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Eloque's solution: Critical infrastructure management

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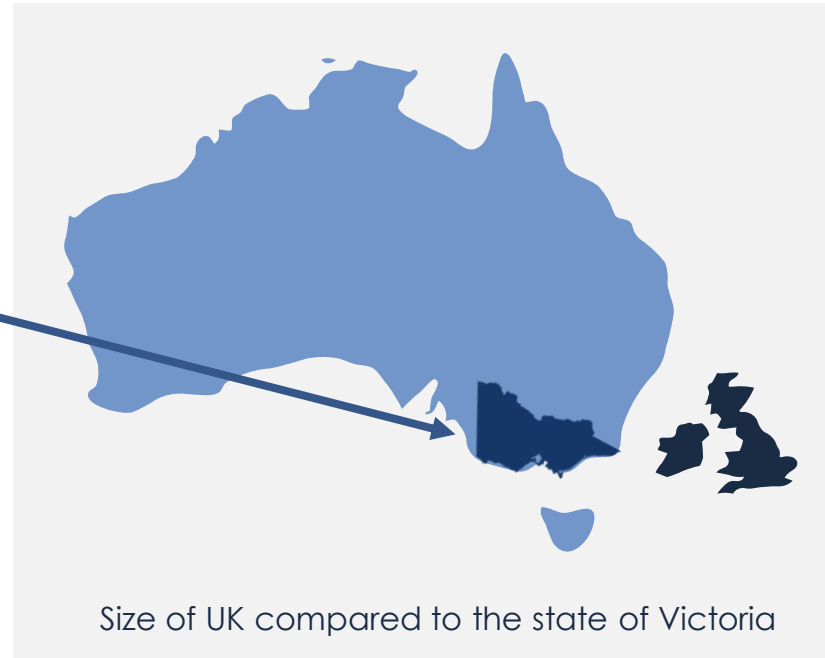
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2. What & Why?
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Strategic context & real-world problems



\$80bn (£42bn) of
transport projects
165 major road
& rail projects



Whitten Bridge



Bolte Bridge



West Gate Bridge

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Same, same but different

Australia

- Ageing infrastructure
- 1.3% population growth
- Recent investment in infrastructure
- Engineering site visits can be costly, timely and not always accurate (despite highly trained individuals)



Gantry identifier falls on Melbourne's Tullamarine Fwy, 2019

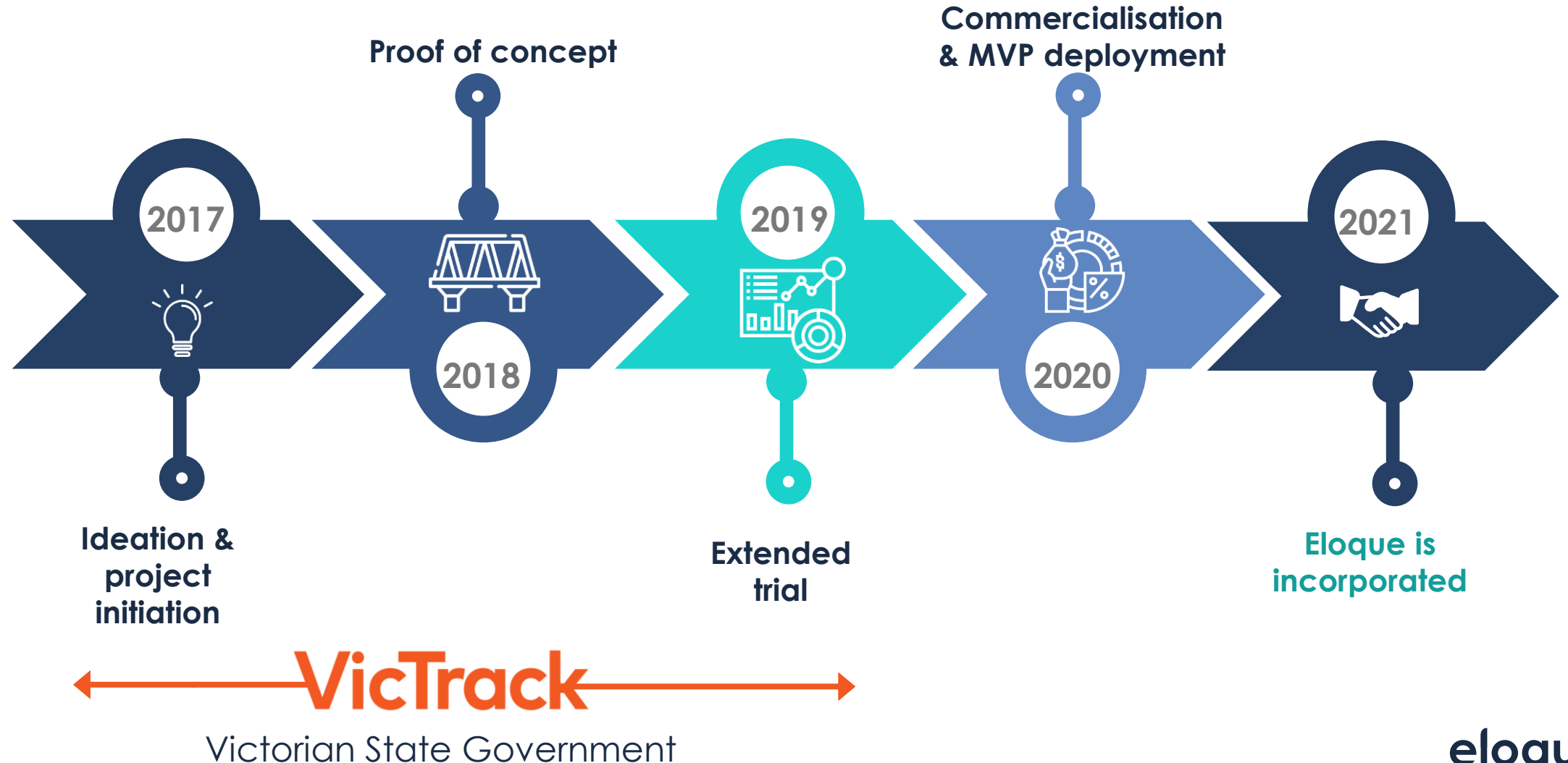
United Kingdom

- Many post-WWII bridges & earlier
- 0.6% population growth
- Limited budget to invest in ageing infrastructure (smart solutions needed)



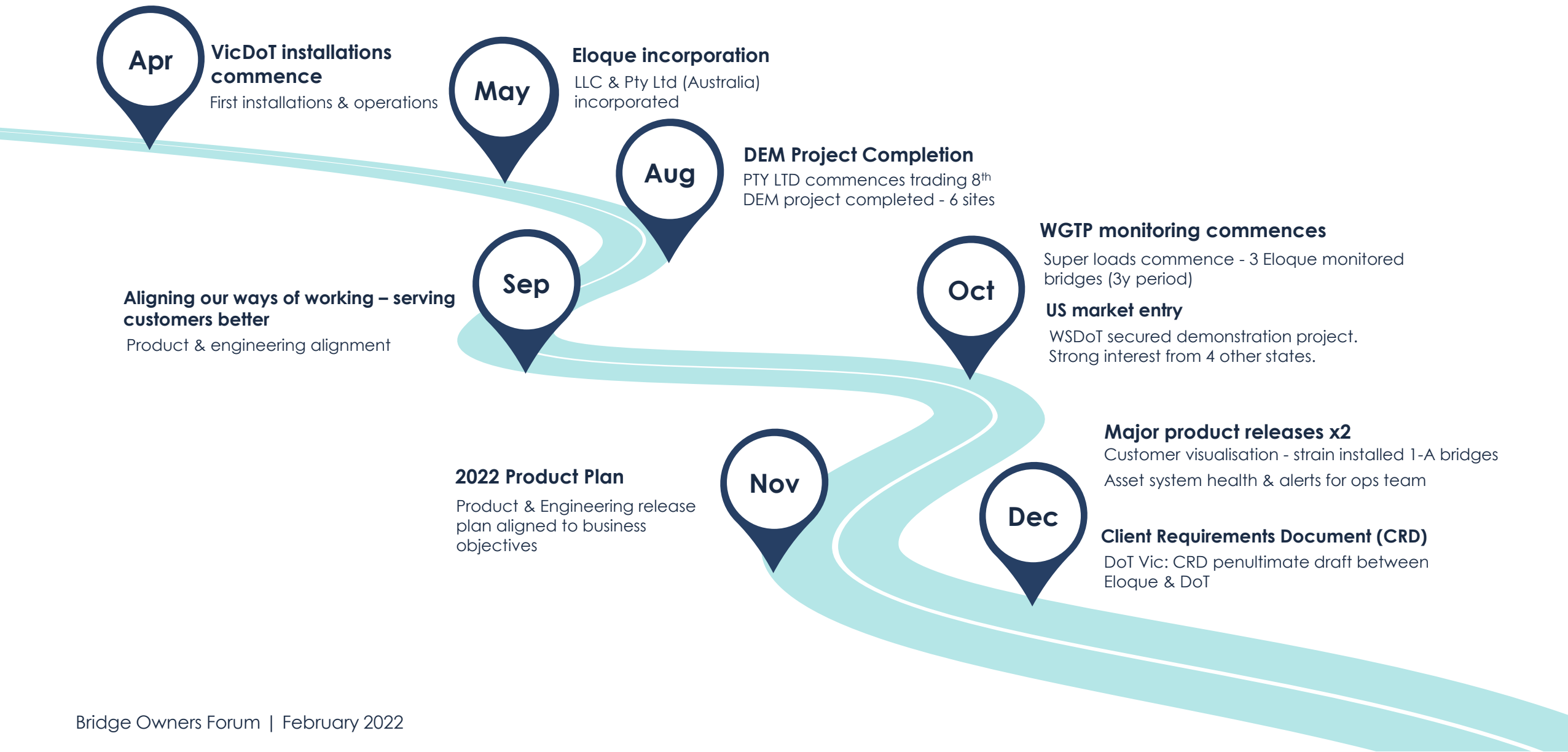
London's Hammersmith Bridge, closed to traffic since April 2019

The genesis of Eloque



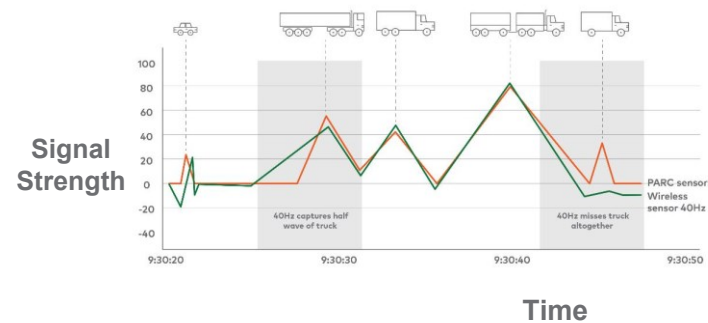
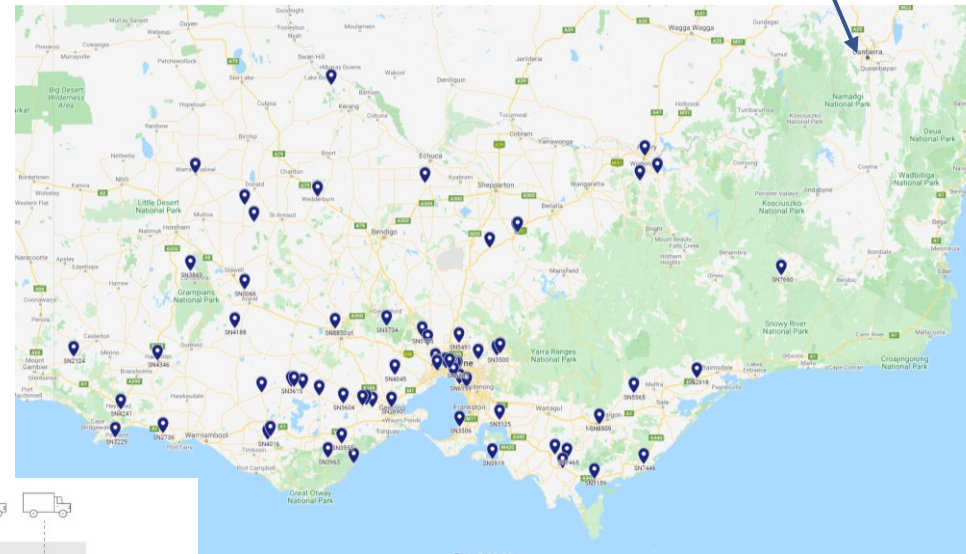
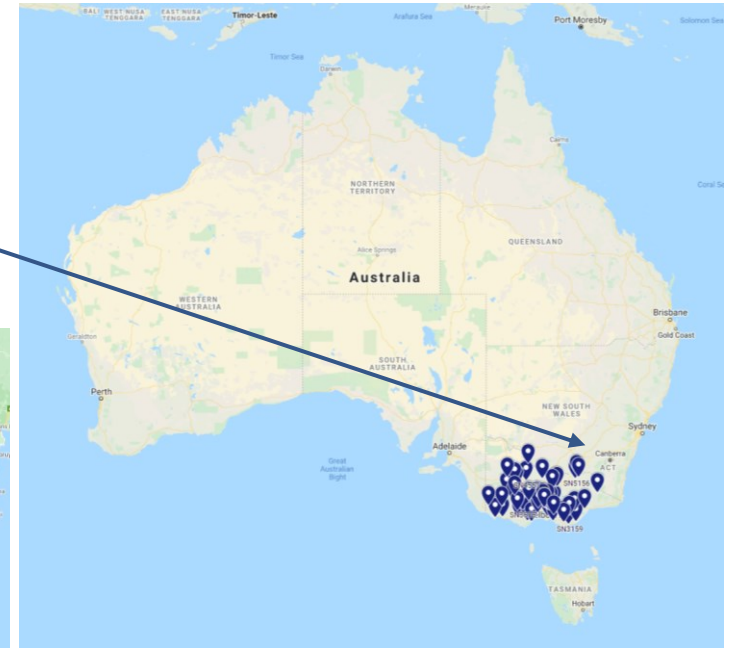
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Eloque achievements in 2021

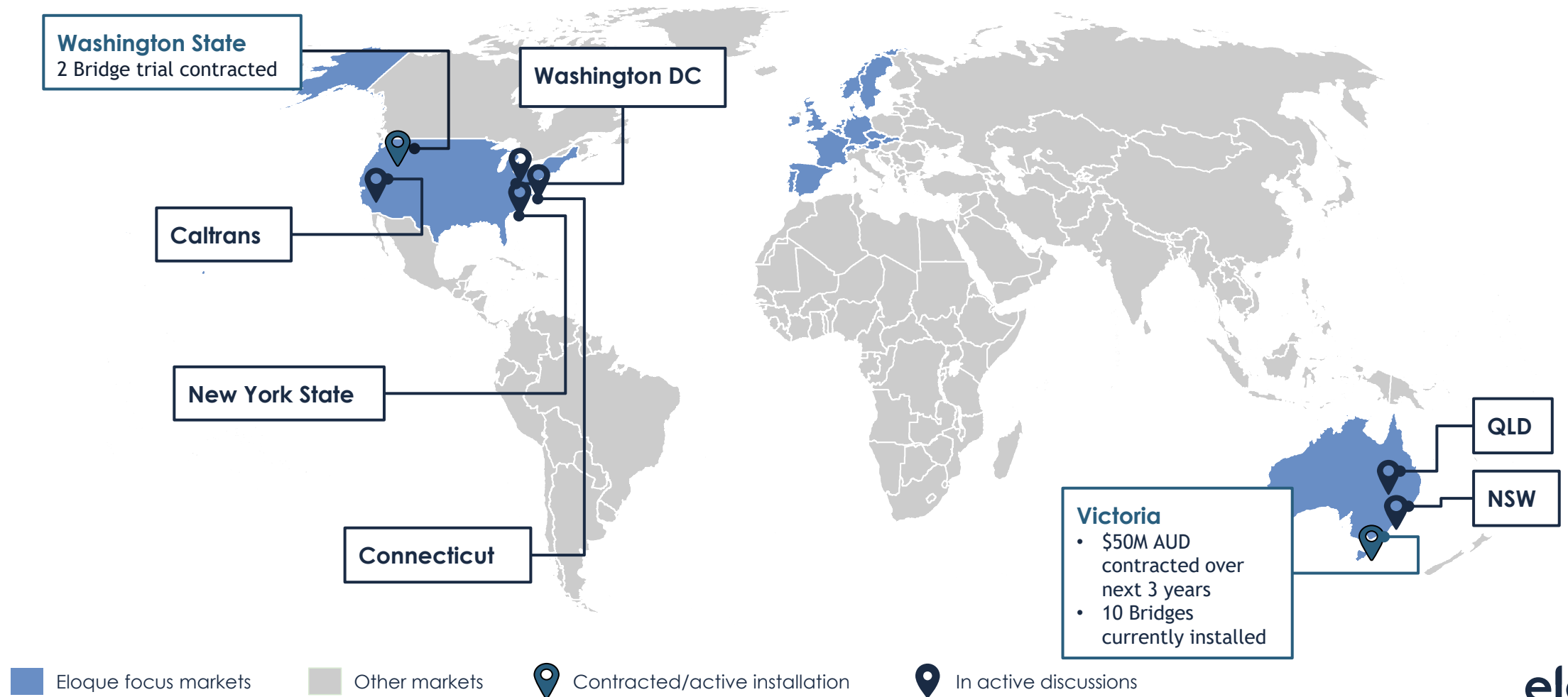


FiBridge locations in Australia

Australia's capital city - Canberra



Eloque's current and global footprint



We bring assets to life through the power of data

Problem

Infrastructure is ageing globally and deteriorating at an alarming rate.



Challenge

Maintenance costs are increasing but asset managers have limited information to make effective decisions.



Impact

When critical infrastructure fails it places lives, communities and governments at risk.



Our solution

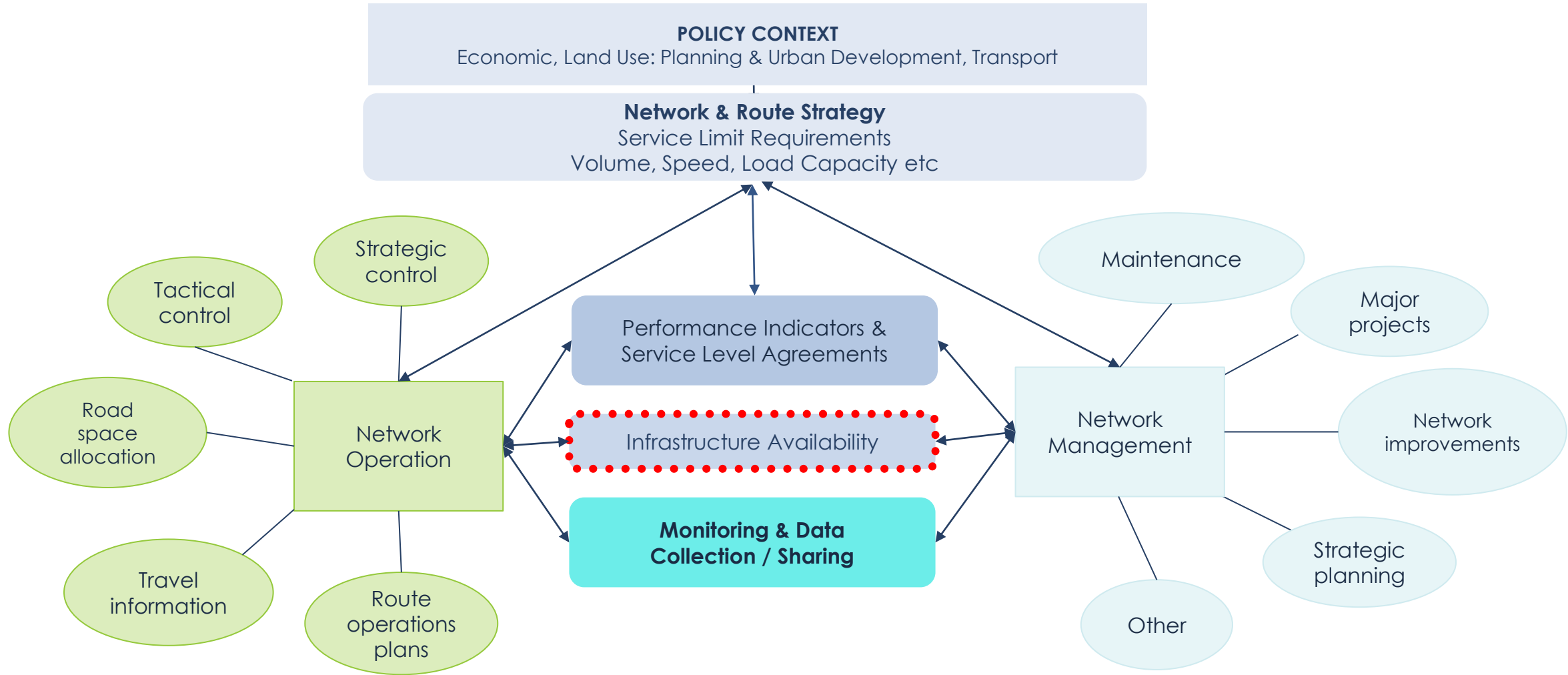
Real-time, cost-effective structural health monitoring using advanced fiber optic sensing technology and A.I

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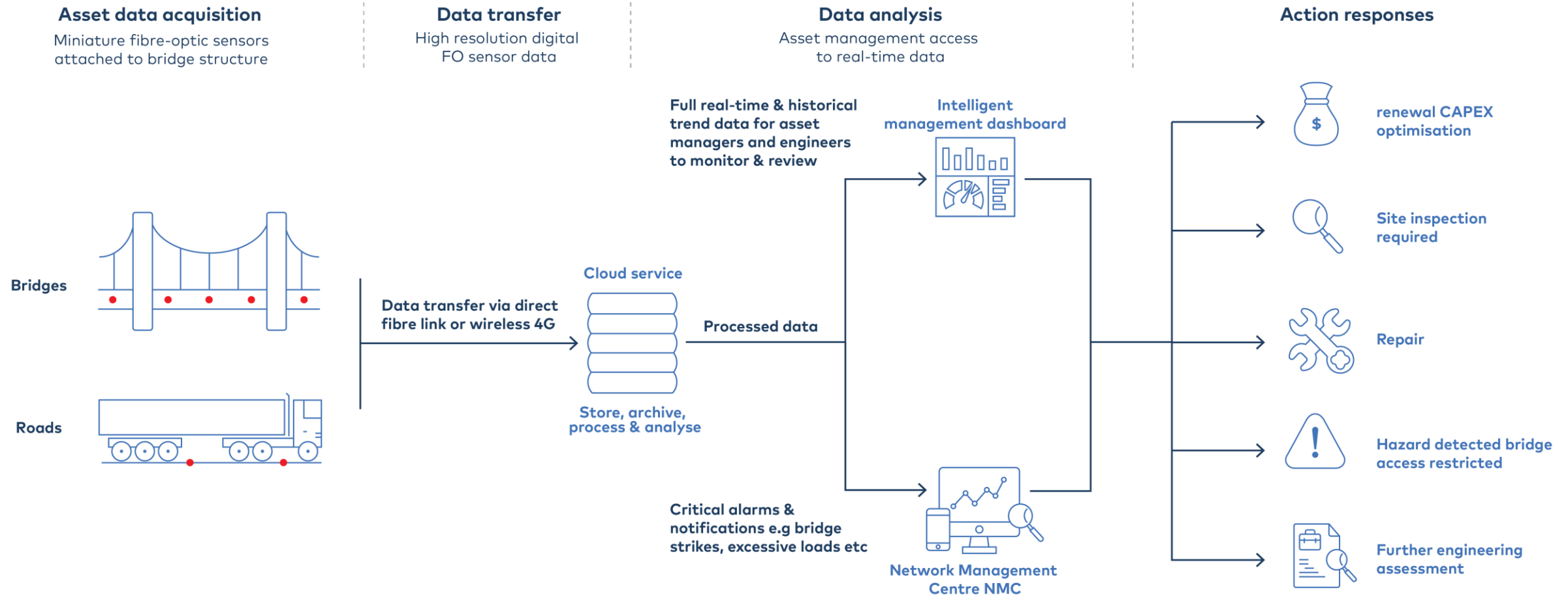
FiBridge is a **real-time** Structural Health Monitoring (SHM) solution using **imbedded fibre-optic sensing technology** with advanced analytics for informed, proactive asset management.



Simplified Network Operations



Delivering an end-to-end solution



Westgate Tunnel project

Politics: low tolerance for error

ALLs travelling on the elevated structure on the Syd > Mel highway

Eloque provided **confidence** for asset owners

- ✓ Site implementation completed
- ✓ New protection systems deployed
- ✓ All sites are green: this is the first site where this has been achieved
- ✓ First control vehicle tests have been conducted



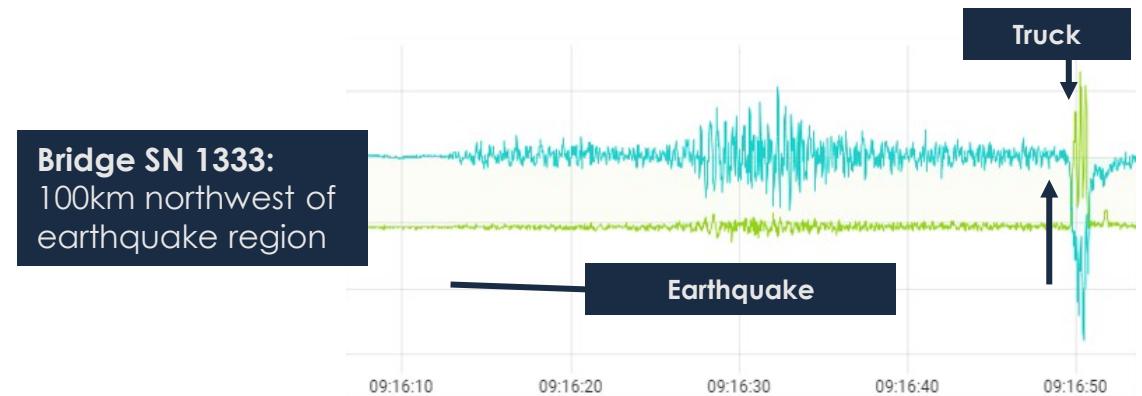
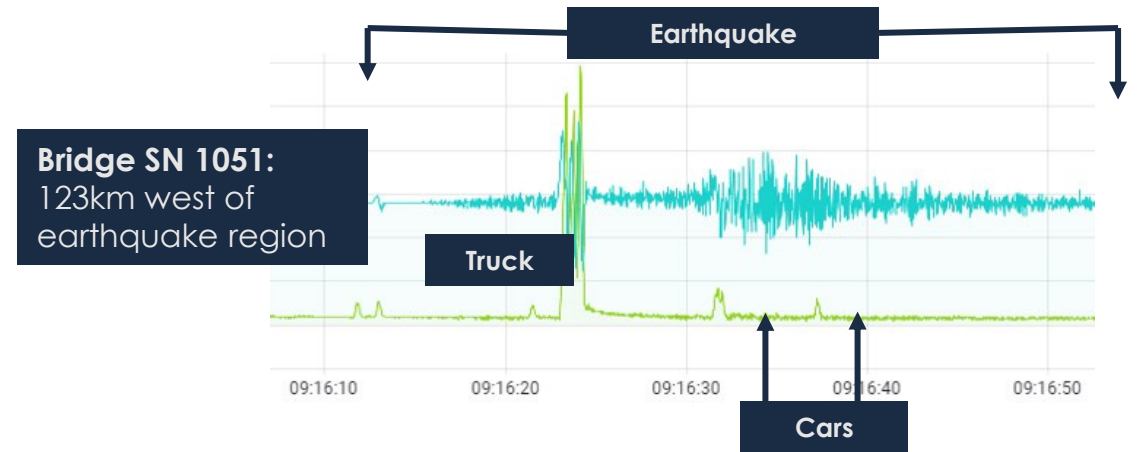
\$10bn (£5.2bn) of upgrades

4km tunnel to provide alt. route

9,000 trucks cross the bridge per day



Fibridge in use: Mansfield earthquake



Where to from here?

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Increasing policy support

for deployment of digital solutions in asset management



Moving toward sensors as asset management solution

Tech-driven asset management policy being progressed across government agencies, with a formal policy currently awaiting endorsement by Cabinet

- “ Advanced fibre-optic sensors on rail & road bridges collect real time structural performance data &...can replace some in-person inspections, providing **faster, cheaper, & more accurate condition reports.**

Infrastructure Victoria, Victoria's infrastructure strategy 2021-2051



Focusing on technological advances to extend life of bridges

- “ These innovations, technologies, & evaluation methods are **effectively allowing engineers to identify problems earlier**, increase the lifespan of the nation's bridges, stretch limited resources, & prioritize public safety.

American Society of Civil Engineers, Infrastructure Report Card - Bridges



Emphasising necessity of innovation in infrastructure

- “ Every infrastructure sector could face transformative technological change over the next twenty years... **This Strategy will ensure the UK is at the forefront of this technological revolution**

HM Treasury, National Infrastructure Strategy

Source: <https://infrastructurereportcard.org/wp-content/uploads/2020/12/Bridges-2021.pdf>;
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/938539/NIS_Report_Web_Accessible.pdf

SHM Features



Lightweight, durable & low cost fibre-optic cable & sensors are attached to the structure



Installed, tested & commissioned in several days often **without interruption to service**



Product can be **installed by any fibre optics deployment** or maintenance personnel



Multiple asset monitoring available through cable, wireless telco networks & satellites

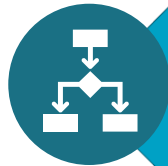
Vehicle Analytics Features



Durable & low-cost fibre-optic cable & sensors cut into the highway (no gantries)



Installed, tested & commissioned in several sessions under standard traffic management processes



Replaces functionality (at higher levels of accuracy/ reliability) currently delivered by multiple systems



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Questions & Answers

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