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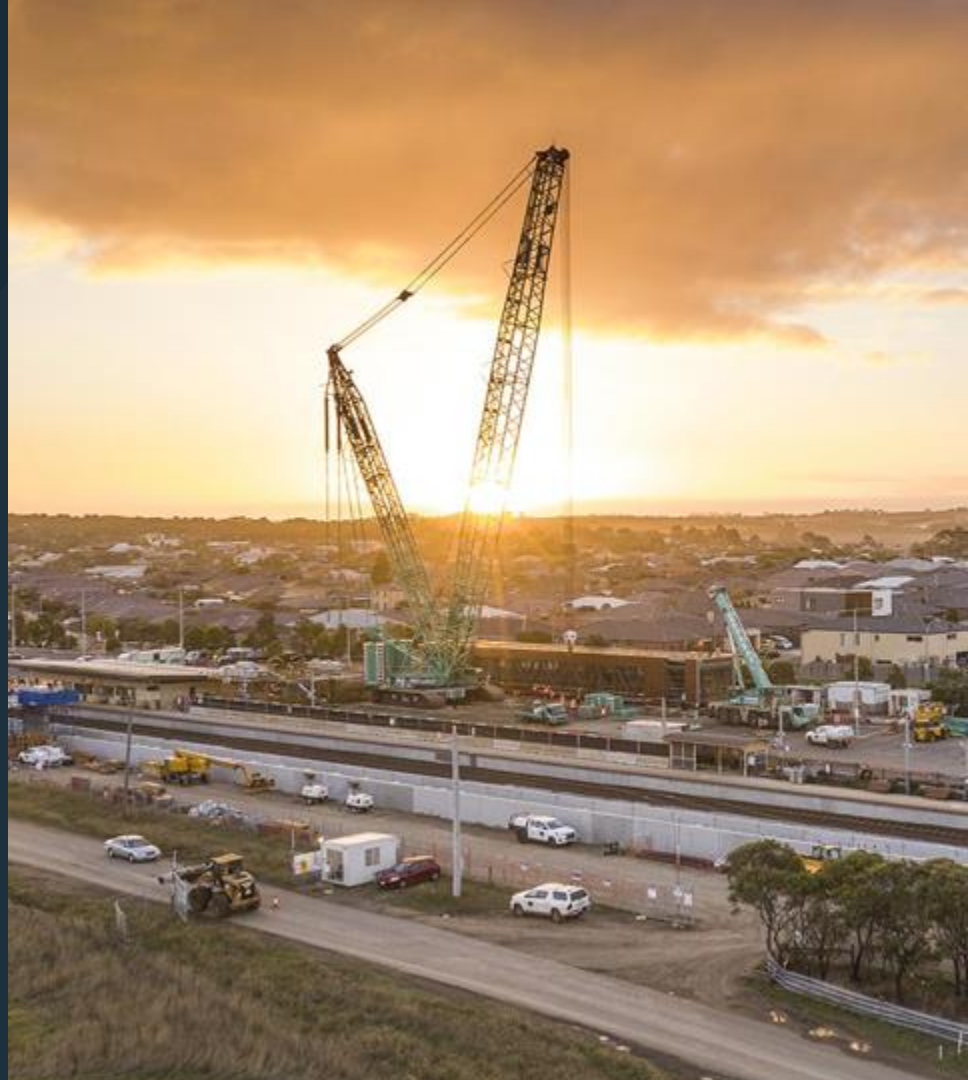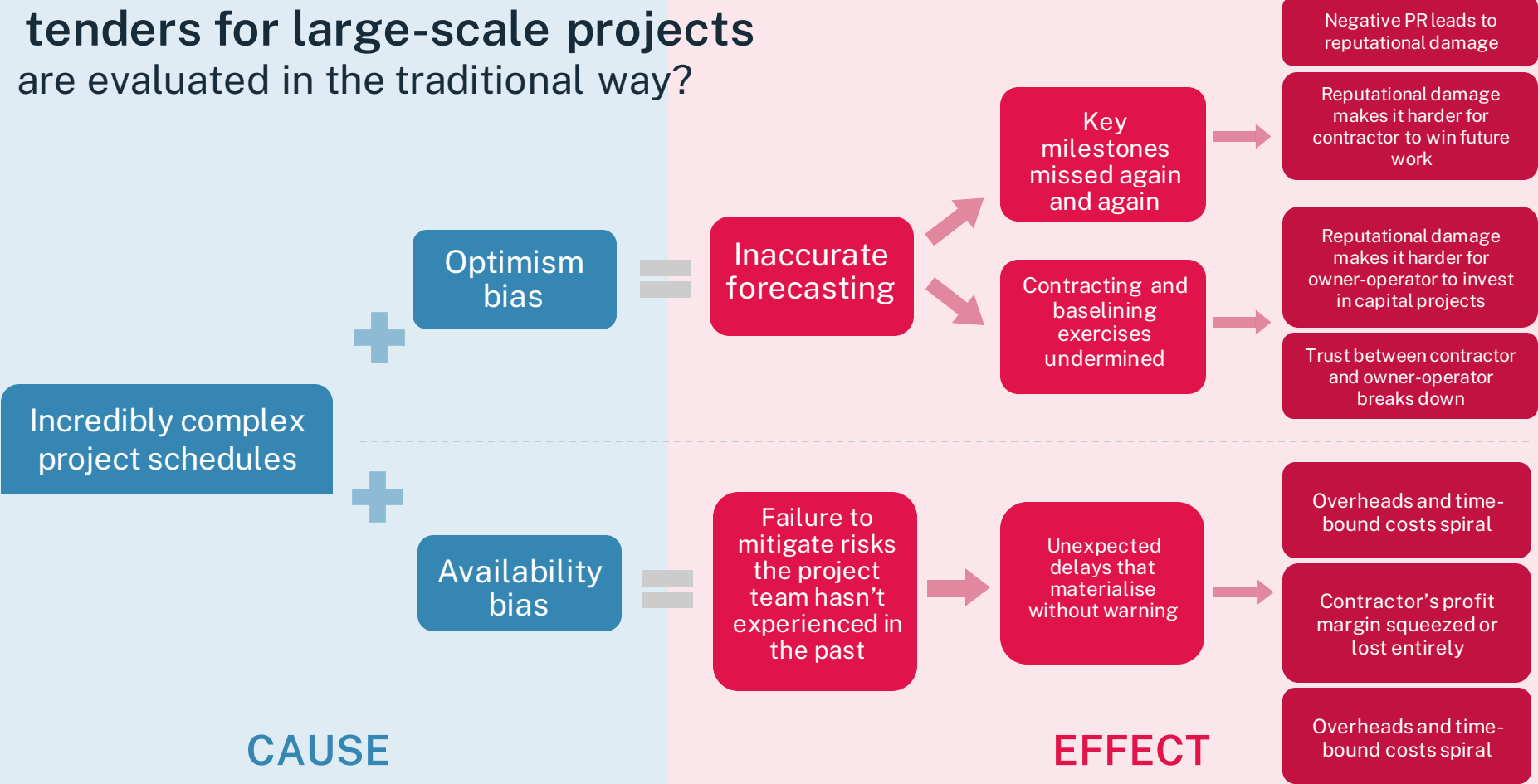# AI-powered forecasting and risk management on the South Geelong to Waurn Ponds Duplication

Dev Amratia & Josh Grant

REGIONAL RAIL REVIVAL | RAIL PROJECTS VICTORIA

What happens when **tenders for large-scale projects** are evaluated in the traditional way?

Incredibly complex project schedules

+

Optimism bias **=** **Inaccurate forecasting**

→ **Key milestones missed again and again**

→ Negative PR leads to reputational damage

→ Reputational damage makes it harder for contractor to win future work

→ **Contracting and baselining exercises undermined**

→ Reputational damage makes it harder for owner-operator to invest in capital projects

→ Trust between contractor and owner-operator breaks down

+

Availability bias **=** **Failure to mitigate risks the project team hasn't experienced in the past**

→ **Unexpected delays that materialise without warning**

→ Overheads and time-bound costs spiral

→ Contractor's profit margin squeezed or lost entirely

→ Overheads and time-bound costs spiral

CAUSE

EFFECT

It's 2022 and
the tendering process for large-scale projects
is still **BROKEN**

nPlan

Contractors are incentivised to make overly optimistic assessments of timescales and capabilities

Contractors can't afford time to develop rigorous schedules with high % chance of success and appropriate contingency

"Unknown Unknown" risks are often left that way, hidden within thousands of other activities

Bidding process does not build trust between owner-operator and contractor

Bidding process does not set winning bidder up for success; the bidder starts with a blank piece of paper after they've been awarded the contract

It's 2022 and
the tendering process for large-scale projects
is still **BROKEN**

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Unable to quantify risk of missed milestones and subsequent failure of business case

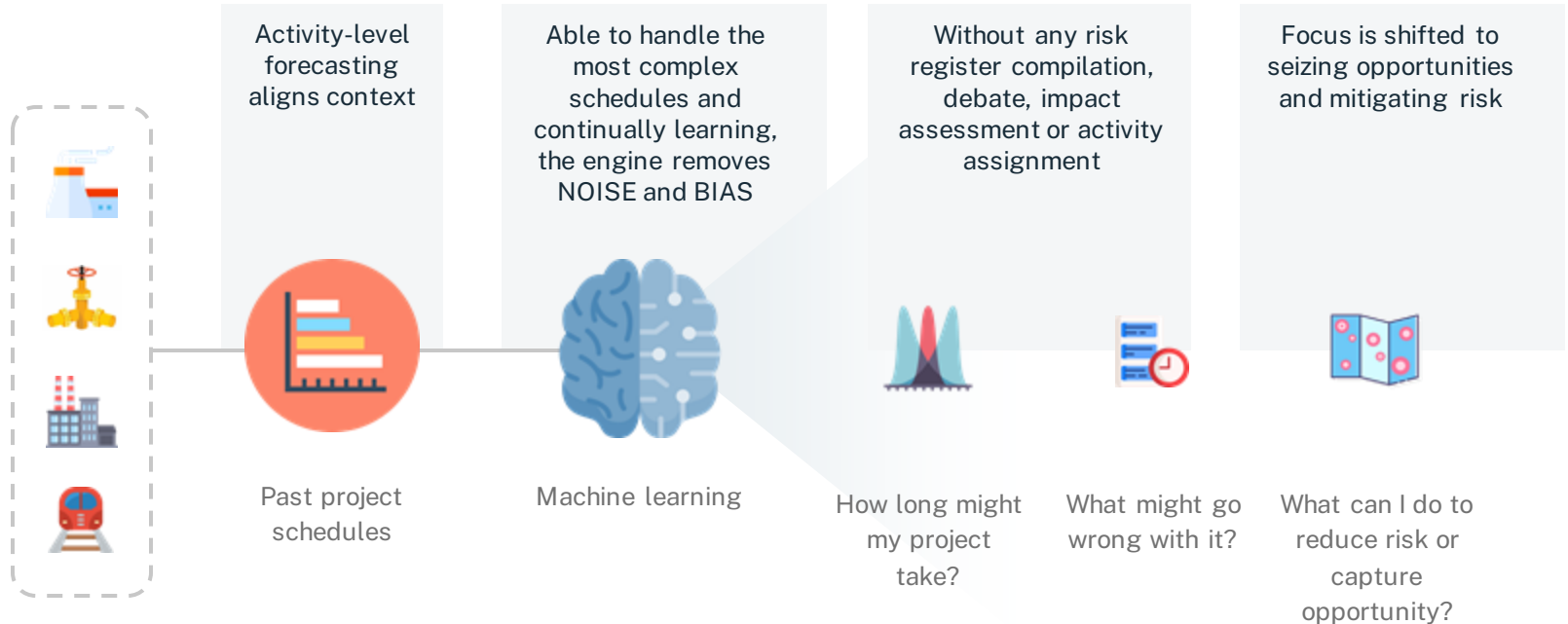**no way of objectively (bias free) *comparing* bid schedules**

Lack of quantitative data to develop bids

"People didn't believe me before, now they do. I am able to get more traction with the team."

nPlan is a data-derived schedule and risk forecasting method that uses past project data and machine learning to generate unbiased forecasts of project outcomes.
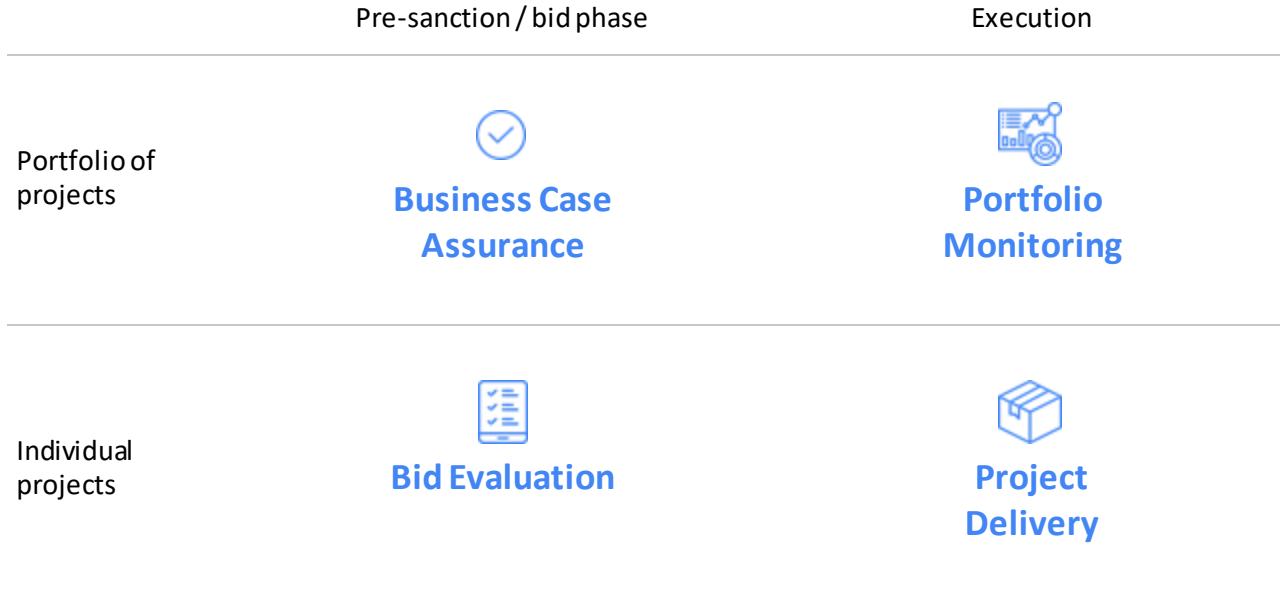
Activity-level forecasting aligns context

Able to handle the most complex schedules and continually learning, the engine removes NOISE and BIAS

Without any risk register compilation, debate, impact assessment or activity assignment

Focus is shifted to seizing opportunities and mitigating risk

Past project schedules

Machine learning

How long might my project take?

What might go wrong with it?

What can I do to reduce risk or capture opportunity?

... allowing fast iteration, using objective inputs to help you understand project risk and forecasted outcomes

	Pre-sanction / bid phase	Execution
Portfolio of projects	**Business Case Assurance**	**Portfolio Monitoring**
Individual projects	**Bid Evaluation**	**Project Delivery**

nPlan

Founded in the

UK

in 2017

Hypothesis: we can use AI to identify risks and forecast projects

Taking optimism bias (and a bunch of other biases) quite literally out of the equation and going a long way towards solving the problem of delayed projects

Secured

$22M

In funding from backers including Google Ventures, the founder of Deepmind, and the former CEO of McKinsey

Customers include:

COSTAIN

hs2

KIER

NetworkRail

Google

SKANSKA

Team of

70

- and growing

Has amassed over

550,000

Construction schedules creating the biggest dataset of its kind in the world

nPlan

CASE STUDY

RAIL
PROJECTS
VICTORIA

How Rail Projects Victoria used AI-powered forecasting and risk management to choose the best tender for its South Geelong to Waurn Ponds Duplication Project

About the Project

Project Name: South Geelong to Waurn Ponds Duplication
Project Type: Railway construction
Project Value: ~$900M AUD
Works to start: Late 2022

1 nPlan's AI learnt how rail projects are delivered

2 RPV shared bid schedules with nPlan

3 The bid schedules were processed in nPlan Project

4 RPV used nPlan's findings to evolve the bid schedules

5 nPlan processed the iterated bid schedules

6 RPV selected a tender

Data in the side-by-side analysis provided by nPlan
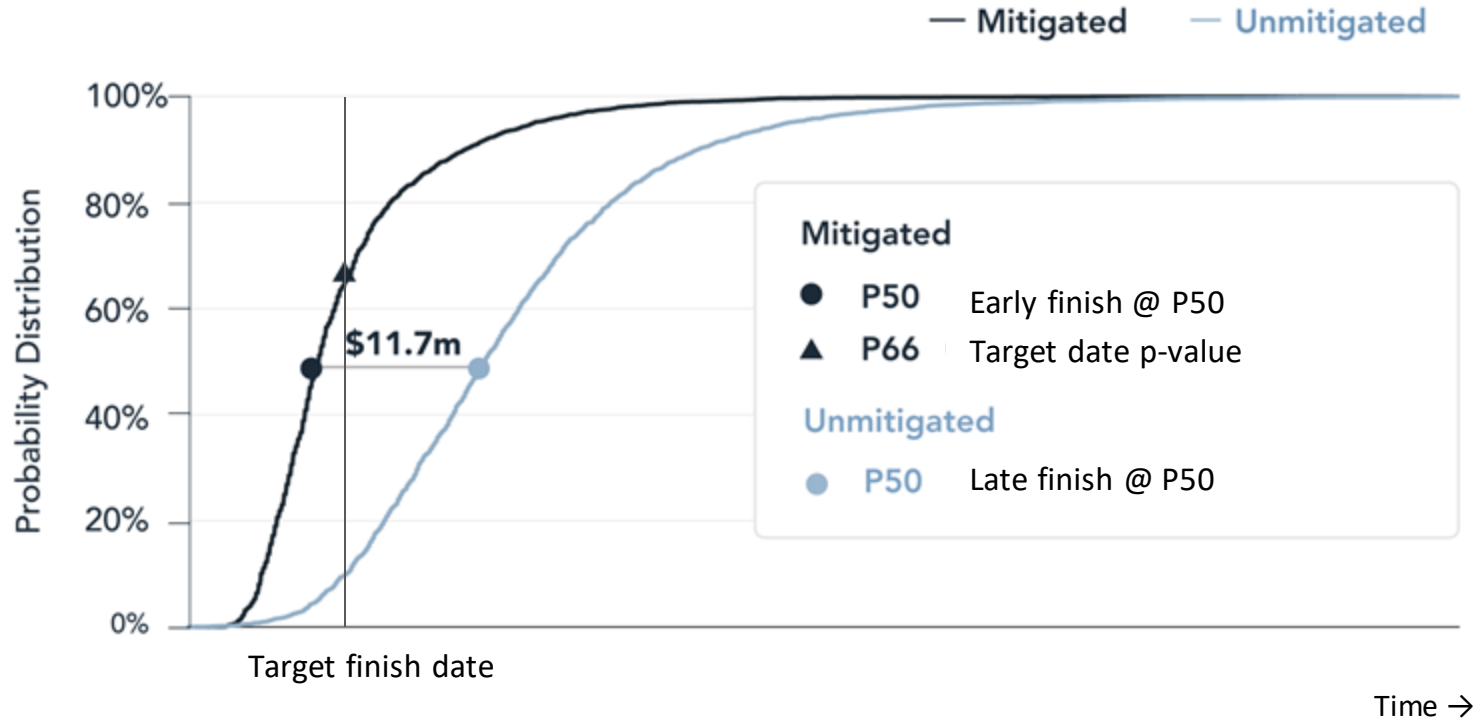
Cost Avoidance
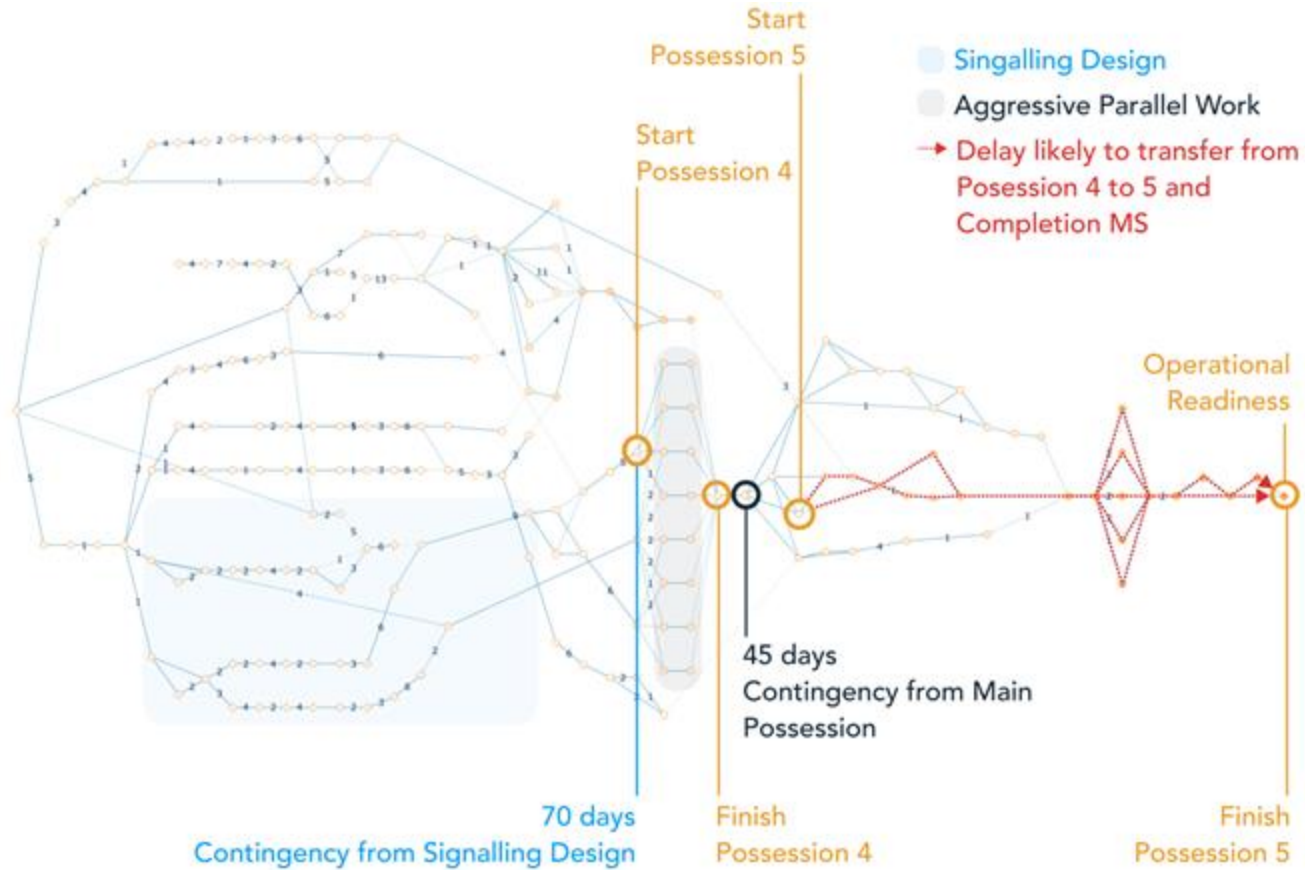
RESULTS AT TENDER AWARD

Value of unmitigated total risks identified by nPlan @ P80

$19.4M

Value of risks identified and _actioned_ so far:

$8.25M

ROI of RPV's investment in nPlan so far:

100x

Benefits for Rail Projects Victoria

✅ Easily assess whether schedules are realistic

✅ Compare bid schedules with quantitative data

✅ Develop risk mindset from the tender phase

✅ Quantify project risk contingency

✅ Formalise key milestones which work for both contract parties

✅ Build trust with contractor partner before a contract is awarded

Benefits for chosen contractor

✅ Rewarded for developing a rigorous, realistic schedule
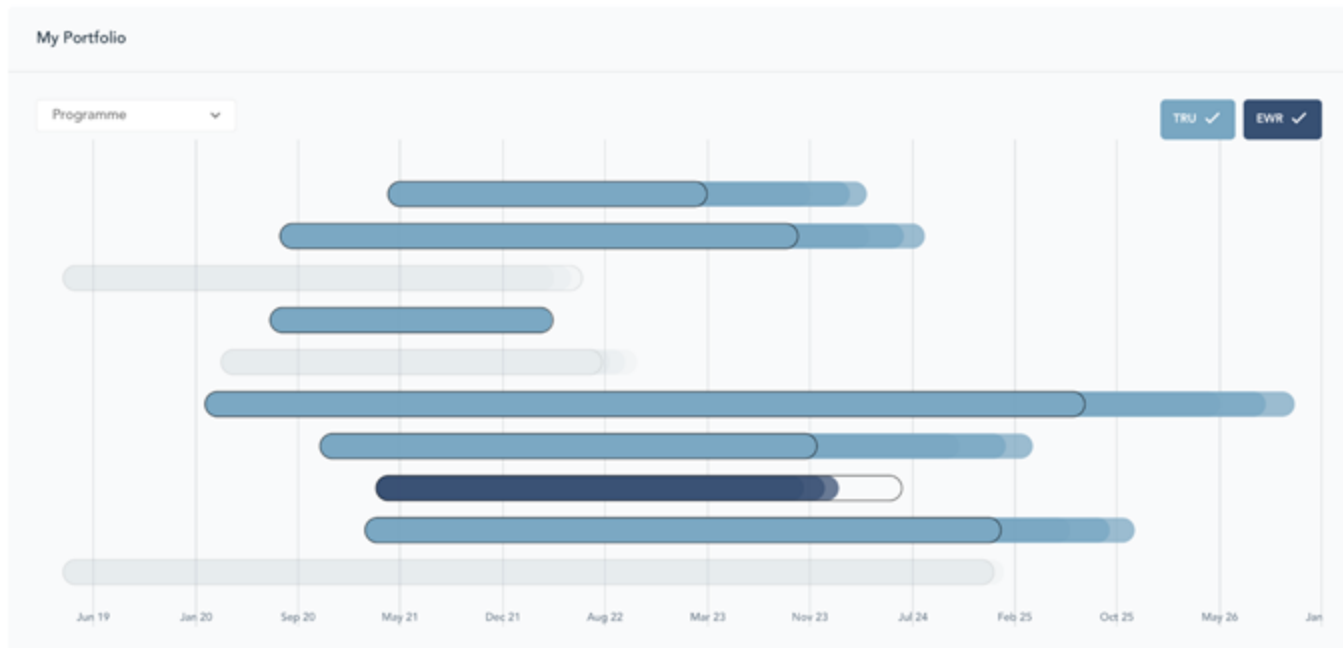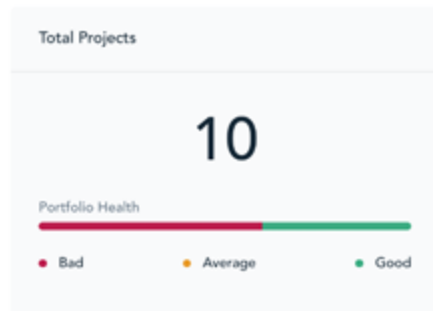
✅ Start negotiation phase with a de-risked schedule

✅ Receive ongoing insights from nPlan to help with identification of risks

✅ Start project from position of trust with owner-operator

SCAN ME

nPlan