartUp Accelerator

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Algeciras Port One-Page IT Strategy

2014-2015

2016

2017

2018-2020

Port/Logistics/Trade Community System

Port Operations Management System

Harbour Analytics

Cybersecurity

Innovation Master Plan: Algeciras BrainPort 2020
Program & Horizontal Activities

Technology & Innovation Master Plan Next Steps

ALGECIRAS PORT



BRAINPORT LAB
CENTER



MARITIME
TECHNOLOGY &
INNOVATION CLUSTER

Phase I (2014-2016): New IT & Innovation Framework

New Corporate IT Platform & Digital APBA
Ecosystem

New PBA Innovation Framework & Quick
Wins



Phase II (2016-2020): IT Structure & Innovation Culture

Maximize Impact on Port Community &
Integrated Operational Excellence

Sustainable IT Resourcing Plan, Systematic
Innovation Culture & StartUps



Phase III (2018-2025): Marit. Tech. & Innovation Cluster

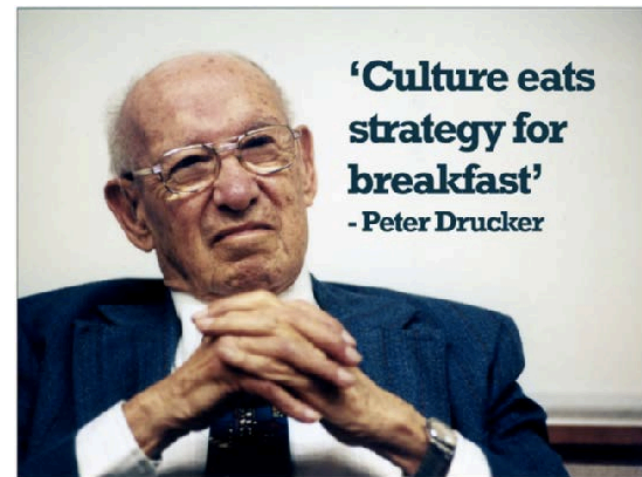
StarUp Accelerator & Strategic Excellence
Centers Consolidation

Cluster Consolidation & International
Partnership & Executive Education

Conclusions

- Long Term Program 2015-2020 and beyond!
- Towards the Next Generation Port Concept
- Team Work across all Port Community
- New Products & Services + Innovation Culture Improvement

Technology & Innovation to the Core for Operational Excellence & Continuous Improvement Mindset With and For Algeciras Port Community Knowledge Engineering for Port Competitiveness!



A satellite-style image of the Earth showing the Strait of Gibraltar, the narrow waterway connecting the Atlantic Ocean to the Mediterranean Sea. The land is shown in shades of green and brown, and the water is a deep blue. The curvature of the Earth is visible on the right side.

**Puerto de
Algeciras**



Gracias!