# A COLLABORATIVE VISION FOR SUSTAINABILITY

aidrivers
Autonomous Mobility. Invented for sustainability.

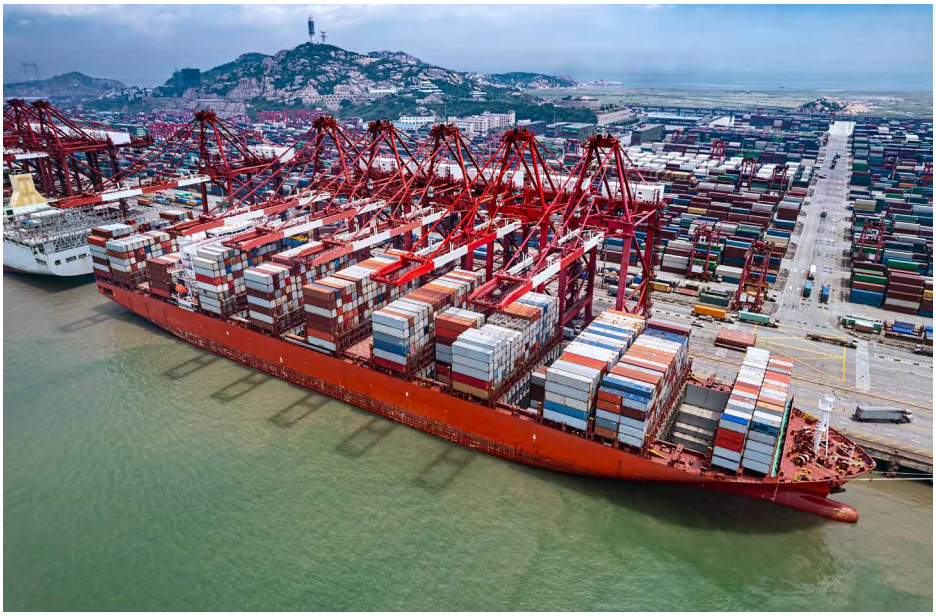
**Dr. Rafiq Swash**,
Founder and CEO, Aidrivers

True sustainability is all about eliminating waste and downtime, which can only be achieved by being able to change and adapt. Sounds simple, doesn't it? But to put things in the context of the ports and terminals sector, may I refer to John Donne's poem: "No man is an island, Entire of itself, Every man is a piece of the continent, A part of the main."

The same applies to ports and, indeed, the entire global supply chain! In short, you can't be eco-friendly all by yourself. Ports work with many stakeholders and the true sustainability depends on all parties having a collaborative approach with the same vision.

Sustainability requires flexibility and determination. But above all, eco-friendliness comes from being able to collaborate for the benefit of the whole ecosystem. That requires trust between parties. Until very recently, if a company was up and running with its business, it was hardly relevant to others if it was working or not. But now, it is indeed someone else's business. Thanks to the impact of COVID-19 challenges, we have all seen what happens when a major port shuts down for a few weeks – the impact can be felt by shops, businesses and consumers thousands of miles away.

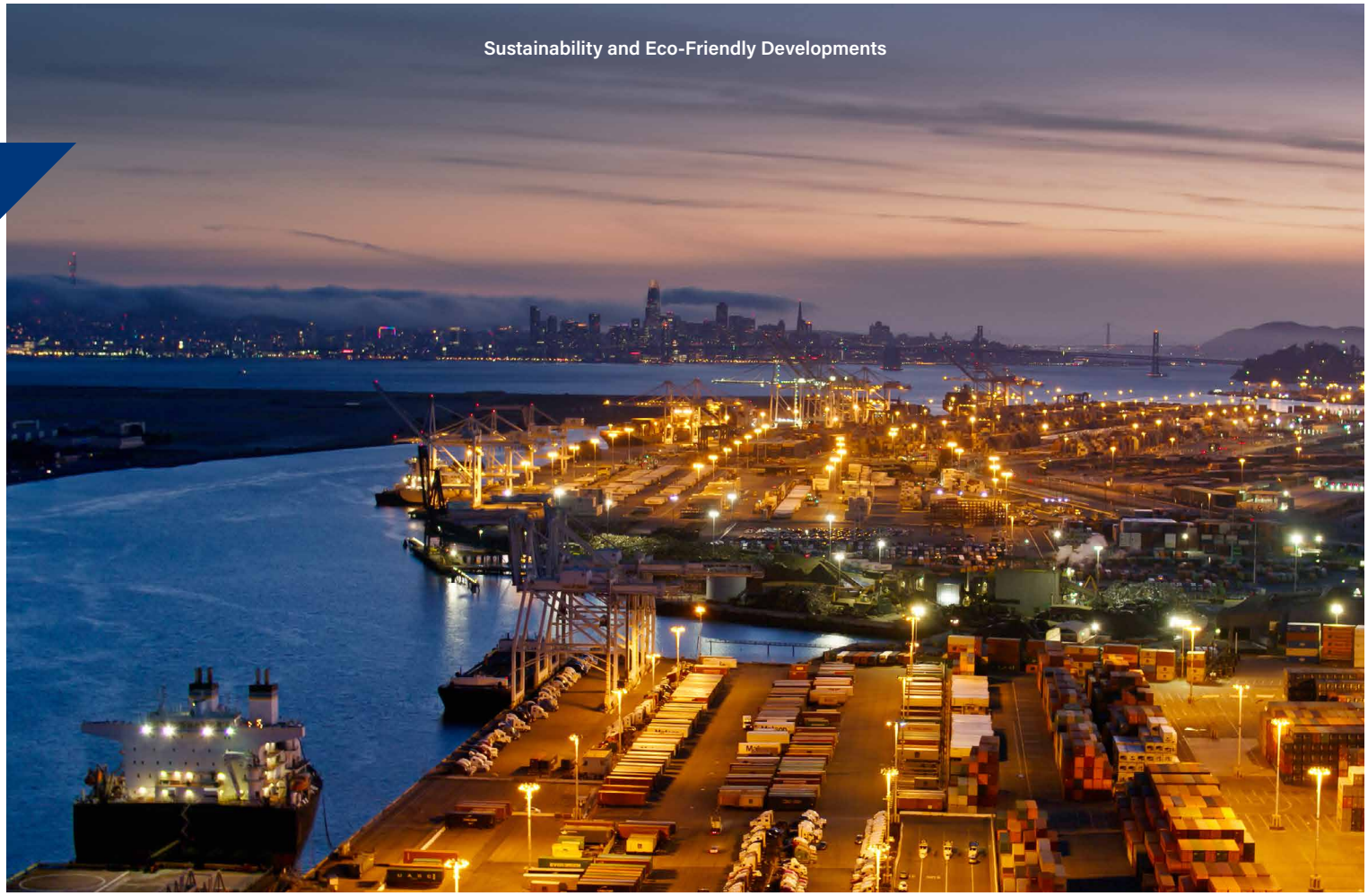
Hence, I would argue that sustainability means understanding that your business is not just your business, but part of the global supply chain that keeps the world running. In a sense, we have become victims of our own success; trading has become so successful that almost no country is self-sufficient. One entity makes the bottle; another makes the drink; we are dependent on each other, and that global supply chain has become the backbone of the global economy.



So, bringing the focus back on to actual port operations, sustainability and eco-friendliness require the ability to change and adapt, whether that's in terms of fuel or equipment or technology. Of course, eco-friendliness is all about the circular economy and I do believe that long-term all industrial equipment will have a much longer lifecycle than currently.

A quay crane can last for 40 years if designed and specified with longevity in mind at the start. That in itself requires a change in mindset, focusing on equipment that can be changed, adapted, refurbished and upgraded, with replacement and disposal right at the bottom of the list. This can start from today by having the mindset to improve the experience of existing equipment and operations by the effective use of intelligent sensors and systems to deliver the productivity and efficiency needed.

**"A QUAY CRANE CAN LAST FOR 40 YEARS IF DESIGNED AND SPECIFIED WITH LONGEVITY IN MIND AT THE START."**



## "WE HAVE BUILT OUR FLEET SYSTEM BASED ON A FUNDAMENTAL LAYER OF ENABLING EQUIPMENT TO COMMUNICATE WITH OTHER EQUIPMENT."

From both client and factory sides, there needs to be more of a "servicing and repair" focus and less of the "buying, using and throwing away" mentality. For some ports, that could include buying a service – such as renting/leasing rather than buying the actual machine, for a more efficient, scalable and sustainable result.

Eco-friendliness is all about collective support and sharing the responsibility and in the future that might even include sharing equipment. It is good to see data being shared already; more than 50 APIs are available for the tracking of containers, and this opens up the level of data sharing to promote eco-friendly business patterns.

Airports have to work together to continue operating – these days, aircraft generally take off with confidence that a landing slot will be ready for them at the destination, thus avoiding endless 'stacking' or circling waiting to land. That can, of course, be instantly compared with the problem of ships arriving at port only to be sent to wait at anchorage outside because a berth isn't available yet.

The Port Call Optimisation project is to be welcomed; collaboration port-to-port can enable vessels to adjust speed on their voyage to synchronise arrival time with berth availability – reducing fuel consumption and emissions, while ensuring maximum efficiency and effectiveness.

Within the port, equipment can share information too. Aidrivers has built its autonomous ecosystem to provide a connected operation with autonomous simulation for optimisation. This means that cranes, trucks, tow tractors, gates, traffic lights and any other equipment can be connected to deliver the most effective self-aware operation. Hence AI and autonomous technology can deliver the cognitive ability to eliminate waiting times, cut back on idling of equipment and vehicles, and help the port achieve zero waste and downtime.

We have built our fleet system based on a fundamental layer of enabling equipment to communicate with other equipment to enable cognitive operations; and the system can go further than that, thanks to extended reality of digital twinning and simulation.

If you think simulation is something that only happens in pre-planning operations, you would be very wrong because nothing will ever be perfect and there is always room for improvement!

The next phase of our approach is to ask: How can we continue to achieve the best productivity, operation, efficiency and energy efficiency? The answer, of course,

is to continue to simulate for continuous optimisation. The Six Sigma approach is based on continuing layer by layer to find the best solutions. The philosophy is that by analysing and coordinating layer by layer, you can identify the tiniest issues that can create much bigger issues. Sometimes the 'least significant' things turn out to be the true issues. Small tweaks can make all the difference.

Aidrivers' system is based on real operations, ensuring that every decision you make delivers optimisation, with nothing wasted. And continued simulating means you can also continue reprocessing data to make those necessary tweaks as operations and business evolve.

AI-enabled simulation also helps to pinpoint the 'problem areas' or bottlenecks. Is it a shortage of drivers or equipment or poor processes? Would more drivers help, or would the situation be the same or even worse? Is there a reason why a particular piece of equipment is always out of position or behind schedule? Why are that haulage firm's trucks always the slowest to pass through the terminal? Some port operators are enduring delays because they simply can't pinpoint what is wrong: Crane? Truck? Processes? Operations? Training?

It's worth emphasising that knowledge by itself has no value. Act on it! There is no point in reading a book if you don't apply the knowledge it imparts. Our technology provides a trackability with transparency from which analysts can extract real value; not only do ports need to ensure that they have the skills to do this, but they also need to collaborate with their suppliers and stakeholders to ensure a meaningful response to what they learn from the data.

Remember: waiting time is lost resources; efficient deployment must also be effective; sustainability isn't just for now, but forever. The tools are there for ports to eliminate industrial waste and downtime due to a lack of operational awareness.

**"REMEMBER: WAITING TIME IS LOST RESOURCES; EFFICIENT DEPLOYMENT MUST ALSO BE EFFECTIVE; SUSTAINABILITY ISN'T JUST FOR NOW, BUT FOREVER."**

**ABOUT THE AUTHOR:**
Dr. Rafiq Swash is the founder and CEO of Aidrivers. He is a seasoned professional with a decade of experience in international technology-driven industries, academia and world-class research centres. Dr. Swash is an award-winning, visionary thought leader in maritime and the Top 100 Leaders in Education, with over 15 years of professional working capability in autonomous technologies, visual information search and retrieval, advanced 3D imaging systems and scalable computing.

**ABOUT THE ORGANISATION:**
Aidrivers is an AI-enabled autonomous technology company whose mission is accelerating autonomous technology to deliver the optimisation, resiliency and safety that industry needs for a sustainable future. Aidrivers develops AI-enabled autonomous mobility solutions tailored to meet the needs of industrial operations for a sustainable future, particularly in the ports sector.