IPCSA
International Port Community Systems Association

PORTNET
الشباك الوطني الوحيد لتبسيط مساطر التجارة الخارجية
GUICHET UNIQUE NATIONAL DES PROCÉDURES DU COMMERCE EXTÉRIEUR

IPCSA Foresight workshop in Casablanca

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IPCSA Foresight workshop #2
“Dealing with unpredictability in a predictable fashion”

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I Introduction

What does the future hold for Port Community Systems, Single Windows and the ports and shipping sectors they serve? Potential scenarios and their implications for business were examined by participants in the second of three Foresight workshops organised by the International Port Community Systems Association (IPCSA).

The intensive two-day workshop, held in Casablanca, was hosted and sponsored by Morocco's Single Window operator, Portnet. **Youssef Ahouzi, CEO of Portnet**, said: "We were very happy to host this important Foresight workshop. This followed the first Foresight workshop held in Dubai, which explored the dynamics and drivers of change, discovering issues and understanding high-impact uncertainties. In this second workshop, we had a very intensive investigation of various scenarios, with excellent insights which helped us to consider how businesses can stay relevant and develop services for customers."

The workshop was facilitated by **Will Sambrook of Akenham**, using the Copenhagen Institute for Futures Studies' (CIFS) Strategic Foresight framework. On day one, the format took critical issues identified from the Dubai workshop, and encouraged participants to explore potential scenarios, evaluate their implications for business in the light of current global tensions and the rapid pace of change, and build pictures of 'potential futures'. On day two, the focus was on identifying strengths, weaknesses, opportunities and threats from the scenarios that could make the biggest impact on PCS and Single Window operators, and gather ideas and proposals for strengthening operations to deal with these challenges.

Javier Gallardo, Chairman of IPCSA and CEO of Portic (Spain), said: "The Foresight workshop led to some very intensive discussions and debates as we tried to anticipate what is going to happen and how it will be important for our industry. We don't know where we will arrive because the world is unpredictable, but we worked to explore different potential scenarios and evaluate probabilities."

Day 1 "Responding to Unexpected Challenges and Presenting the Critical Issues in Global Trade and Logistics"

II Executive Summary Day 1

Day I of the IPCSA Foresight Workshop commenced with a focus on crisis preparedness before transitioning to the formal presentation of nine critical issues impacting global trade and logistics.

2.1. Blackouts and Beyond: Responding to Unexpected Challenges

The workshop initiated the day with a presentation by Javier Gallardo, IPCSA Chairman/CEO of Portic, who used the recent power blackout in Spain and Portugal as a practical example to discuss managing unexpected challenges. The core message underscored that **strategic approaches, including robust contingency plans, are paramount** over reliance on technology. Effective management strategies highlighted included maintaining focus, separating facts from emotions, clear communication, and continuous learning. The discussion revealed the profound challenge of securing reliable information, noting that the absence of internet during the blackout prevented the spread of "fake news," making trusted sources like radio essential. Participants expressed concerns regarding the widespread **over-reliance on technology**, suggesting that society adopt more traditional preparedness methods, as current disaster recovery plans often fail to address prolonged infrastructure unavailability.

2.2. Presentations of the 9 Critical Issues

The remainder of Day I introduced nine critical issues, each defined by two opposing future polarities:

1. **Access to Information/Ownership of Data:** This issue explores the tension between restricted data sharing (due to privacy, security, and potential monetization) and open data sharing necessary for efficiency and innovation. Portbase adopted a **hybrid model** where essential operational data remains freely accessible, while specific datasets can be controlled and monetized by the owners.

2. **Means of Transport:** Polarities ranged from the dominance of traditional transport (maritime, air, rail, road) with ports acting as **facilitators**, to the emergence of newer means (drones, hyperloops) where ports evolve into **orchestrators**. Significant concern was raised regarding the potential for **monopoly behaviour** and loss of neutrality resulting from major carriers acquiring ports and terminals.

3. **Digital Designs vs. Transport of End Products:** The discussion centered on 3D printing, highlighting a potential "hybrid model" where raw materials ('dust') are shipped for local assembly. Experts emphasized that mass manufacturing remains unfeasible due to cost. A crucial risk is the potential lifting of the **WTO duty moratorium** on e-commerce, which would impose tariffs on the electronic transfer of 3D printing designs and constrain global development.

4. **Technological Advancement:** Riasat Ali highlighted the accelerating pace of change driven by AI, Digital Twins, and the "revolution" of **quantum computing**. Key coping strategies involve integrating IT and OT systems, **upskilling the workforce**, and maintaining a proactive cybersecurity posture.

5. **Data Governance and Ownership:** This issue addresses balancing **Regulated Transparency** with Unregulated Use. Governments were defined as **custodians** of data, not owners. Practical examples, such as the Asian e-commerce platform supply chains, illustrated how unregulated environments lead to severe data degradation, creating an "absolute nightmare" for customs clearance.

6. **New Financial Settlement Order/Rules:** The focus was the profound transformation of the financial system. Polarities described either the continuation of the traditional system anchored by Dollar hegemony or a fragmented, multipolar system reliant on regional financial zones and a strengthened real economy. Uncertainty exists regarding the management of volatile tariffs and the potential redefinition of an "asset" to include resources like water or critical minerals.

7. **High cost vs low cost Energy & Resources:** Uwe Liebschner argued that this issue must encompass water, raw materials, and skilled labour, not just electricity costs. High costs drive production fragmentation. The immense and growing energy demands of AI were noted as a critical environmental and cost conundrum.

8. **Policy/Regulation:** Mona Swoboda presented the tension between a **Predictable Globally Regulated** framework (stability, lower costs, efficiency) and an **Uncertain Open Market** (fragmented regulations, protectionism). Geopolitical situations drive trends toward "reshoring" or "friendshoring", necessitating policy flexibility to support digitalisation.

9. **Global Trends in Maritime Logistics:** Jan Hoffmann outlined positive long-term trends in Trade Facilitation alongside the crucial negative trend of **emissions from shipping**. Future transitions include energy shift, vertical integration, volatile tariffs, and further digitalization. The underlying critical question remains: **Is there a trade-off between controls and trade facilitation?**

III Blackouts and Beyond: Responding to Unexpected Challenges

Presentation by Javier Gallardo, IPCSA Chairman/CEO of Portic

In his presentation to the Foresight workshop, Javier Gallardo shared his personal experiences, taking the recent power blackout in Spain and Portugal happened on 28th April 2025 as a practical example of responding to unexpected or unpredictable challenges.

The core of his message focused on strategies for maintaining focus and effectiveness under pressure, emphasising that while technology is important, strategic approaches, including robust contingency plans, are paramount. The presentation highlighted structured approaches for managing critical situations, including clear communication, prioritisation of actions, and continuous learning, recognising that even minor issues can have significant ripple effects in complex systems.

Javier Gallardo's Personal Experience with the Blackout:

Gallardo recounted how the true scope of the blackout became clear. Initially, it seemed localized, perhaps just his street or quarter. However, his wife observed no electricity in the entire street, and people listening to the radio reported a total blackout. What they learned during this event was the interconnectedness of Europe's electricity grid, meaning a major power problem in Spain could force countries like France to disconnect from the network.

He considered it "very lucky that we have no Internet" during the blackout, as this meant there was "no room for fake news". The only way to receive reliable information was from trusted sources like national or regional radio, which were "spreading the news really seriously". He also addressed the cost implications of energy, stating that achieving 100% sustainable and safe electricity would be "unaffordable" and cost "four or five times more" than current rates. Therefore, the focus should be on being prepared for all possible scenarios and events.

The presentation sparked a wide-ranging discussion among participants about how to handle critical situations, covering several key themes:

Reliable Information and Communication:

- Participants noted that the realization of the blackout's widespread nature often came "when your phone is not working".
- Uwe Liebschner highlighted the challenge of securing reliable information during a crisis, especially given the potential for rumors or "fake news".
- Gallardo reiterated the advantage of having no internet in preventing the spread of fake news, making battery operated radio the sole trusted source.
- Mona Swoboda stressed the critical role of governments in leading the narrative, managing the response, and serving as a reliable source of information to prevent confusion.
- Youssef Ahouzi added that communication companies' lack of backup internet links exacerbated problems in accessing information, leading to widespread confusion from fake news.

Over-reliance on Technology and Preparedness:

- John Bescec shared an example where a human error in a software update, mandated by government access to the Microsoft kernel, caused widespread outages for banks, airlines, and communications. He emphasized the need for visibility, backup plans, and redundant systems to mitigate disruptions caused by human error and increasing technological reliance.
- Uwe Liebschner provocatively suggested that society might be too reliant on technology and should consider "stepping back" to adopt more traditional preparedness methods. He noted that grandparents had food and water stocks, unlike many today, and questioned the practicality of generators if fuel is unavailable due to widespread power outages at petrol stations.
- Mona Swoboda echoed these concerns, observing a lack of sustained preparedness following the global pandemic. She highlighted small island developing states as models for disaster risk management, where preparedness is cultural, often involving manual processes that prove advantageous in crises. She also drew on her experience growing up in Honduras with daily power outages, contrasting it with the disorganization seen in European disaster responses.
- Riasat Ali discussed how disaster recovery plans often prepare for short outages but not prolonged unavailability of critical infrastructure. He cited a personal

experience where a data center's extended UPS backup saved operations when the main generator failed.

- Alexandre Sanchez Pérez reflected that while his generation might possess more general knowledge, his grandparents had more vital practical knowledge for such situations.

Strategies for Critical Situations: The discussions resonated with structured strategies for facing critical situations, which involve:

- **Understanding the Situation:** Staying calm, assessing what is happening, identifying potential impacts, separating facts from emotions, and identifying root causes.
- **Prioritizing and Taking Action:** Distinguishing between urgent and important tasks, focusing on high-impact actions (the 80/20 rule), and delegating responsibilities
- **Communicating Clearly:** Being transparent and concise, using facts over speculation, and maintaining a solution-focused approach.
- **Learning and Improving:** Reflecting on what worked and didn't, and developing new procedures or training based on lessons learned after the situation stabilizes.

Ultimately, the workshop recognised that due to **interconnectedness and complexity, even small changes can have "huge impacts".**

IV Presentations of the 9 Critical Issues

4.1.Access to information / ownership of data: Navigating the Balance: Data Sharing and Ownership in Port Operations

Presentation by Stephanie van den Berg Strategy & Innovation Portfoliomanager of Portbase/ IPCSA Sustainability initiative lead

The narrative is framed by two opposing poles: on one side, restricted data sharing, where parties are either unwilling or unable to share information, and on the other side, open data sharing, where parties are willing and able to exchange information freely.

Stephanie van den Berg, Strategy & Innovation Portfoliomanager of Portbase/IPCSA Sustainability initiative lead, highlighted that this topic is central to Portbase's work over the last 20 years.

Key aspects of this issue include:

- **Initial Commitment vs. Recent Challenges**: Twenty years ago, the Portbase community, comprising various parties in the harbor, committed to sharing data and information to ensure efficient port processes and the flow of goods. However, in recent years, data sharing has become a more significant issue, particularly within import businesses and the broader community.

- **Shift Towards Monetisation**: Individual parties, including some terminals, have expressed a desire to monetise their data, viewing it as a tool from which they can earn money. This stance conflicts with the original community commitment that emphasized shared data for efficient harbor operations.

- **The Hybrid Model Solution**: To address this conflict, Portbase, acting as a neutral party, facilitated "data tables" where stakeholders could discuss which data should be shared openly and which could be monetized. This led to the development of an "authority register" that allows data owners to control access, effectively switching data sharing on or off for specific parties. Recognizing that not all data can be subject to such control (as some data is essential for necessary operations), Portbase aligned on a hybrid model of data sharing. Under this model, most data related to port processes within the harbor continues to be shared openly, consistent with the initial 20-year commitment, while other specific data parts can be controlled by owners for potential monetization. Stephanie highlighted: “We have adopted a hybrid model of data sharing. Essential data for port operations remains freely accessible, honoring the commitments made 20 years ago. However, certain data sets can be monetized, allowing stakeholders to manage their data

selectively. This approach addresses the core issue: the tension between the necessity for innovation, transparency, and collaboration through data sharing, and the desire to protect data for privacy, competitiveness, and security reasons."

- **Reasons for Limited Sharing**: The reluctance or inability to share data often stems from concerns such as privacy, competitiveness, and security risks. Some parties prefer to retain control over their data, choosing precisely with whom they share it.

- **Need for Openness**: Conversely, open data sharing is essential for fostering innovation, transparency, and collaboration within the community. This fundamental tension between individual ownership/control and collective benefit for efficiency and innovation is a critical issue.
  This critical issue of data sharing polarities can be cross-referenced with other topics, such as transport, to explore different scenarios.

4.2. Means of transport: Exploring the Evolving Landscape of Transport: Balancing Traditional and Innovative transport infrastructure

Presentation by Nico De Cauwer – Secretary General, IPCSA

Nico De Cauwer, Secretary General of IPCSA, provided the foundational framework for the discussion by outlining two distinct "polarities" for the future of transport infrastructure.

Polarity A: The Dominance of Traditional Means and Ports as Facilitators. This polarity describes the current and expected continuing situation until at least 2040, where sea, air, rail, and road freight remain the dominant modes of global logistics:

- "80% of global goods is maritime transport via sea".
- In this polarity, port environments primarily act as facilitators, efficiently moving cargo from the sea to the hinterland.
- Digital platforms, under this model, mainly focus on providing "transparency and visibility so that people know where the cargo is and when it will reach the destination".

Polarity B: The Emergence of Newer Means and Ports as Orchestrators. This contrasting polarity envisions a future where "newer means of transport play significant role," such as drones for package delivery from ports to end destinations, or underground transport via hyperloops.

De Cauwer suggests that in this polarity,, "containers will maybe not go into the hinterland anymore but containers will just remain within ports, and the cargo is

stripped... and it will be individual packages brought to the destination via Hyperloop zones whatever".

- The role of port environments and digital platforms would evolve from facilitators to "orchestrators," deciding "what is the best means of transport for a certain piece of cargo".
- He acknowledged that while "Drones are being used for you know emergency packages... hyperloops are tested," they are "not on the scale that you will expect for global trade" currently, but there's potential for scalability between now and 2040. He also confirmed that "newly developed ports" are "Not yet at that level" in significantly using these new transport types.
- De Cauwer also emphasised the critical need for "vessel, carriers and the ports to work together much more than they do today" to overcome inefficiencies, noting that an "imbalance" exists where carriers often "dictate when the vessel will come", hindering port efficiency. Furthermore, he highlighted that the acquisition of ports by major carriers could be a "thread" globally for Port Community System (PCS) operators, as these carriers might mandate their own IT systems.

The discussion expanded with crucial perspectives from other participants, delving into the implications of these polarities, particularly regarding ownership, efficiency, and the role of regulation.

On Ownership, Control, and Regulatory Concerns:

- **Will Sambrook** raised pertinent questions about how the acquisition of ports by shipping lines, such as in the UK, might "change how they see ports" and if it would lead to a shift from central infrastructure to a number of smaller and distributed hubs. He further queried, "So what do you see happening there

- when you've got now the ports and the shipping line actually as one and you've got a single company owning the whole supply chain, how does that change things?". He also summarised the dynamic nature of the discussion, stating, "you can see why we are considering 'polarities' here, because we really can't predict which way things will all go, we can only prepare ourselves for future possibilities".

- **John Bescec** questioned the implications of "ownership and... whether it's privately owned controlled or government or let's say another government steps in and doesn't like that you know 1 country's managing the ports what consideration is there" regarding potential penalization of vessels and disruption.

Uwe Liebschner expressed significant "concerns that we are moving more away from neutrality to monopoly behavior" when shipping lines acquire significant shares or take over ports and terminals. He cited the example of the Hamburg Harbour and Logistics Company (HHLA), where the government's 100% ownership has shifted, leading to dependency on a few big players. He also noted that "Northern America's a wonderful example for this thing isn't it" regarding these ownership issues.

- **Steve Lamb** provided insight into the acquisition by MSC of a major port in the UK, stating that it was "a superb play by them - this completely compliments for the services they offer and they've invested heavily in the UK". He suggested that "the customer will benefit massively from that because it's not fragmented and they're providing A cradle to grave assets". However, he also posed a critical question regarding the need for oversight: "Is that not where regulation regulatory should put things in place to prevent this sort of thing".

On Efficiency Challenges and Opportunities:

Tarik Maaouni highlighted a "huge time that are lost... by the maritime industry," citing delays at ports, even the most efficient ones, leading to "costs that is supported by the customer" and environmental impact. He suggested that there "could be quite an opportunity to imagine some new way of synchronization between maritime ships and ports" and that Port Community Systems (PCS), as main digital platforms, "could play the role in that evolution".

Steve Lamb identified a main cause of inefficiency as the "first for volume in the ports without having the infrastructure behind to deliver that," leading to bottlenecks and an inability to deliver products effectively to the hinterland. He stressed that "the infrastructure should be there and not somebody saying we want volume we want more profits if you can't deliver it at the other end".

- **Uwe Liebschner** suggested a practical improvement by asking, "what's about the navigation data of each and every vessel is that possible to integrate that or to get that data to have it in in the PCs as a service to hand it over to terminals to report yourself to make planning for birthing and so on improving that situation". This would allow for better planning when a vessel is approaching, not just when it has arrived.

- **Nico De Cauwer** further clarified the efficiency problem, noting that even with vessel arrival information, "unloading 23000 containers takes you around two days". He pointed out the significant issue for lorry drivers: "The problem is not that much the vessel, but where is my cargo"

4.3. Digital Designs vs. Transport of End Products: A Comparative Insight

Presentation by David Roff – Industry expert, CIF Consulting Limited

During his presentation at the IPCSA Foresight workshop, David Roff, an industry expert from CIF Consulting Limited, discussed the evolving landscape of 3D printing, focusing on its potential as a niche innovation versus broader adoption in manufacturing and its implications for trade and tariffs.

David Roff's insights highlighted a potential shift towards a new manufacturing paradigm and changing perceptions of 3D printing:

Hybrid Manufacturing Model and Local Assembly:
He recounted recounted an article about a trip to Oman where a "box of dust" was shipped to print and assemble a Land Rover engine locally. He also mentioned observing a full-size sports motorbike that was fully functional, though the engine's

operation was unclear.

- Roff noted that at the time, shipping raw materials, or "the dust," typically attracted a much lower tariff than finished products. However, he also acknowledged that these tariff points "may switch in the future," influenced by market developments.
- He proposed a "hybrid model" for manufacturing, suggesting that large components or "big chips" could be printed and assembled more locally. He pointed out that the automotive industry already utilized large 3D printers for prototyping, indicating a potential for this to extend to more common car parts in the future, depending on time and other factors.

Generational Shifts and Accessibility:

- Roff observed a significant generational shift in the perception and adoption of 3D printing. He shared an example from his daughter's high school where a group of 12-year-old boys, given £10 for an entrepreneurial challenge, created and sold 3D-printed fidgets and made £800, describing it as a low-cost and exceptionally easy entry point.
- This observation suggested that the idea of simply "print your design when you need it" could become more commonplace, moving 3D printing beyond being perceived as "a bit gimmicky for kids" or a niche technology.

The discussion was further enriched by crucial perspectives from other experts regarding the limitations and challenges facing 3D printing, particularly concerning trade and customs.

John Bescec (Chair, ICC Global Customs and Trade Facilitation Commission):

- **Manufacturing Scale and Cost Factor:** John Bescec firmly stated that 3D printing was not feasible for mass manufacturing on a large scale, nor was it likely to be, due to the substantial cost factor involved. He explained that companies prioritize minimizing per-unit cost, which 3D printing could not achieve for mass consumer products, thus limiting its application to "special cases and circumstances".
- **Data Control, Security, and Tariffs on Digital Designs:** Bescec emphasised that the control of data across borders became "even more critical" with 3D printing, citing concerns such as the 3D printing of guns that customs authorities had previously focused on. He posed the fundamental question of "who do you entrust with the data".
- He also highlighted the crucial role of the **WTO duty moratorium on e-commerce**, which, at the time, still prevented tariffs on electronic means of transfer. However, Bescec noted that this moratorium was periodically reviewed, and "fewer and fewer countries" were willing to support it. He warned that if this moratorium were lifted and tariffs were imposed on the electronic transfer of 3D printing designs, it would inevitably increase costs and "reduce the potential for further development" globally. He drew a parallel to the significant surge in global development that followed the WTO's Information Technology Agreement, suggesting that data should be viewed similarly to avoid constraining progress.

Uwe Liebschner (Customs Lead, IPCSA/Kale Logistics):

- **Industry Specificity:** Uwe Liebschner offered an important perspective on the varied applicability of 3D printing across different sectors. He asserted that it was not a universal solution, explaining that one "can't go out and say OK we are replacing the textile consignments from Bangladesh by going for 3D printing". Instead, he suggested that 3D printing offered "more possibilities and interest in certain branches or certain industries," such as pharmaceuticals, compared to others. He did not foresee it having a "comprehensive success for the marketing" across all sectors.

In conclusion, while David Roff presented exciting opportunities for a hybrid manufacturing model and generational shifts in production, the broader global adoption of 3D printing was understood to be significantly shaped by complex factors. These included evolving tariffs on raw materials, and critically, the potential imposition of tariffs on digital designs. The need for robust data control, security, and the technology's industry-specific viability were also recognized as key considerations that would dictate its future trajectory.

4.4. Navigating the Dualities of Technological Advancement: Coping with Change vs. Lagging Behind

Presentaion by Riasat Ali, Group IT Services Manager of RAK Ports

Riasat Ali emphasised the rapid pace of technological change and its significant role across all industries, including ports and logistics. He noted that the maritime industry was actively adopting new technologies, with "transformation" being a pervasive buzzword. The concept of "Port 4.0," evolving from the Industry 4.0 paradigm, was being explored by ports. He highlighted that ports that failed to adopt new technologies could face existential challenges.

He specifically mentioned several emerging technologies:

- **Artificial Intelligence (AI) and Machine Learning (ML)** were becoming integral to various operations.
- **Digital twins** were being implemented in many ports, with their practicality depending on specific use cases.
- **Quantum computing** was described as a "revolution" due to its tremendously increased processing power, drastically reducing the time for changes from years to months and weeks, indicating an exponential growth in the pace of technological advancements.

Riasat Ali then posed a critical question: were organisational structures built to adapt to this accelerating pace of technological change?. He outlined **six key strategies for coping with technological advancements**:

- **Regional Level of Adoption:** Technologies should be scalable to allow adoption by both advanced and less technologically developed countries.
- **Integrated Innovation Ecosystems:** New technologies, while innovative, needed to be integrated, offering opportunities for those who could cope with the changes to use them in a cohesive manner.
- **Predictive Operation Capabilities:** AI and ML could provide tools for better decision-making, such as predicting vessel arrivals to improve preparedness.
- **IT and OT Architectural Integration:** Achieving seamless integration between operational technology (OT) and IT systems was crucial, as OT often operated in silos, posing a challenge for data ingestion into port community systems.
- **Workforce Transformation Strategies: Upskilling and reskilling the workforce** were deemed essential, as even the most advanced technologies would be ineffective if the workforce was unprepared to use them.
- **Proactive Cybersecurity Posture:** This was considered a "no-brainer," as failing to proactively manage cybersecurity could turn the latest technology into a disaster for organizations.

Riasat Ali further illustrated the speed of customer expectations by recounting an instance where a client questioned a software developer's three-to-five-year technology roadmap, expecting new versions in one year or even less, driven by the emergence of smart technologies and quantum computing. He reiterated the importance of adoption and training, especially in volatile markets like Dubai, where customer expectations meant solutions needed to be delivered much faster than traditional timelines. He also noted that **regulations**, which could be country-specific or even emirate-specific (as in GCC countries), or factors like unionized environments, could impact technology adoption.

Following Riasat Ali's presentation, several other contributors offered their insights:

- **Will Sambrook** raised questions about the future relevance of Port Community Systems (PCS) if technology outpaced them. He asked what potential triggers might lead to PCS being superseded by other systems, rather than remaining the "system of the future".

- **Steve Lamb** shared that an external penetration test company had flagged **quantum computing** as a massive concern, a point his technical team had initially dismissed. He expressed being "terrified" by Riasat Ali's remarks on quantum computing and mentioned the growing threat from agile, disruptive market players offering specific, cost-saving solutions in areas like customs, which could fragment comprehensive total packages offered by companies like MCP.

- **Uwe** discussed the paradox of customer expectations for rapid technological readiness versus the reality of broader industry readiness. He questioned whether it was more "humble and patient" to act with an overall solution in mind, acknowledging that other players might need five years to be ready, rather than promising one-year readiness when full connectivity and data

exchange with all parties were essential for a comprehensive service. He also highlighted the challenge of data exchange when other parties in the supply chain were not ready.

- **Tarik Maaouni, Chief Information and Digital Officer at Agence Nationale des Ports (ANP), Morocco's National Ports Agency** focused on the human element of technology adoption, questioning how to help people use technology and perceive it as useful. He noted that many people lacked interest or time, emphasizing the need for **education** to overcome resistance to change.

- **Mona Swoboda** concurred with ANP, stating that **effective communication of the benefits** of using technology was crucial to encourage adoption. She also suggested that this drive often needed to come from the top and that policy and regulation played a significant role in technology adoption.

- **John Bescec** underscored the importance of identifying the **problem statement** that technology was intended to solve. He cautioned against "jumping on the bandwagon" for exciting technologies like AI without a clear purpose, stressing the need to address specific needs. He also referenced the challenges with "closed systems," like those seen with investments in blockchain, advocating for "open systems" for effective implementation

4. 5. Data Governance and ownership/Balancing Data Governance: Regulated Transparency vs. Unregulated Use

Presentation by John Bescec, Chair of the International Chamberof Commerce (ICC) Global Customs and Trade Facilitation Commission (Canada)

John Bescec's presentation addressed the critical topic of **data governance and ownership**, emphasizing the challenge of balancing regulated transparency with unregulated data use.

John highglihted the folowing Key Findings and Outcomes:

- **Customs' Data Demands and Cost:** Bescec noted that customs administrations continuously sought more data, but he underscored that every data element had a **cost**, making its management expensive. He stressed that the focus should be on gleaning key information rather than simply accumulating data.
- **Data Ownership vs. Custodianship:** He clarified that governments were not the owners of data provided by companies; instead, they were custodians entrusted with managing it properly and effectively. He emphasized that being in possession of data did not grant the right to use it however one pleased, highlighting the necessity of legal frameworks.

- **Trust as a Critical Factor:** Bescec pointed out that trust was a fundamental factor in data sharing. Unlike physical documents, data could be misused with severe consequences, especially if sold or provided to competitors, potentially leading to businesses losing their competitive advantage and even failing.
- **Polarities of Data Governance:**
  - **Regulated Transparency**
  - **Potential Advantages:** Bescec highlighted tremendous benefits such as market efficieny, increased transparency (e.g., distinguishing real from counterfeit products), improved accuracy and reliability of data, and the potential for standardization. He also mentioned that upfront investment in ensuring data correctness was crucial for sustainability.
  - **Potential Disadvantages:** He cautioned that **excessive regulation could add significant complexity and cost**, potentially stifling innovation. He questioned whether regulations met only government needs or also served customer and business needs, suggesting that a lack of balance could make them unsustainable and prohibitive.
- **Unregulated Use:**
  - **Risks:** Without regulation, Bescec questioned the trustworthiness and reliability of data, noting that data provided one day might not be consistent the next. He stressed the inability of humans to monitor data breaches effectively due to the sheer volume of information, advocating for the use of AI to monitor transactions. Unregulated environments could also create market inefficiencies and raise significant legal risks and ethical concerns.
  - **Advantages:** He acknowledged that less regulation could offer flexibility and foster innovation, but maintained that moderated regulation was essential to enable the business community to grow and thrive.
- **Government's Role and Public-Private Partnership:** Bescec asserted that companies, not governments, were the generators of revenue for a country. He concluded by emphasizing the need for data to be trusted and for an upfront investment, in partnership between the private and public sectors, on how data would be managed, used, and shared.

Uwe Liebschner (Customs Lead, IPCSA/Kale Logistics) provided a practical example from the e-commerce sector to illustrate the issues arising from **an unregulated data environment, particularly regarding data quality.**

- **The Asian e-commerce platform Example:** Liebschner cited the aggressive expansion of the online Asian e-commerce platform supply chains into markets like North America and Europe. He explained that while the initial product data from the Platform (e.g., descriptions, materials) was accurate, problems arose when the data was handed over to a logistics service provider in China.
- **Data Quality Degradation:** He observed that the logistics provider, in consolidating consignments, would somehow "destroy" the initial high-quality data, resulting in 70% to 80% of declared e-commerce consignments arriving in the EU with incorrect **data** for import declarations. This often involved crucial elements like commodity codes, leading to an "absolute nightmare" for customs clearance.

- **Impact on Customs and Business:** This data degradation slowed down the customs process significantly. For instance, German customs would not release a huge number of consignments from warehouses until the correct original data from the Platform was provided, causing delivery delays.
- **Call for Political Intervention:** Liebschner recounted an experience where he Platform, as a company, dismissed concerns about data quality from a broker, stating they were "fine" and "had everything under control." This led him to urge politicians, specifically through a meeting with an EU Parliament reporter for customs matters, for political intervention to make countries like China aware that such data destruction in the flow was unacceptable globally.
- **Shift in Customs Data Acquisition:** He also highlighted a concerning trend where customs administrations were moving away from legal provisions requiring declarants to lodge declarations (a "push" model). Instead, they were increasingly keen to "grab the data whatever they find" (a "pull" model) from various steps in the process. Liebschner warned companies to secure their data flow to prevent governmental entities from grabbing incorrect data and holding them responsible for payments. He echoed John Bescec's point that customs required more and more data, but questioned how this would be sourced technologically.

4.6. New financial settlement order / rules/ Digital Currency vs. Traditional Currency: Navigating New Financial Settlement Paradigms

Presentation by Magdalena Rzeczkowska, Deputy Chair of the Federation of Polish Entrepreneurs

Magdalenas initial reflection challenged the workshop's original framing, suggesting that the critical issue was not merely a "new financial settlement order" but rather the **entire financial system itself—how it was organized, how it functioned, and whether it truly supported economic development and global open trade**. She considered this complex system to encompass settlements, financial institutions, the increasing financialization of the economy, and the flow of money, noting that it was undeniably undergoing a significant format change.

Magdalena observed that the US administration was attempting to achieve conflicting objectives through the financial system, such as bringing production back home and reducing national debt, by fundamentally altering its operational role.

She articulated two contrasting polarities that described the potential trajectories of the international financial system:

Polarity 1: The Traditional Global and Single International Financial System:

- This system, which had largely functioned until recently, was characterized by strong links and dependencies between domestic and global financial markets, leading to financial integration.
- It featured the diversification of applied exchange regimes and a more financialized economy, where the financial system significantly influenced the real economy.

- Dollar hegemony was central, with the US dollar serving as the key global currency with far-reaching influence.
- It allowed for free capital and goods flows, utilizing traditional currencies, a single settlement system, and generally known and followed rules.

Polarity 2: The Diversified International Financial System (or Multipolar System):

- This emerging trajectory suggested a move away from a single global model, featuring multiple "donors" rather than a single set of rules, leading to a disintegration and fragmentation of the financial system.
- Such a system could be led by different alliances and would see a decreased importance of international financial institutions and the laws/rules that governed a single system.
- A key characteristic was the regionalization of world finance, with zones or areas based on regional or international currencies.
- This system would likely result in limited free and global flows of capital and growth
- Significantly, Magdalena noted it might also mean a return and strengthening of the role of the real economy and real economic processes, such as production relocating back to specific regions.
- She also pointed to modern trends within this potential future, including customer-centricity, digital transformation, and AI integration. The rise of digital cryptologies and regional settlement systems, especially without unified regulation, would present significant management challenges for free trade.

Magdalena conveyed her **uncertainty about the ultimate direction of these changes**, expressing concern that strong state intervention in the financial order could lead to a **financial crisis**, which would be detrimental to all businesses. She emphasized that the **quality of data was crucial for banks to assess risks**, as banks were inherently risk-driven institutions.

The discussion expanded with significant contributions from other workshop participants, further highlighting key findings and outcomes:

- **John Bescec**, Chair of the ICC Global Customs and Trade Facilitation Commission, pointed out the current inefficiency in trade financing due to "so much manual transposition from papers to digital that the banks are still doing today". He noted that past attempts at digitalization had failed due to a lack of common agreement, but he now observed more support as banks were beginning to agree on solutions involving pulling data directly from company systems into banking systems using accelerators and algorithms. The ultimate goal was "more digitalization, more automation all with the idea of providing trade financing sooner for the company so that they can get paid so that they can invest further in capital and product development". He acknowledged, however, that the impact of future government regulations on banks remained an unknown.

- **Uwe Liebschner**, Customs Lead at IPCSA/Kale Logistics, profoundly questioned the future definition of an "asset." He asked, "for me it's more the question shouldn't we think when we look into the future what is an asset so maybe at the end of the day we are ending up in 10 years time, for instance, that the ownership of water is a valuable asset and not currency or financial numbers on bank accounts“. This suggested a potential return to a system akin to medieval bartering, where the ownership of essential resources could become the primary form of value exchange. Magdalena agreed with this perspective, noting that control over raw materials and critical minerals already conferred power and influence, making access to these resources a strategic imperative beyond just financial considerations, as evidenced by the European autonomy strategy.

- **Tarik Maaouni, Chief Information and Digital Officer, ANP** raised significant concerns about the impact of uncertain and frequently changing customs tariffs on e-commerce and general trade. He questioned how businesses could price goods and make long-term contracts when tariffs could change drastically and unexpectedly, impacting profitability. He asked, "if there's not something to think about the way speak about money digital value of things is very intriguing about how the ecommerce business will go with this situation" and suggested that port community systems might play a role in managing and exchanging this crucial information. Magdalena reinforced that this was not solely an e-commerce issue, but a fundamental challenge for any producer relying on imported components and needing certainty for planning production and pricing.

The presentation highlighted that the global financial system was undergoing a profound and uncertain transformation, with potential shifts towards either a more fragmented, multipolar world reliant on regional systems and real assets, or a continued evolution of the global system with advanced digitalisation.

The key outcome was the collective realisation of the **critical need for understanding and adapting to these changes, ensuring data quality, and addressing the immense uncertainties introduced by shifting trade rules and the very definition of value** in a future that might look significantly different from the past.

4. 7. Energy & Resources: Balancing the Costs and Availability of Green Energy

Presentation by: Uwe Liebschner – Customs Lead, IPCSA/ Kale Logistics Solutions

Uwe Liebschner's presentation " focused on challenging and expanding the conventional understanding of "energy and resources" as a critical issue.

Liebschner began by expressing his initial struggle and confusion with defining "high cost/low cost and availability of green energy" as the sole polarities for the "energy and resources" discussion. He argued that such a generalized approach is problematic for an international association because energy costs vary significantly across different regions (e.g., high costs in Europe versus lower costs elsewhere), making a global standard for "high" or "low" impossible.

He highlighted several key points:

- **Beyond Electricity Costs**: The discussion must move beyond just power and electricity costs. Liebschner emphasized that "energy and resources" should encompass a wider range of critical factors, including water, raw materials, and labor or skilled labor. All these critical issues are interconnected, meaning a change in one will invariably impact the others.
- **Fragmentation of Production Due to Costs**: High energy costs, particularly in advanced economic areas like Europe, can motivate companies to fragment production processes. This leads to shifting activities and production to regions where energy costs are lower, creating an advantage for those areas.
- **Innovation as a Double-Edged Sword**:
  - In situations of high cost and low availability of green energy and other resources (Polarity A), innovation is driven towards saving resources and making processes more sustainable.
  - However, if there is low cost and high availability (Polarity B), innovation can be perceived as less critical, as there's less incentive to save energy or water when resources are cheap and abundant. Liebschner presented this as a "so and so" topic for discussion, highlighting the complex nature of innovation's role.
- **The AI Conundrum**: A significant point raised was the intersection of technology, particularly AI, with energy and resources. While AI is seen as a tool for monitoring and controlling flows, there's a critical environmental cost:
  - **AI currently requires an amount of energy equivalent to the whole of Japan**, and this demand is only just beginning to grow.
  - Liebschner stressed the need to consider where energy will be available, in what quantities, and at what price, as more complex AI solutions are developed.
  - He cautioned against a "let's go for AI for everything" mentality, similar to past trends with blockchain. Instead, there needs to be a clear understanding and awareness of the purpose for which AI is being used and whether an AI solution is truly warranted.

Will Sambrook underscored the importance of this discussion, stating that it would be a "big discussion" if chosen as a critical issue for future consideration. He particularly highlighted that **the cost of technology, the cost of AI, and the availability of resources** have a "huge, huge part to play" in this broader issue.

4.8. Policy / regulation : Navigating the Tension Between Global Regulation and Open Market Dynamics

Mona Swoboda – Program Manager Inter-American Committee on Ports (CIP) Organization of America States (OAS)

Mona Swoboda highlighted policy and regulation as a critical and cross-cutting issue within the maritime industry, arguing that it plays a fundamental role in shaping the framework of shipping and maritime trade. She suggested that it is the "foundation of many of our operations" and can either "impede or bolster the pace of innovation and digitalisation".

Mona outlined two main polarities concerning policy and regulation:

- **Polarity A: Predictable Globally Regulated**
  - This framework is characterised by stability and reduced uncertainty, which allows for better planning and investment.
  - Key benefits include efficiency due to standardised operations, lower costs from harmonized rules and reduced delays, and the encouragement of fair competition.
  - It fosters trust in the supply chain due to predictability and supports long-term innovation.

- **Polarity B: Uncertain Open Market**
  - This is marked by fragmented regulations, leading to uncertainty and different countries adopting divergent rules, which complicates compliance.
  - Mona also highlighted protectionism risks, including restrictions and tariffs that can negatively affect trade routes and market access.
  - Ultimately, an uncertain open market can lead to reduced investment because of unpredictable returns.

Mona emphasised that as the maritime industry moves towards a more digitalized environment, policy and regulation should remain flexible and evolve accordingly to support these digitalization efforts.

Contributions from other participants reinforced and expanded upon these ideas:

- **Will Sambrook** discussed how geopolitical situations and trade policies significantly affect trade flows, citing examples like the Panama Canal, Red Sea, and the Ukraine conflict. He also presented a polarity between a "highly global integrated trade" world with broad supply chains versus a "protectionist and fragmented world" characterized by "reshoring," "friendshoring," and

"nearshoring," and shorter supply chains. This directly relates to Mona's concerns about fragmented regulations and protectionism.

- **Uwe Liebschner** highlighted the practical challenges of "compliance" for players in global supply chains, noting that while companies might comply with local legislation, adhering to global rules (e.g., US sanctions) becomes complex, especially when governments themselves appear to ignore certain rules. He underscored the risk businesses face by not following or ignoring rules outside their immediate jurisdiction, emphasizing that legal departments are often unaware of these global complexities. This directly illustrates Mona's point about "complications in compliance" arising from fragmented regulations.

- **Nico De Cauwer** identified policy and regulation as a key polarity (number 9), which was considered alongside the ability to cope with technology (polarity 4/7) as a second choice for discussion, reinforcing its importance as a cross-cutting theme.

- **David Roff** mentioned that his group analysed "policy regulation versus trade flows" as a primary focus. He observed a shift from a "predictable and trade flows no changes" scenario, as discussed in a previous workshop, to the current reality of "uncertain changes to trade flows," aligning with Mona's move from Polarity A to Polarity B. David Roff also pointed out the need for technology to be in place to address new financial assessment rules and digital currencies, further supporting Mona's call for flexible and evolving regulations to support digitalisation

4.9. Global Trends in Maritime Logistics: Past, Present, Future

Presentation by Jan Hoffmann, the Global Lead for Maritime Transport and Ports of the World Bank

Jan Hoffmann, the Global Lead for Maritime Transport and Ports at the World Bank, took the virtual stage at the IPCSA Foresight workshop. His presentation, titled "Global Trends in Maritime Logistics: Past, present, future?", promised an insightful journey through the complex world of global shipping.

Hoffmann began by sketching "The story so far", highlighting a landscape with both positive and negative long-term trends. On the optimistic side, he pointed to overall positive long-term trends visible in Trade Facilitation indicators of WTO and OECD, the UNCTAD TrainForTrade port network KPI, UN surveys on cross-border trade, ASYCUDA case studies, Time in port AIS data, CIF/FOB ratios, LPI time series, port handling KPIs, and port modernization and private sector investments. However, he quickly tempered this with a crucial overall negative long-term trend: emissions from shipping, a pressing concern for the industry.
He then moved to the tumultuous period of "Supply chain crises". Hoffmann explained how freight rates surged during Covid, illustrating this with a chart showing volume, freight rates, and supply/demand dynamics. He detailed the dual impact of recent crises:

- During Covid, a "supply crunch" occurred as ships spent more time (+20%) in ports.
- More recently, the Red Sea crisis caused another "supply crunch" as ships spent more time (+9%) at sea. He referenced the SCFI (Shanghai Comprehensive Container Freight Rate Index) to underscore the volatility of the past years.

Looking ahead, Hoffmann unveiled his vision for "Transitions". He outlined four key shifts shaping the future of maritime logistics:

- **Energy transition**: A fundamental change in how shipping powers its vessels.
- **Further vertical integration**: Companies extending their control across more parts of the supply chain.
- **Higher/volatile tariffs**: Indicating continued uncertainty and fluctuating costs.
- **Further push for digitalization**: A relentless drive towards technological advancement.

On digitalisation, he posed a critical question: "**How to set today the rules for the future of digitalisation of maritime transport?**". Hoffmann emphasised the rapid pace of change with the powerful statement: "**Technological progress will never be as slow as today**". He also touched upon leadership in IT reforms, referencing a slide that queried "Who leads the IT reforms in your company?" with options like CEO, CTO, or even Covid-19. He briefly mentioned a "10-point action plan" for "Shipping in times of COVID19".

Hoffmann concluded his presentation by leaving the audience with a thought-provoking question that underpins much of the industry's challenges: "**Is there a trade-off between controls and trade facilitation?**". His presentation provided a comprehensive overview of the past, present, and future trajectory of global maritime logistics, from the World Bank's perspective.

IPCSA Foresight Workshop #2: Day 2 - Responding to Future Scenarios

V Executive Summary Day 2

The second day of the IPCSA Foresight workshop, facilitated by Will Sambrook of Akenham, transitioned from scenario exploration to strategic response. Participants presented the detailed future scenarios they had developed, which were constructed by combining critical issues identified in the previous workshop, such as policy, trade flows, access to data, and means of transport. These scenarios provided a rich foundation for an in-depth Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis focused on Port Community System (PCS) operators.

A central theme emerging from the analysis was the universal recognition of the PCS's role as a trusted and neutral partner within the port community, a key strength across all potential futures. The discussions highlighted that challenges such as data protectionism and increased regulation could be viewed as both threats and opportunities, depending on the strategic response. The final session employed a TOWS matrix, challenging participants to develop actionable strategies. Key outcomes included a strategic imperative for PCS operators to evolve beyond their traditional roles. This involves leveraging their deep expertise to offer broader consultancy and innovation facilitation services, such as cybersecurity for the entire port ecosystem, and actively seeking to deepen public-private partnerships to solidify their position as critical national infrastructure, thereby mitigating risks from shifting government policies.

VI Responding to scenarios: SWOT

Will Sambrook, the workshop facilitator, outlined the objectives for the second day. The focus was on responding to the scenarios developed on day one by evaluating where PCS operators feel stronger or weaker against them. He explained the process would involve groups presenting their scenarios, followed by a SWOT analysis to identify strengths, weaknesses, opportunities, and threats. This would lead to identifying priority actions to strengthen operations. Will emphasized that all data generated, including the initial PESTLE analysis and the various scenarios, remains a valuable resource for individual organizations, stating, "in foresight nothing's ever lost, we're on a journey but you're picking up information all the time as you're going along".

Group 1 Presentation: Policy, Regulation, and Trade Flows

David Roff – Industry expert, CIF Consulting Limited, Javier Gallardo, IPCSA Chairman/CEO of Portic, Tarik Naciri, Portnet (Morocco), Alexandre Sánchez Pérez, Port Community System Manager, Digital Transformation Port Authority of Valencia, Tarik Maaouni, Chief Information and Digital Officer (ANP),Morocco's National Ports Agency, Mona Swoboda, Program Manager of the Inter-American Committee on Ports (CIP), Organization of American States (OAS).

Presented by David Roff of CIF Consulting Limited, this group explored scenarios based on the axes of **Policy & Regulation** (from globally regulated to uncertain open market) and **Trade Flows** (from no changes to routes/modes to changes to routes/modes). To crystallize the concepts, each scenario was given a film title.

- **Driving Miss Daisy (Globally Regulated / No Change to Trade Routes):** This scenario represents a stable, "day-to-day" environment.
  - It offers opportunities for supply chain optimization, allowing big players to maintain their status quo.
  - The low-risk, stable market is highly attractive for investment.
  - A potential disadvantage is the risk of stagnation and a lack of access for new players. Roff noted, "it depends which side of the fence you're on". This was considered the most likely scenario during the previous workshop in Dubai.
- **The Big Short (Uncertain Open Market / Changes to Trade Routes):** This scenario reflects the current disruptive market, exemplified by US tariffs.
  - It creates opportunities for new players to access markets and for adaptable businesses to innovate.
  - It fosters a "great space for innovation" and the development of new business models for PCS operators and others who are prepared to take risks.
- **Moneyball (Globally Regulated / Changes to Trade Routes):** This scenario is described as predictable with changes, opening new avenues.
  - Opportunities emerge for new business models, such as those related to carbon tax.
  - Predictability allows for the reuse of successful "playbooks" in new markets, reducing investment risk.
  - Rerouting due to issues in the Suez and Panama canals creates opportunities for ports like Valencia and Barcelona, and for others to become transshipment hubs.
- **Casablanca (Uncertain Open Market / No Change to Trade Routes):** This scenario encourages a "wait and see" approach, with a focus on core business models.
  - The name was chosen because the film was based on a port as a point of access.
  - Due to nervousness and uncertainty, businesses might "hold tight," leading to a lack of opportunity for some.

The group visualised the likelihood of these scenarios as a "stretched out diamond shape," indicating that the central area between the four extremes was the most probable outcome.

Group 2 Presentation: Means of Transport and Trade Rules

Magdalena Rzeczkowska, Deputy Chair of the Federation of Polish Entrepreneurs, Steve Lamb, CEO of MCP/Deputy Chairman of IPCSA, Houmed Mohamed Ali, Chief Operating Officer,
Djibouti Port Community Systems, Nico De Cauwer, Secretary-General of IPCSA, Zainab Hssaini, ANP Morocco's National Ports Agency.

Presented by Magdalena Rzeczkowska of the Federation of Polish Entrepreneurs, this group's scenarios were built on the axes of **Means of Transport** (traditional vs. newer) and **Trade Flows/Rules** (no change vs. new rules).

- **Scenario B - Business as Usual (Traditional Transport / No Change in Rules):** Described as the situation from the previous year, this scenario offers stable economic growth for existing players.
  - It presents little access for new entrants and provides "no really no incentives to develop no more to learning and being more effective". Motivation for change is low as there are no strong pressures from regulations or trade flows.
- **Scenario A - Economic Opportunities, Regional Development (Traditional Transport / New Rules):** New rules, driven by economic policy (e.g., free trade agreements) or climate change, lead to market fragmentation and regionalization.
  - New and emerging markets appear, requiring an ability to adapt.
  - The change is not seen as "traumatic" or disruptive because transport modes remain traditional, but infrastructure may need to adapt and scale up.
- **Scenario D - Efficiency, New Opportunities (Newer Transport / No Change in Rules):** This scenario is driven by technological incentives and innovation.
  - Constraints in capacity or infrastructure, sustainability requirements, or high energy costs motivate the market to seek new technological solutions for transport that are "cheaper more effective maybe also speeding up processes".
  - Regulation in technology lags behind, but as the change is not rapid, there is "more time to adapt". However, resistance to change will render some actors uncompetitive.
- **Scenario C - Disruption / Market Demand (Newer Transport / New Rules):** A combination of new routes and new transport technologies creates high demand and a rapid supply response.
  - Technology develops faster than regulation, creating an "urgency to act to innovate but also to adapt".
  - Financial capacity, flexibility, and openness to innovation are critical for survival. Business continuity plans and data management rules are essential. This scenario can create "big winners but also increases" in losers.

During the subsequent discussion, Houmed Mohamed Ali of Djibouti Port Community Systems highlighted how urgency drives technological adoption, citing the COVID-19 pandemic as a catalyst that "started kicking because people...were forced to use it". Nico De Cauwer added, "The more you will use technology the more you will shift from scenario B to scenario A".

Group 3 Presentation: Access to Information and Trade Flows with a Technology Dimension

Uwe Liebschner – Customs Lead, IPCSA/ Kale Logistics Solutions,
Stephanie van den Berg, Strategy &Innovation Portfolio Manager at Portbase, John Bescec, Chair of the International Chamber of Commerce (ICC) Global Customs and Trade Facilitation Commission.

Presented by Uwe Liebschner of IPCSA/Kale Logistics Solutions, this group analysed scenarios based on **Access to Information** (limited vs. open) and **Trade Flows** (increased regional trade vs. highly globally integrated trade). They added what they termed the "new Casablanca model," a third dimension of technology and cybersecurity layered on top of all scenarios.

- **Scenario A - Regional Resilience and Protectionism (The Trump Scenario) (Limited Access / Regional Trade):**
  - Characterized by strong regional networks, local investment, and faster transport within the region.
  - A key factor is the "matter of perspective"—whether one is inside or outside the region.
  - A potential risk is "blind proudness," where a focus on the domestic market leads to an acceptance of lower quality products and a reluctance to innovate or compete globally.
- **Scenario B - Global Shields, Controlled and Guarded (Scenario Today) (Limited Access / Global Trade):**
  - Marked by dominating global players who control markets and data.
  - An increase in Free Trade Agreements (FTAs) is seen as a way to overcome limited data access on a bilateral "handshake mechanism".
  - This environment slows down efficiency due to data limitations and creates a "lack of flexibility" and potential for "collaborative price modeling amongst that dominators".
  - Stephanie van den Berg provided an example: "you do have this globally integrated trade routes... but you're still missing part of the data where you could optimize for example your supply chain visibility".
- **Scenario C - Smart Regions (The Sustainable Scenario) (Open Data / Regional Trade):**
  - Characterized by liberal economic politics within a region, creating a single market (e.g., the EU).
  - It fosters environmental sustainability and circularity by keeping resources and production within the region.
  - Risks include "blind proudness" and close collaboration leading to a halt in innovation. Riasat Ali noted a positive aspect is that "tailor made

solutions for the region" become possible, as global solutions may not fit local dynamics.

- **Scenario D - The Hyperconnected Scenario (Post-Trump Era) (Open Data / Global Trade):**
  - This scenario facilitates global trade and strong innovation due to access to global data.
  - Competition serves as a strong driver for innovation and pricing.
  - It poses a significant threat to cybersecurity due to its open nature and is viewed as "less sustainable" due to long-distance transport.

Magdalena Rzeczkowska reflected on the difficulty of predicting which scenario will become reality, cautioning, "I don't really think that the future will return to what it was before because the world order is based on some kind of a balance that is created". Javier Gallardo added that what is considered a good or bad scenario "depends on your business and what is your opportunity".
During the subsequent discussion, Houmed Mohamed Ali of Djibouti Port Community Systems highlighted how urgency drives technological adoption, citing the COVID-19 pandemic as a catalyst that "started kicking because people...were forced to use it". Nico De Cauwer added, "The more you will use technology the more you will shift from scenario B to scenario A".

VII Discussion: SWOT and Regional Differences

Following the scenario presentations, the groups conducted a SWOT analysis to identify the strengths, weaknesses, opportunities, and threats for Port Community Systems in the context of the potential futures.

Group 1 SWOT Analysis: The 'Four Movies' Scenarios

David Roff – Industry expert, CIF Consulting Limited, John Bescec, Chair of the International Chamber of Commerce (ICC) Global Customs and Trade Facilitation Commission, Mona Swoboda, Program Manager of the Inter-American Committee on Ports (CIP), Organization of American States (OAS), Stephanie van den Berg, Strategy &Innovation Portfolio Manager at Portbase, Steve Lamb, CEO of MCP (UK) and Deputy Chairman of IPCSA, Houmed Mohamed Ali, Chief Operating Officer, Djibouti Port Community Systems)

David Roff presented his group's analysis, highlighting common themes and scenario-specific insights.

- **Common Theme:** A consistent strength across all four scenarios was that the "PCS is trusted and neutral" with a "good reputation".

SWOT Analysis by Scenario

Scenario	Strength (S)	Weakness (W)	Opportunity (O)	Threat (T)
Moneyball (Regulated/Changes)	PCS can **react to disruption centrally**, such as providing vessel arrival information during the Suez Canal blockage.	A port experiencing a sudden increase in volume may find its **PCS unable to cope** if not all processes are digitized.	*Not explicitly mentioned*	**Changes to trade routes** could lead to a loss of customers or volume.
The Big Short (Uncertain/Changes)	PCS provides **resilience for stakeholders**. PCS can take on an **advisory role** using data insights to anticipate impacts from policy changes.	*Not explicitly mentioned*	*Not explicitly mentioned*	**Inconsistent policies** slow supply chains. A **lack of political support** in uncertain markets creates risk.
Casablanca (Uncertain/No Changes) *(Likened to the Brexit experience)*	The **ability to take stakeholders on a journey** through constant changes.	The **reactive environment "drenched capacity"**. Makes it **"very difficult to plan your road map and innovative"**.	The uncertainty can **create new markets** (e.g., MCP provided solutions for non-inventory parts during Brexit). PCS is in a **good position to help shape regulation**.	*Not explicitly mentioned*
Driving Miss Daisy (Regulated/No Changes)	Provides **stability for stakeholders** and **political balance**.	**Growth is slower**.	*Not explicitly mentioned*	The stability can lead to feeling **"relaxed allowing for a competitive to potentially disrupt"** (TradeLens was cited as an example).

Group 2 SWOT Analysis: A General Framework for Port Community Systems

Uwe Liebschner – Customs Lead, IPCSA/ Kale Logistics Solutions, Javier Gallardo, IPCSA Chairman/CEO of Portic, Nico De Cauwer, Secretary-General of IPCSA, Magdalena Rzeczkowska, Deputy Chair of Federation of Polish Entrepreneurs, Riasat Ali, Group IT Services Manager of RAK Ports.

Uwe Liebschner presented a comprehensive SWOT analysis for PCS operators as a whole.

Strengths	Weaknesses
Technology Capability: Ability to understand and deal with technology.	**Data Quality:** The "shit in shit out" problem, though its impact was debated.
Governance: Long experience in stakeholder engagement and establishing rules for data sharing.	**Financial Resources:** Varies significantly based on public, private, or shared ownership models.
Neutrality: Being a trusted, neutral partner is a key differentiator.	**System Integration:** Increasing challenges in integrating diverse systems.
Compliance: Strong adherence to regulations, data protection, and legal rules.	
Process Understanding: A comprehensive view of the entire logistics flow.	
Flexibility & Change Management: Strong project management capabilities.	

Opportunities	Threats
Data Protectionism: The network of trusted PCS networks can provide clients with access to data from other parts of the world.	Security: A major threat, encompassing cybersecurity (citing 30,000 attacks per day at DBH), physical security, and business continuity.
Cybersecurity as a Service: Leveraging strong internal skills to offer security services to the wider port community.	Data Protectionism: Can be a threat when it prevents access to necessary data for business operations.
Innovation (AI/ML): Huge potential to create new services and revenue streams.	Unavailability of Skilled Labor: A challenge for all, particularly in finding talent familiar with older systems like EDIFACT.
New Services: Offering data center or cloud services to the local community using existing infrastructure.	Trade Route Changes: A shift in trade can make a port, and its PCS, less relevant.
	E-government & Regulatory Affairs: The risk of governments taking over services that were previously provided by the PCS.

VIII The Future: SWOT TOWS Matrix

The final session, introduced by Will Sambrook, utilised a TOWS matrix to transform the SWOT analysis into actionable strategies. The goal was to determine how to leverage strengths to capitalize on opportunities, minimize threats, address weaknesses to seize opportunities, and reduce the impact of threats.

Group 1 TOWS Analysis: Leveraging Strengths and Addressing Weaknesses

David Roff – Industry expert, CIF Consulting Limited, John Bescec, Chair of the International Chamber of Commerce (ICC) Global Customs and Trade Facilitation Commission, Mona Swoboda, Program Manager of the Inter-American Committee on Ports (CIP), Organization of American States (OAS), Stephanie van den Berg, Strategy &Innovation Portfolio Manager at Portbase, Steve Lamb, CEO of MCP (UK) and Deputy Chairman of IPCSA, Houmed Mohamed Ali, Chief Operating Officer, Djibouti Port Community Systems)

David Roff presented the group's strategies, which focused on leveraging the trusted and neutral position of the PCS.

Strategic Analysis of Port Community Systems (PCS) (Based on SWOT Combinations)

	Opportunities (O)	Threats (T)
Strengths (S)	**SO Strategy: Quick Reaction and Guiding Agencies**	**ST Strategy: Providing Trust and Certainty**
	PCS are equipped to react quickly to disruption. PCS should **leverage the trust and neutrality that they already hold**. This existing trust allows PCS to guide government agencies using data insights. An example includes providing **more accurate, trusted ETAs during the Suez crisis**, which emphasizes the critical nature of the "provenance of that data".	PCS can leverage their strength to **provide "certainty to shipping lines"**. Shipping lines have trust in PCS when they are making their plans.
Weaknesses (W)	**WO Strategy: Shaping Regulation via Collaboration**	**WT Strategy: Avoiding Stagnation/Competition**
	To shape regulation, PCS should **collaborate with the wider community and industry associations**. This collaboration is necessary to **"apply influence on things that are not directly within your control"**.	PCS must actively **train staff and invest in innovation, capacity, and technology**. This action is necessary to avoid the threat of **stagnation and the risk of being overtaken by competitors**. This scenario of being overtaken is referred to as the **"Blockbuster and Netflix scenario"**.

Will Sambrook reflected that a key takeaway was the need for PCS to ensure they are recognized "as a trusted partner at the point of decision making" to avoid becoming just a "data provider".

Group 2 TOWS Analysis: From Service Provider to Innovation Facilitator

Uwe Liebschner – Customs Lead, IPCSA/ Kale Logistics Solutions, Javier Gallardo, IPCSA Chairman/CEO of Portic, Nico De Cauwer, Secretary-General of IPCSA, Magdalena Rzeczkowska, Deputy Chair of Federation of Polish Entrepreneurs, Riasat Ali, Group IT Services Manager of RAK Ports.

Uwe Liebschner's group presented a strategic vision for PCS to evolve its business model.

Strategic Opportunities and Threat Mitigation Strategies for Port Community Systems (PCS)

	External Opportunities (O)	External Threats (T)
Internal Strengths (S)	**SO Strategies**	**ST Strategies**
	1. Consultancy: Expand services beyond the local community to offer consultancy on logistics processes, data flows, and automation to a wider audience, including hinterland connections and dry ports.	**1. Deepen Public-Private Partnership (PPP)**: This is the primary strategy utilized to counter the threat of government encroachment.
	2. Facilitator of Innovation (Predictive Services): Leverage machine learning to provide predictive services, especially for small and medium-sized companies (SMEs).	**2. Promote Critical Infrastructure Role**: Actively promoting the PCS's role as critical infrastructure can make them more attractive partners for government entities.
	3. Facilitator of Innovation (Security Services): Become a "Security Service provider" for the entire port community using internal cybersecurity expertise.	**3. Offer Consolidated Data Exchange**: As a trusted neutral party, the PCS can offer government entities the exchange of data because the information is already consolidated within the system (PPP Outcome).
	4. Global Services: Re-energize the "network of trusted networks" concept through closer collaboration among PCS operators worldwide.	**4. Secure Government Funding/Support**: Becoming an attractive partner via critical infrastructure promotion can lead to opportunities for government funding and support for crucial cybersecurity investments (PPP Outcome).
	5. Sustainability Services: Introduce a new business line focused on monitoring carbon footprints using sensor data to meet established security, safety, and sustainability goals.	
Internal Weaknesses (W)	**WO Strategies**	**WO Strategies**

IX Reflections on IPCSA Foresight workshop in Casablanca:

Youssef Ahouzi, CEO of Portnet, said: "We were very happy to host this important Foresight workshop. This followed the first Foresight workshop held in Dubai, which explored the dynamics and drivers of change, discovering issues and understanding high-impact uncertainties. In this second workshop, we had a very intensive investigation of various scenarios, with excellent insights which helped us to consider how businesses can stay relevant and develop services for customers."

The workshop was facilitated by **Will Sambrook of Akenham**, using the Copenhagen Institute for Futures Studies' (CIFS) Strategic Foresight framework. "On day one, the group took the critical issues identified from the Dubai workshop and combined the most impactful ones to see what potential future scenarios they might create. On day two, the group assessed how their organisations would fair in each of these scenarios and mapped particular strengths, weaknesses, opportunities and threats. Finally, they looked at what they could do to maximise potential opportunities and minimise the impact of any threats."

Javier Gallardo, Chairman of IPCSA and CEO of Portic (Spain), said: "The Foresight workshop led to some very intensive discussions and debates as we tried to anticipate what is going to happen and how it will be important for our industry. We don't know where we will arrive because the world is unpredictable, but we worked to explore different potential scenarios and evaluate probabilities."

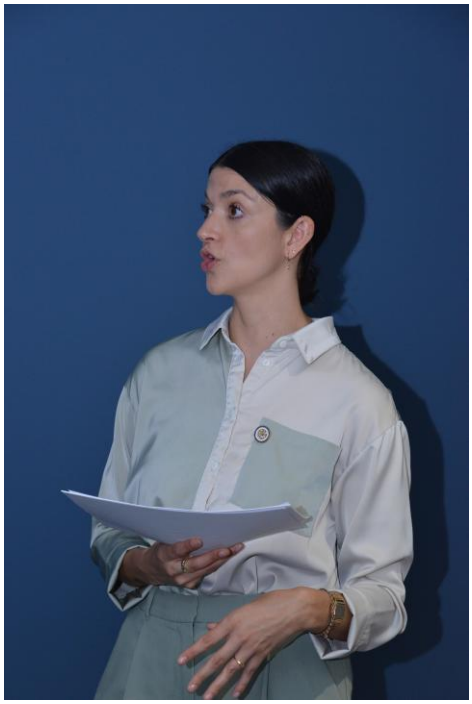
In his presentation to the Foresight workshop, Gallardo shared his personal experiences, taking the recent power blackout in Spain and Portugal as a practical example of responding to unexpected or unpredictable challenges. He focused on strategies for maintaining focus and effectiveness under pressure – a topic which naturally led to discussions around how to handle critical situations. While technology was acknowledged as important, the emphasis was on strategic approaches including having appropriate contingency plans in place.

Nico De Cauwer, Secretary-General of IPCSA, added: "I am very proud of all the people who have taken part in this workshop. We have had a perfect blend of members and external experts who have all contributed to the success of this workshop. We progressed from discussing global critical issues in Dubai to narrowing the discussions to what is relevant to PCSs and Single Windows."

Uwe Liebschner, representing IPCSA and Kale Logistics Solutions, said: "When you consider what has happened since our first Foresight workshop in Dubai in November 2024, from the geopolitical headlines and tensions to the trade and tariff uncertainties, the importance of the whole Foresight exercise is clear; it is more and more crucial to monitor what is going on and prepare the business for remaining in the market and being sustainable for the decades to come.

"War, geopolitics, new trade agreements, etc., have a real impact on our business and we should take care to have that in our strategic thinking. The Foresight workshop was a wonderful opportunity for exchanging really critical and smart thinking."

Other participants reported enthusiastically on IPCSA's forward thinking approach and the value of the Foresight exercise.



Mona Swoboda, Program Manager of the Inter-American Committee on Ports (CIP), Organization of American States (OAS), said: "The IPCSA Foresight Casablanca workshop was crucial for shaping the future of digital trade and Port Community Systems across the globe. It brought together key stakeholders to collaborate on innovative solutions to enhance global supply chain efficiency and resilience. By fostering regional cooperation and forward-thinking strategies, the Foresight initiative is supporting digital transformation in the maritime and logistics sectors."

Key messages from the workshop, said Swoboda, included: digitalisation is key to building resilient and efficient port systems, especially in SIDS and developing regions; collaboration and knowledge-sharing are vital to advancing Port Community Systems and global interoperability; inclusive and sustainable digital transformation must support capacity building and ensure no port is left behind."

"IPCSA's experience is invaluable not only for its technical expertise but also for its role as a trusted convener of diverse stakeholders across the global port and logistics community," she explained. "Beyond systems and standards, IPCSA brings deep understanding of the human, institutional and policy dimensions needed to drive sustainable digital transformation. IPCSA's track record in fostering collaboration, building trust and promoting best practices makes it a key enabler of progress well beyond the technical layer."

Stephanie van den Berg, Strategy & Innovation Portfolio Manager at Portbase (The Netherlands), said: "Foresight within IPCSA is crucial because it enables us to proactively anticipate the changes that will impact global trade and Port Community Systems. In an era where sustainability, digitalisation and globalisation are rapidly evolving, Foresight allows us to identify trends, manage risks and seize opportunities. This not only prepares us for the future but also positions us to take a leading role in shaping a sustainable and efficient trading environment."

Key messages to take away, said van den Berg, were: the importance of collaboration within the port communities and wider ecosystem to promote sustainability and innovation; how data and technology can be leveraged to improve sustainable practices and enhance the efficiency of global trade; recognition that anticipating future trends is essential for the success of the PCS sector and that this requires a collective effort; and scenarios for the future of global trade and the role of Port Community Systems in particular.

"The experience of IPCSA is valuable because it encompasses not only technical knowledge but also deep insights into the operational dynamics of global trade," she added. "IPCSA brings together a network of experts and stakeholders, enabling us to share best practices and learn from one another. This collective wisdom and experience are essential for addressing the challenges of the future, especially in the areas of sustainability and technology integration."

John Bescec, Chair of the International Chamber of Commerce (ICC) Global Customs and Trade Facilitation Commission (based in Canada), said being able to brainstorm and pull together thoughts from across the IPCSA community was crucial. Foresight, he said, was about identifying ways to "deal with unpredictability in a predictable fashion".

"The Foresight workshop enabled us to look at threats and potential shocks, considering a scenario that is an 'unknown' and make it work in a model that is well managed. In Canada we have a very strong neighbour to the south that is disrupting a lot of things – things that were taken for granted are now changing."

Against a background of risks and shocks, the question is how you make investments when you are dealing with uncertainty, said Bescec. "Technology doesn't address all the uncertainty that arises, but the Foresight exercise is all about how it can be managed, how you can plan, and how you prioritise. When you have multiple individuals globally coming together and trying to build/forecast what a solution could look like, that is where collective brainpower can be at its strongest. Then, it is how to integrate those solutions into business."

Tarik Maaouni, Chief Information and Digital Officer at Agence Nationale des Ports (ANP), Morocco's National Ports Agency, said: "This workshop was extremely valuable, especially with the theme of critical issues. Of particular note was the message – be sure not to take things for granted, especially with economic disruptions, innovation and climate change."

As the authoritative and regulatory body of the Moroccan port system, ANP brings together the entire port community around common goals, working to create a competitive port environment by promoting equitable and sustainable development based on healthy competition, efficiency, transparency and good governance, and ensuring safe and quality services.

Riasat Ali, Group IT Services Manager of RAK Ports (UAE), said "I particularly valued the very diverse group at this foresight workshop, with participants from a variety of professional backgrounds and industry verticals. This made for a unique combination of viewpoints, with everyone having their perspective in respect of their region and industrial domain. From a digitalization and technology perspective, I was able to contribute insights on leveraging innovative solutions to drive efficiency and growth, specifically highlighting the potential of AI, quantum computing, OT/IoT, and secure data analytics. Moreover, I appreciated how the team seamlessly integrated this technological dimension, fostering innovative thinking and elevating our discussions on the future of ports and maritime logistics." Riasat praised Will Sambrook for helping everyone understand the complex processes and challenge the status quo.

Steve Lamb, CEO of MCP (UK) and Deputy Chairman of IPCSA, said: "This was an extremely stimulating workshop. We looked at the macro picture and documented this into a plan; going away, we must all now look at the micro scenario from the point of view of our own businesses. The main point is that we cannot predict or influence many developments, but we can certainly plan for them."

Magdalena Rzeczkowska, Deputy Chair of the Federation of Polish Entrepreneurs, noted how rapidly things had changed in just six months since the Dubai Foresight workshop. "We talked about resources, energy and costs. I had the chance to attend the workshop in Dubai as well as the workshop in Casablanca. "For me, it was a great experience to stop for a moment and think about the future and what is going on. We are facing even more unknowns that when we talked in Dubai six months ago. Today it is not 'business as usual' any more – it is totally unpredictable. That is our biggest challenge.

"It has become even more difficult to imagine what might happen, because we already know that our imagination is not big enough. This shows it is really important to think outside the box."

Niels Postma, Programme Manager Harbour Master Division at the Port of Rotterdam, added:

"Collaborating with this group brings together diverse visions and ideas, creating something far more valuable than if we were working alone. It's stimulating to hear different perspectives, enriching the process beyond what we'd achieve within ourown organisation. This is a very valuable input for me and one that's extremely interesting."

Alexandre Sánchez Pérez, Port Community System Manager, Digital Transformation Autoridad Portuaria de Valencia (Spain) added: "There were two takeaways for me. First, we don't know what the future brings but it is amazing to consider the different futures we may have. Second, we were not prepared for the blackout because we took it for granted that we would have electricity. With this Foresight exercise, if we imagine what could happen in the future, we will be stronger and safer."

Houmed Mohamed Ali, Chief Operating Officer of Djibouti Port Community Systems highlighted: "From the Djibouti Port Community Systems (DPCS) perspective, this reflection resonates deeply with our own journey. When DPCS was inaugurated in 2018 as Djibouti's first national digital trade facilitation platform, adoption was initially gradual. Many stakeholders were cautious about transitioning from manual processes to a fully digital environment. However, the COVID-19 pandemic served as a pivotal moment. During the lockdown period, DPCS became the only operational channel ensuring business continuity across the port and logistics community — demonstrating the indispensable role of digitalisation in maintaining national trade flows under crisis conditions.

This experience reinforced a key foresight insight: digitalisation is both the solution and the potential point of vulnerability. While it enables operational resilience in times of disruption, complete reliance on digital infrastructure also introduces systemic risks. A total digital blackout — whether caused by cyber incidents, power failure, or network outage — can paralyse trade. Therefore, parallel contingency plans must always accompany digital transformation initiatives. This includes maintaining critical manual fallback procedures, hybrid system redundancies, and well-defined communication protocols to safeguard continuity when technology fails."

David Roff, of CIF Consulting, said: "What was particularly valuable in this exercise was the political issues we looked at; it was really good to see different viewpoints on the same topics. Some things people see as negative, others positive. The variety of opinions and experience was a real benefit of doing this work in a broad circle."

Inga Mortona, General Manager of IPCSA, concluded: “The Foresight workshop in Casablanca was a huge success, with participants willingly sharing their views and perspectives, guided expertly by Will Sambrook. Breaking down future scenarios and considering what these really mean for Port Community Systems and Single Window operations has been hugely helpful for all concerned. The findings of this second workshop will inform the development of strategies to futureproof our businesses against emerging risks and challenges, in a third workshop to be organised soon.
We're very grateful for the incredible support and warm hospitality from our sponsor, PORTNET. Hosting the workshop in Morocco was an amasing experience, and it was an honor to have such a dedicated partner with us. Thank you for making this event possible.”