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Case Study
Innovation – Autonomous Rail Wagon Concept

arc infrastructure



Overview

Arc Infrastructure's goals were to:

- Test the feasibility of using autonomous, self-propelled container wagons to facilitate improved intermodal transport of containers.
- Get the information needed to evolve the idea into a Proof-of-Concept prototype for consideration by the WA Government in its design and operation of Westport and the proposed new outer harbour.

The benefits of the concept are to:

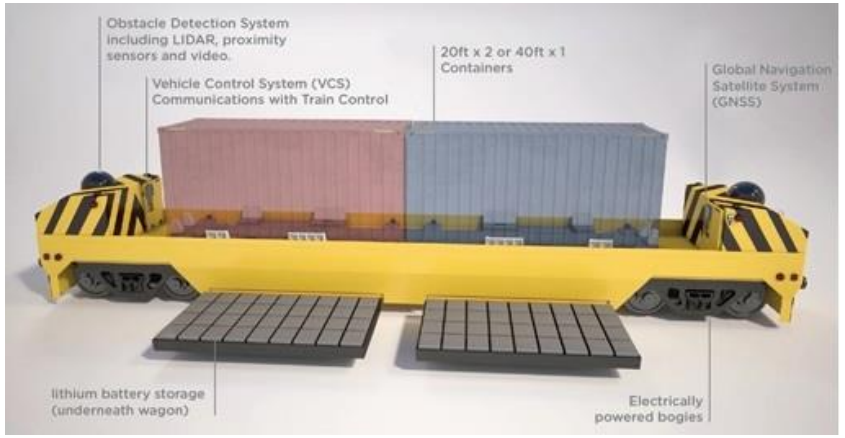
- Help increase the efficiency and speed of container movements in and out of the new Outer Harbour (located in Kwinana, being developed by the Government's Westport Project)
- Ultimately lead to increased freight on rail with a lower environmental footprint

Interfuze was engaged to facilitate this feasibility stage and help prepare Arc Infrastructure with the information needed for a proof of concept that could go on to form a production-ready solution should the idea prove viable.

The Client

Arc Infrastructure manages and operates 5,500 kilometres of rail network across the South West of Western Australia.

As the only freight rail network in the southern half of Western Australia, the network is vital to providing access to the eastern states of Australia and overseas markets through the region's six government-owned ports.



Arc Infrastructure

The Challenge

- Arc Infrastructure sought to pursue an exciting concept involving the use of autonomous vehicles on rail.
- This project is being pursued to substantially improve the efficiency, effectiveness, and safety of one of Western Australia's biggest supply chains.
- This will enable the growth of the supply chain's capacity in line with WA's growing demand for imported products, significantly reduce carbon footprint and make it safer and more sustainable for the community.

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The Approach

To explore the viability of the concept, Interfuze:

- Met with various stakeholders to understand and document current state operations.
- Worked with stakeholders to capture, document and refine the operational concept and value proposition. During this process we ensured:
    - The concept remained aligned with Arc Infrastructure's strategic objectives
    - Business case viability was actively monitored and maintained
- Analysed and designed the potential future operation of the concept and assessed the change impact of moving to the proposed innovation. We maintained a focus on ensuring the needs of customers, supply chain participants' and clients were in alignment.
- Conducted literature and desktop review to incorporate global innovations and leading practices, and research applicable technologies. We engaged with organisations doing similar or related projects to harvest ideas and lessons learned.

The Solution

- Our final output for the project was:
    - A Conceptual Technical Design Document which covers all the related systems that need to be developed to support the safe, efficient, and effective operation of the concept across sites, interfacing with proposed and existing track infrastructure, stakeholders, and information systems.
- A co-designed, cohesive work plan and roadmap to ensure all bases are covered from a program perspective for the concept. This includes mobilising cross-disciplinary streams for feasibility and business case development, mechanical design, technical design, operational design, stakeholder management, and most importantly, safety.

The Outcome

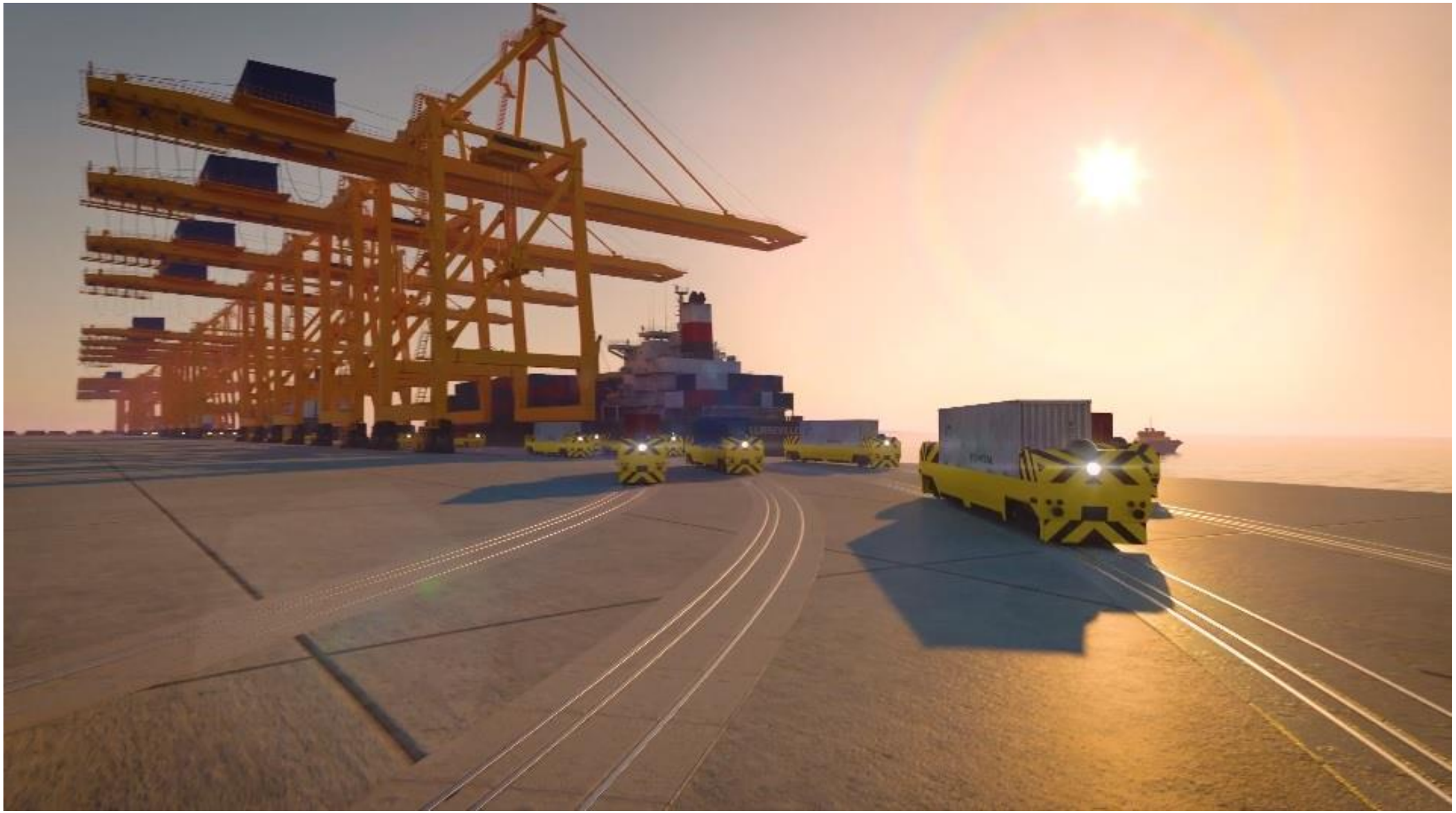
This project and our output is now being used to :

- Engage the WA Government to socialise the concept for input into WestPort design and operation of WestPort and the proposed new outer harbour
- Enable and drive the proof-of-concept work to produce an Autonomous Rail Wagon to further elaborate and explore the concept.

"True to their vision of 'turning possibility into reality,' the Interfuze team worked with Arc's infrastructure and transportation experts to create enhanced and real value for the Australian rail industry."



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Think we can help solve your problem?

Reach out to Branden

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