

**List of questions that were not addressed during the live session:**

**Q1: May we know what is exactly the staging of smart port type related to technologies in port operation?**

If we understood it correctly, the question here is about how to roll out those tools in port operations. If we look at it from the initial to the latest deployment phase, we would briefly suggest the following:

1. Diagnose what the actual problem you want to solve is. Run a "Digital scan", either inhouse or with the help of some of those external service providers mentioned throughout the presentation, such as the digital advisory team of the Port of Rotterdam.
2. Identify potential (technology-based) solutions, based on your strategic goals, ambitions, and potential constraints. Again, if you don't have the internal capacity, you can make use of external service providers.
  - a. Conduct simulation or pilot tests for the different alternatives.
  - b. Conduct a solid study case, so that the alternatives are viable not just from a technical perspective, but also from an economic, social or legal perspective.
3. Conduct capacity building on your people so that they become familiar with the potential change of the chosen solution and embrace it. Make them aware of the benefits not just for the port, but also for them, for instance from a safety perspective. Cultural changes can be some of the biggest bottlenecks when implementing new technical solutions

Adding to the previous, we want to remark our last message from the presentation: "be careful with choosing solutions over ideas". In parallel to the points listed above, **we strongly insist** on the importance on enhancing a port cluster of continuous innovation, promotion of start-ups in the port community, investment in research, and (re-)training of the human capital. The case of the maritime cluster in Rotterdam is a good example of how strong ideas can definitely yield results over time.

**Q2: As far as I am concerned the investment in the port sector is getting higher and higher, that to many development countries it is very hard to achieve. Thus many operator tries to make a huge loan and barely to pay it in very long time. So how do you see the implementation of smart port could really reduce the burden of the operator due to this high investment?**

With a highly asset intensive industry, some experts indeed suggest that we might be reaching a situation of over capacity in many ports around the world. This can actually be exacerbated in the short run as a result of COVID-19, which has shaken global trade, and therefore pose a bigger problem for those operators that have recently undergone huge investments.

Within the pandemic context, what smart solutions can do is avoid resiliency problems from happening again, such as terminal shutdowns. As mentioned in the presentation, we believe that smart solutions in the port can optimize port operations, guarantee safe, secure and environmentally friendly activities, and especially enhance port resiliency.

Apart from the COVID-19, and for the longer term, smarter solutions translate for port (terminal) operators to more throughput efficiency, which can lead to increased profitability and therefore slowly alleviate such high financial burdens.

Port those operators that are not caught up by huge investments with long payback periods, the message should be: "make a smarter use of your current infrastructure". Of course, first identifying what the root problem is.

**Q3: What should ports do in facing the decrease of productivity and throughput because of covid 19?**

Trade is crucial, especially now during the COVID-19 pandemic. Sanitary and emergency goods need to be transported, and therefore ports still play a key role. Given the infection risks of the virus, sea ports, and any other infrastructure facilitating the transit of (emergency) goods, should in the very short term establish proper protection measures and strategies for workers involved in the handling of cargo. This way terminals can remain operational, therefore alleviating those potential throughput losses. For the short to medium term, remote working, if possible, can become more essential for some of those activities that are exposed to risks.

For the longer term, ports should rethink their strategies to combat potential resiliency disruptions, keeping in mind the unique case of each port in terms of technical, human capital and budget capacities. One could argue that (semi-) automation is a term that has gained even more attention recently due to COVID-19. Should we replace all human work for automated processes? The question however for us is: How can we help and aid the workforce in their processes in a safer environment for them? This can range from ensuring remote working operations, to rescheduling the shifts of dock workers in such as way that personal contact is minimized.

**Q5: How many of the ports you show on your Smart Port Index have a clue when the vehicles are coming in from the hinterland within one and a half hour windows with 99% accuracy for both full (terminal slots) and empty (empty depot) containers? I would say none; yet in Australia this has been the case for a number of years now**

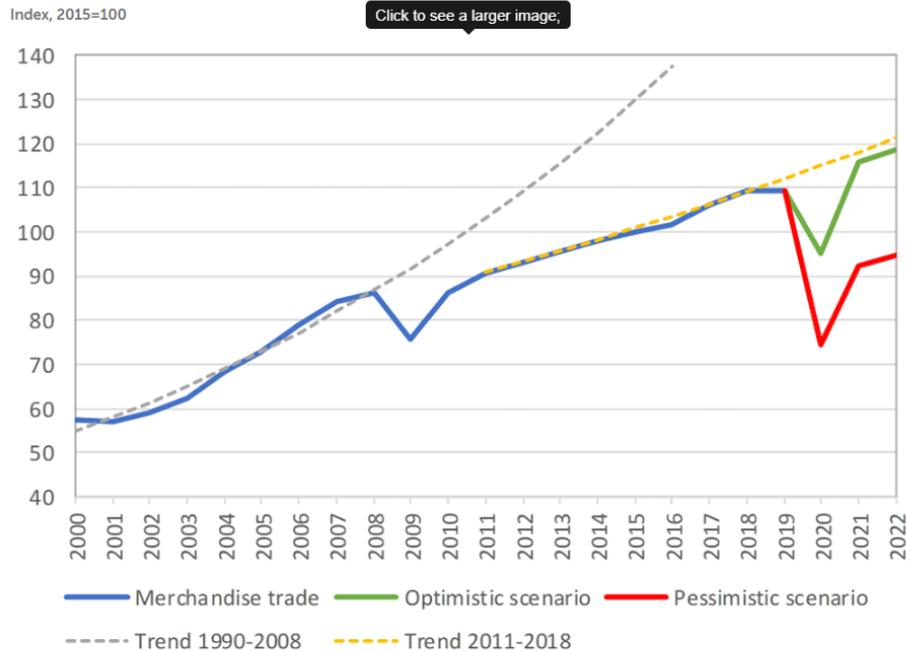
Indeed, one thing is to make a quantitative analysis to generate a SPI based on information publicly available on each of those 14 port websites, and a different story is to see what is truly happening on the ground.

It could very well be that many of those ports struggle to know when vehicles are coming in from the hinterland, and we don't know all the exact cases by heart. For the case of Rotterdam, truck visits are at the moment pre-announced for some of the terminals through the Dutch Port Community System of Portbase (<https://www.portbase.com/en/pre-notification/>). The port is however currently developing Track & Trace tools for enhanced visibility of the supply chain, including the hinterland. One interesting project is DELIVER, a partnership with different stakeholders which is already at the pilot phase and aims at providing complete end-to-end visibility for multimodal transport (ocean, truck, inland, ...).

**Q6: When do you believe market (container business) will recover from COVID-19?**

There are statistics suggesting that world trade will drop almost 30% in 2020 as a consequence of the COVID-19 pandemic.

**Chart 1 - World merchandise trade volume, 2000-2022**



Source: WTO Secretariat.

This can give us an idea of the timeframe we can expect for the container business to actually recover, depending on the scenario that actually unfolds.

Please keep in mind that the figure above is from the 8<sup>th</sup> of April, and forecasts are continuously being revised (for better or worse). The bottom line here would be: it seems we will have a bumpy road ahead for one year at the very least. It is however interesting to see that Maersk, one of the biggest ocean carriers, has presented very positive results in Q1 of 2020. That being said, the real impact on the container business is yet to be seen in Q2, so we should be cautious about those numbers.

In case you are interested about official reports, the UNCTAD just published a statistical study on the impact of the COVID-19 on many areas, including trade (Available at: <https://data.unicef.org/resources/how-covid-19-is-changing-the-world-a-statistical-perspective/>)

**Q7: What do you think is the best way to improve the technicalization of the Latin American ports?**

If by “improving the technicalization” we are talking about how to improve or get started with the use of those technical or digital solutions to apply at the port in any of the domains discussed, knowledge building should be priority in our opinion. That is:

- **Create an environment of learning and collaboration.** As we mentioned in the presentation, this is a multi-disciplinary process, not just an isolated IT project. Embrace a culture of proximity with all departments (programmers, marketers, designers, lawyers,...), where you share knowledge and findings, for instance on (smart) business case ideas. This might seem rather unimportant, but it **creates a common language and understanding** among all departments. Remember that the lack of standards and definitions is one of the major bottlenecks
- **Commit to executive education.** Sometimes, those skill gaps to be addressed can start at the top. If the management levels can engage with the potential benefits and challenges of digitalization in the port community, it can improve decision making in the road to become “smarter”.
- **(Re-)train your workforce.** This goes back to the essential message we tried to give at the end of the presentation. Teach your workforce to harness and embrace new technologies. In the end, the human-machine interface will be almost as important as the technical aspects of the solutions themselves. Please remember that those tools we spoke about are meant for the most part aimed to aid the workforce make better informed decisions.
- **Promote an innovation ecosystem:** The port community is usually seen as not innovation friendly. Yet, examples such as PortXL prove that an entrepreneurial environment is indeed possible.

Please note that this knowledge building approach does not stop at the port community level only, but rather at a larger cluster of companies, education centers, research institutions and any other stakeholder that can in one way or another contribute to increase the technical capabilities of your human capital.

