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# Port of Rotterdam

## The steps in digitalisation to become a smart port

# Jan Gardeitchik

## ***Port of Rotterdam 1982-2017***

Head of Harbour Master Policy

Head of Transport & Environmental Safety

General manager Noxious and Dangerous Goods

Different advisory roles



## ***Port of Fujairah 2017-2018***

Corporate HSE executive

## ***Port of Rotterdam 2018-Present***

Senior Lead Digitalisation

Maritime Port Management Systems



**Last 6 years:  
Best infrastructure in the world.**



**What's next?**

# Lots of new digital initiatives around the world

## **Turvo Automates Supply-Chain Tracking**

Logistics startup bags \$25 million Series A led by Activant Capital

## **GE, Port of Los Angeles launch supply chain visibility pilot program**

## **Maersk's Damco enters digital freight forwarding market with Twill**

Amazon takes on UPS and FedEx with its own delivery service

Maersk, Alibaba team up to offer online booking of ship places

## **IBM, Maersk aim to speed up shipping with blockchain technology**

IBM and Maersk plan to launch blockchain technology platform that will digitize the shipping industry and all the documentation that goes with it.

## **Amazon is now managing its own ocean freight**

It's the online retailer's latest move to bolster its shipping network.

## **Port of Rotterdam teams up with IBM to digitise operations using IoT**

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# Lots of new digital initiatives at the Port of Rotterdam

# BlockLab

Blockchain for  
Energy and Logistics



Lab for Blockchain projects



Start up accelerator



IoT platform with IBM



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# Digital Business Solutions

- We need to take ownership for the development of IT solutions with real business value. As a trustworthy and independent player in the port that can play a directive role.
- Own product development helps to connect effectively to digital trends that impact global logistics and port sectors. Deliver digital solutions, data services and support.
- Current and upcoming challenges for Ports will not be solved by IT suppliers. In-depth knowledge of port operations is necessary to develop the right solutions.

**CONNECT. OUTSMART. DELIVER.  
MAKE IT HAPPEN.**

# LEVEL 1



## Individual automation Goal this step: Eliminate waste for a single port player



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# LEVEL 1



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# Individual automation

The screenshot displays the PORTMASTER interface. The top navigation bar includes 'Visits', 'Billings', and 'Masterdata'. A search bar contains 'ESSEN EXPRESS'. The main content area is divided into two columns. The left column shows a table of arrivals:

Name	ETA	From
ESSEN EXPRESS	2018-04-06 16:03	Busan
NYK TRITON	2018-04-06 16:03	Busan

The right column shows detailed information for the selected ship, 'ESSEN EXPRESS - NLSCE18000097'. It includes sections for 'MEMO DETAILS', 'SHIP DETAILS', 'VISIT DETAILS', 'ARRIVAL DETAILS', and 'DEPARTURE DETAILS'. The 'SHIP DETAILS' section shows a ship image and the following information:

- IMO: 9501370
- Call Sign: DCQP2
- Length: 48.34 m
- Type: CONTAINER SHIP
- Capacity: 142295 t
- Beam: 366.42 m
- Depth: 15.5 m

The 'VISIT DETAILS' section includes a 'Call Ref No' field, an 'Agent' dropdown, and 'Last port of call' (Busan) and 'Next port of call' (North Vancouver) dropdowns. The 'Purpose of visit' section has several checkboxes: Discharge (checked), Loading (checked), Bunkering, Repairs, other, and Disposal of Waste.

## Port Management System



## LEVEL 1



**Security :Crucial element in this phase (all phases) directly: How to keep your systems and operations safe as a port?**

### **What do we suggest you have to do?**

- Security by design
- Continuous security testing (automated)
- Safe hosting by trusted partners
- Testing and educating the maturity of developers
- SecDevOps



### **How do we check that we are doing this?**

- Bug bounty (involve ethical hackers)
- (Human) Code review
- Vulnerability scanning (Technical)
- Continuous scanning
- Pentesting(code) of products always before launching
- Security operations center (identity abuse of potential attempts of infringement)
- Team of security officers full time working on cybersecurity

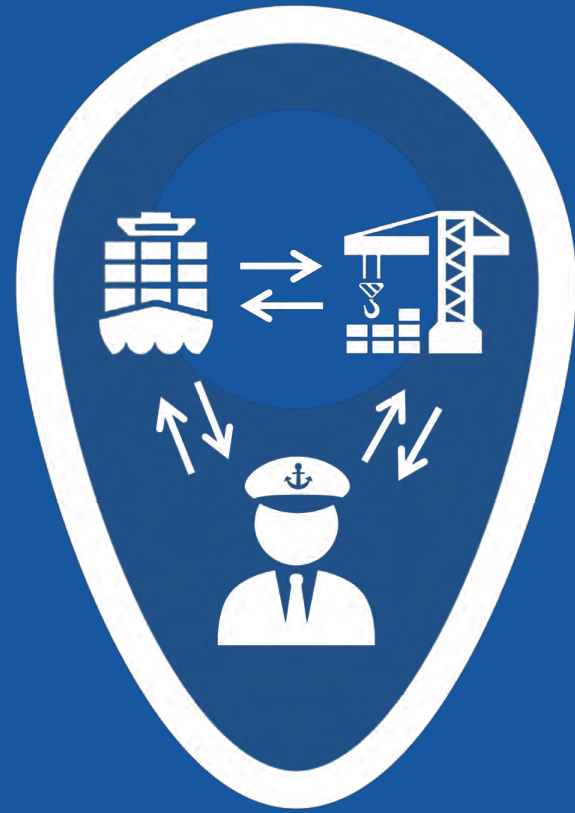
**Slogan of our security team: *We build it, we run it, we protect it***

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## LEVEL 2



# Integrated systems within the port community

Goal this step: Eliminate waste in the whole Port Community

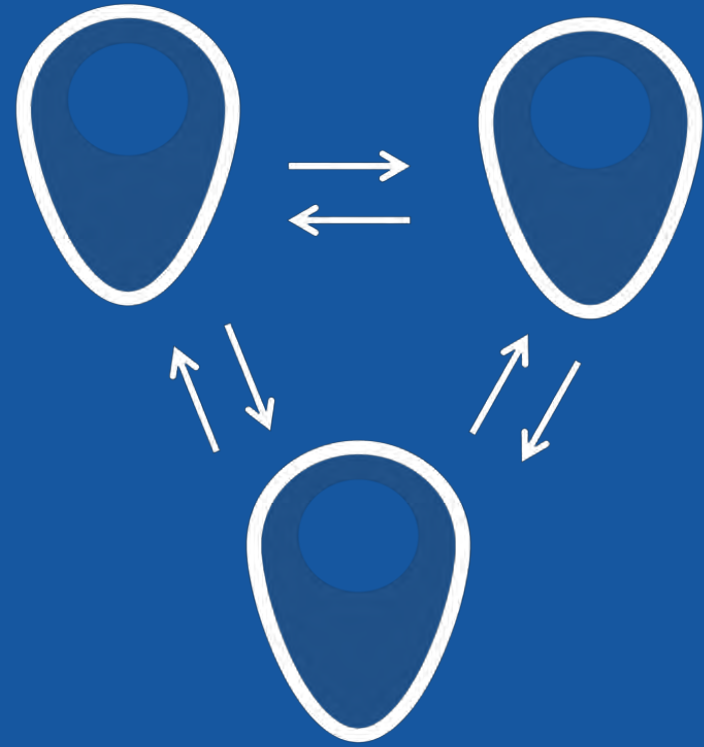


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# LEVEL 3



# Integrated systems from port to hinterland

Goal this step: Eliminate waste from the port to and from hinterland

**London , Verenigd Koninkrijk**  
**Düsseldorf , Duitsland**

579.68 km  
256.15 kg CO2  
Notice: no transfer time calculated

- London, UK**  
London  
48.41 kilometers  
45.02 kg CO2
- London Gateway Port** >  
London GB  
[United Arab Shipping Company \(UASC\)](#) >  
[CNC Line](#) >  
258.22 kilometers  
77.47 kg CO2  
Transit time: 12 hours
- Port of Rotterdam** >  
Rotterdam NL  
20 kilometers  
18.6 kg CO2
- APM Terminals Maasvlakte II b.v.** >  
Maasvlakte-Rotterdam NL  
[European Gateway Services](#) >  
242.99 kilometers  
105.7 kg CO2  
Transit time: 24 hours

Search for a company or connection to/from Rotterdam

**Navigate**  
Find, search and compare connections with operators, terminals and companies in the ports all over the world.

60 Global ports   800 Terminals in Europe   1200 Connections to and from Rotterdam   1647 Companies in Rotterdam   [DISCOVER ALL](#)

Terminal   Operator   Company   Depot

Supply Chain Route planner  
Navigate

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# SMART PORT

# Global connected ports and logistic chain

## Goal this step: Eliminate waste in end to end logistic chain

The image displays a complex port management system interface. The top section features a map of the port area with several ship arrival callouts. Each callout includes the ship name, destination, and estimated time of arrival (ETA). For example, 'AMETHYST' is arriving from 'RST NZ' on '09 Apr 20:15'. Other ships listed include 'ADVANTAGE ATOM', 'STENA HOLLANDI...', 'TIDE NAVIGATOR', 'AUTUMN', 'FLUVIUS PLYM', and 'PUCCINI'. A search bar is available for finding specific ships.

The bottom section shows a detailed terminal view with a table of ship arrivals and a timeline of operations. The table lists ship names, berths, and various status indicators. Below the table, a timeline visualizes the sequence of operations for a specific ship, including 'Inbound', 'Maatwerk Pembroke / Alongside', and 'Outbound' phases. Operations include 'LRR / Pilot on Board', 'Kotlag / 3 Tugs', 'APMT / Cargo operations', 'VT-Tankers / Bunkers', and 'Binn-Maats / Cranes'.

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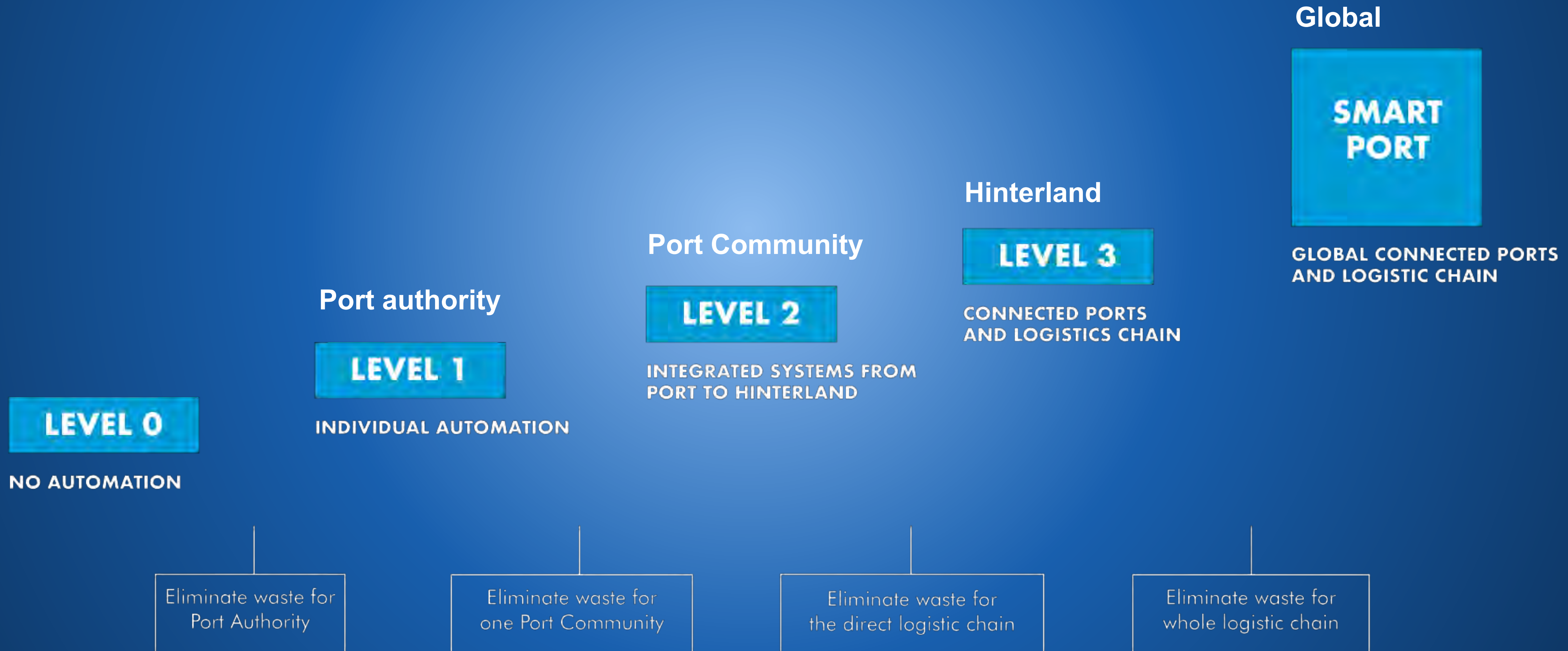


Paul Smits (CFO Port Of Rotterdam) `We will share data with the Port of Antwerp`.

# Recap presentation+

## Port of Rotterdam vision levels of digitalisation of Ports

Where are you at the moment? And what is your ambition?



# Portfolio DBS: levels of maturity digitalisation



1 individual automation

2 integrated system in the port

3 integrated system port to hinterland

4 integrated system end to end

# Digitalise? Step by step... New technology will also change the way we work

Let's share ideas!



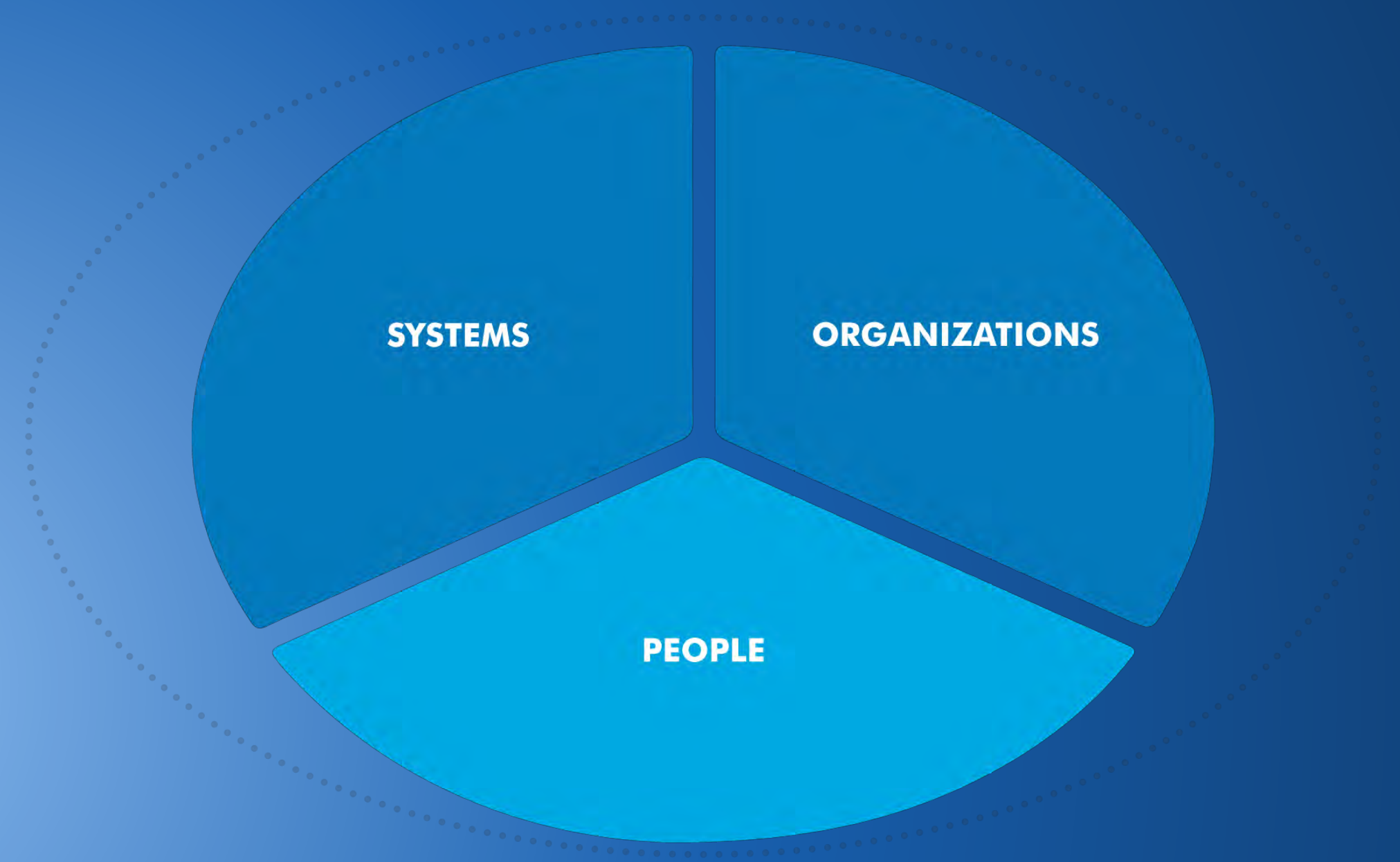
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