The Watercare Enterprise Model (EM) and Implementation of Practical Digital Engineering Solutions

Richard McIntosh & Farzam Farzadi – March 2023
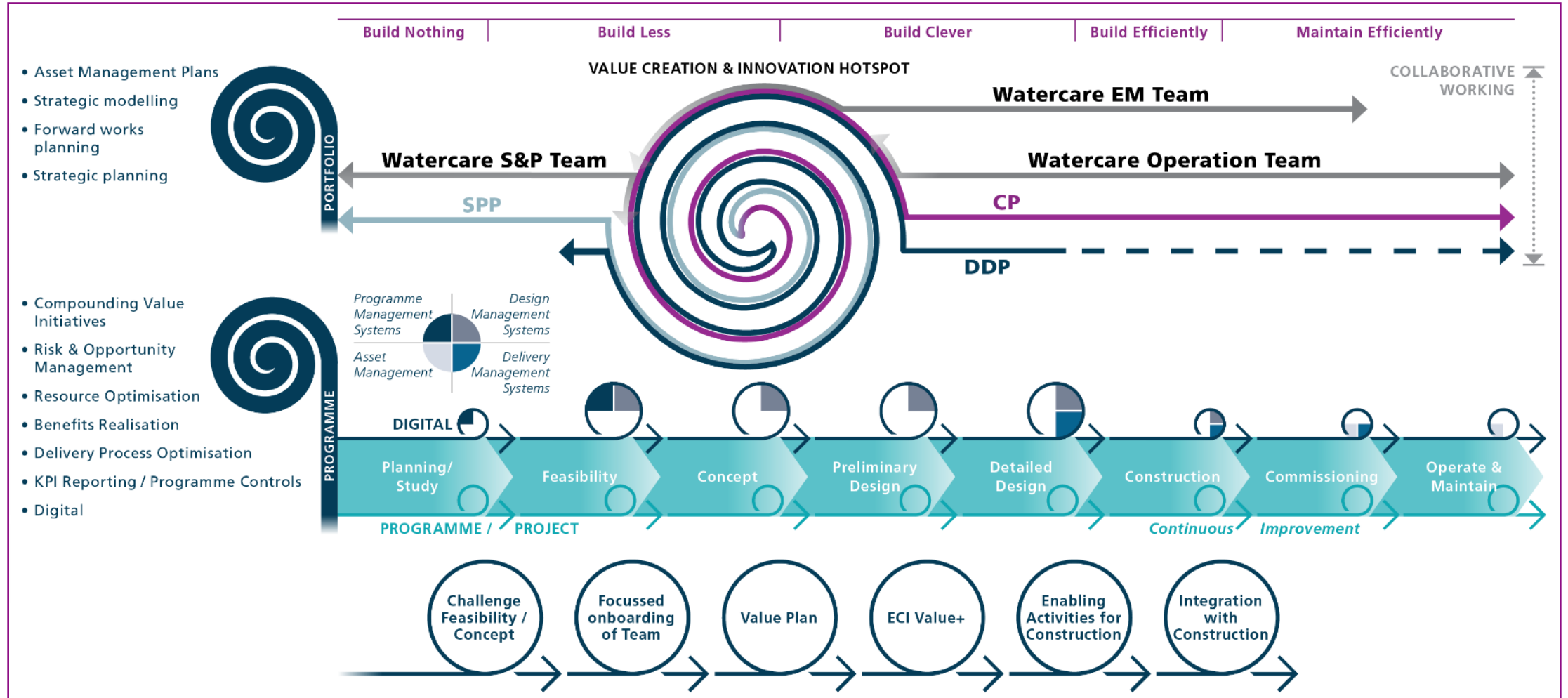
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everyday
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Agenda:

- About the Enterprise Model (EM)
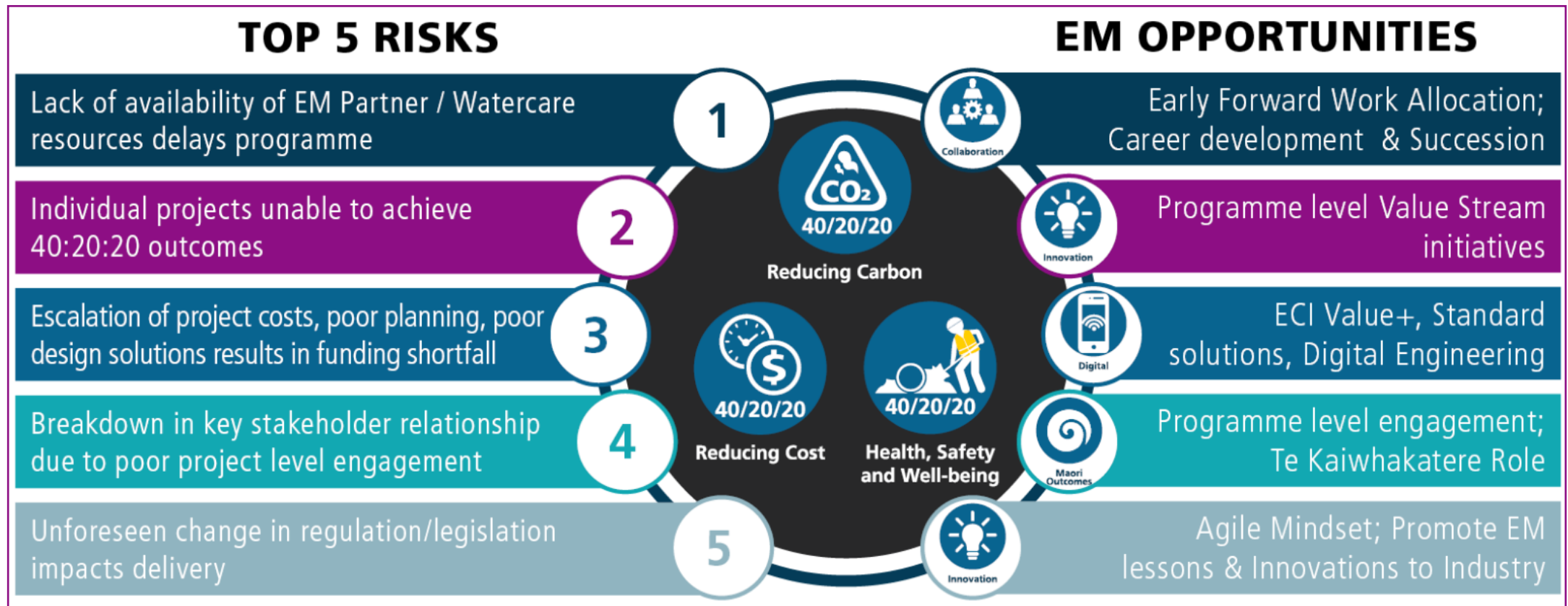
- The EM Digital Journey

- The Outcomes

- Reflections

About the EM:

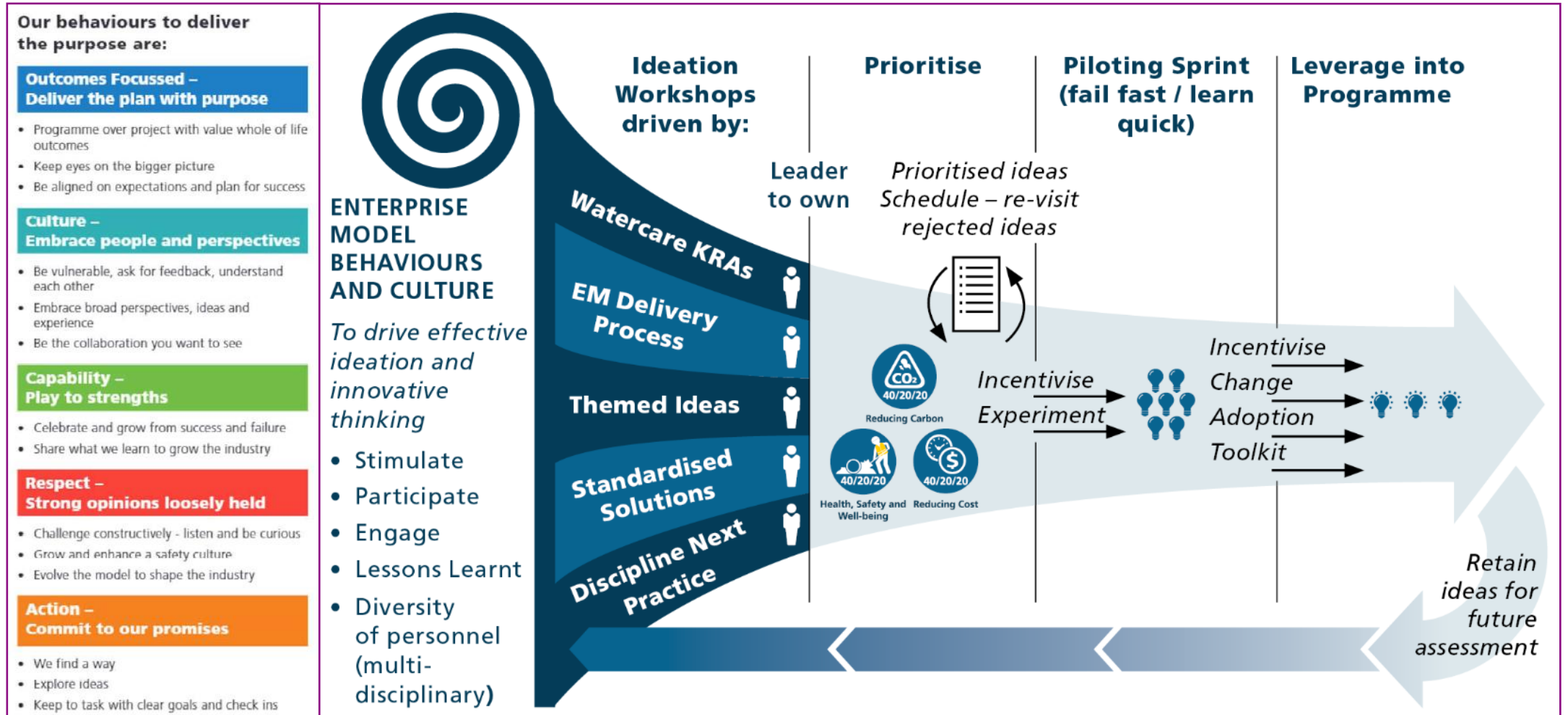# The EM Goals and Value Outcomes:

Watercare Goals and Value Outcomes

Reduce carbon in construction by 40% by 2024

Reduce infrastructure delivery costs by 20% by 2024

Reduce injuries during construction year on year by 20%

Risk Avoidance benefits
- Compliance to mandatory standards
- Supply continuity from ethically sound supply chains
- 'One Way of Working'
- Operating in accordance with Watercare's values

PROTECTIVE

Continuous Improvement benefits
- Continually engineering out components and work practices which add cost, but no value to the construction lifecycle
- Realising Watercare's sustainability agenda

PRODUCTIVE

Game-changing benefits
- Recognised as global leaders in infrastructure delivery
- At the forefront of capability development within the industry (Watercare Academy)
- Blueprint for how greater value can be realised from other expenditure
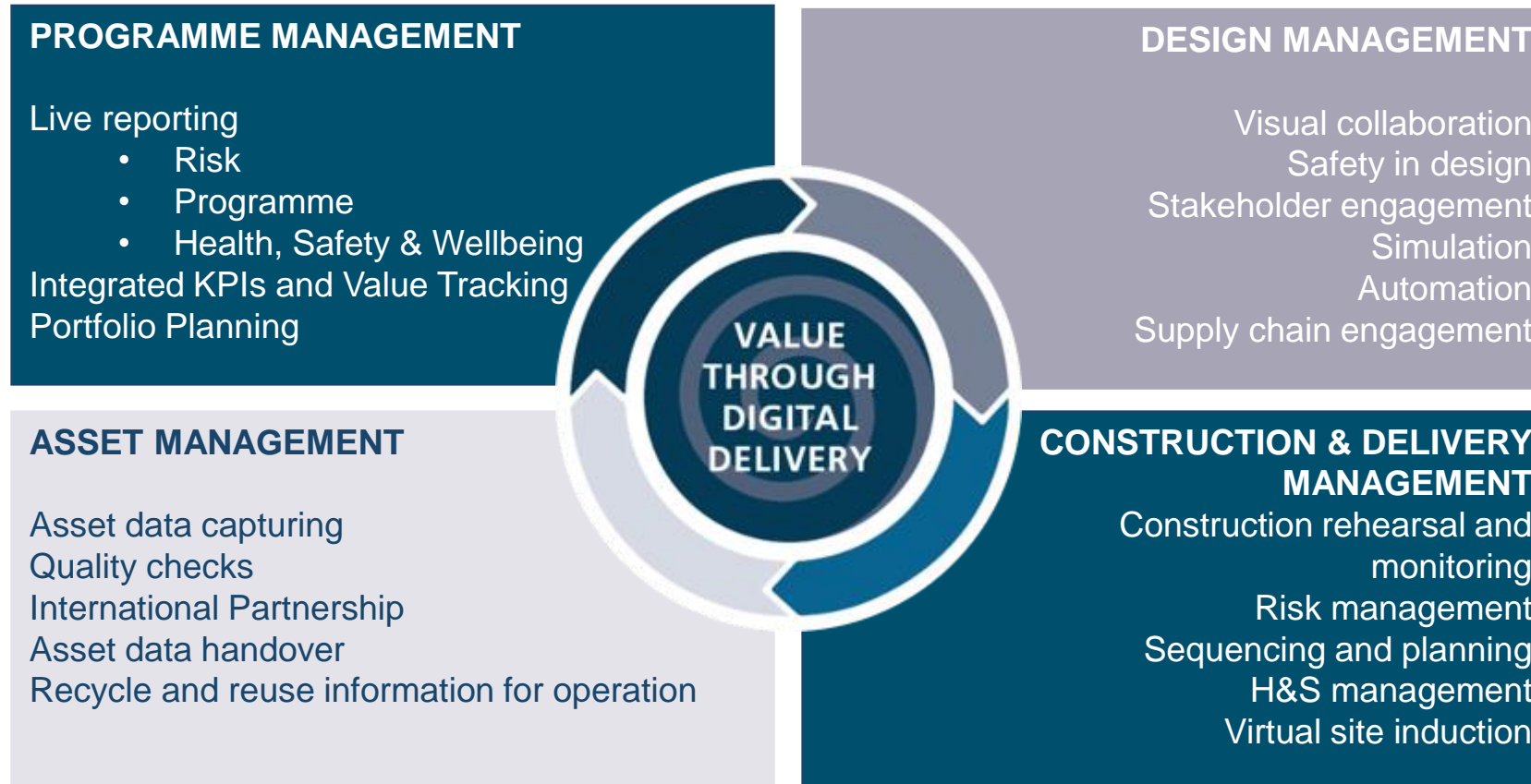- Kaitiakitanga

PROGRESSIVE
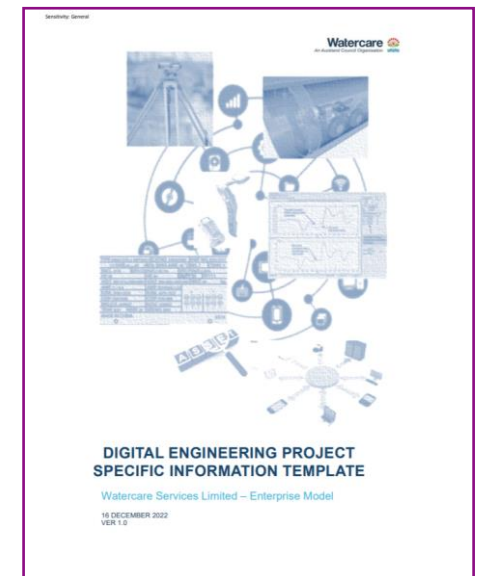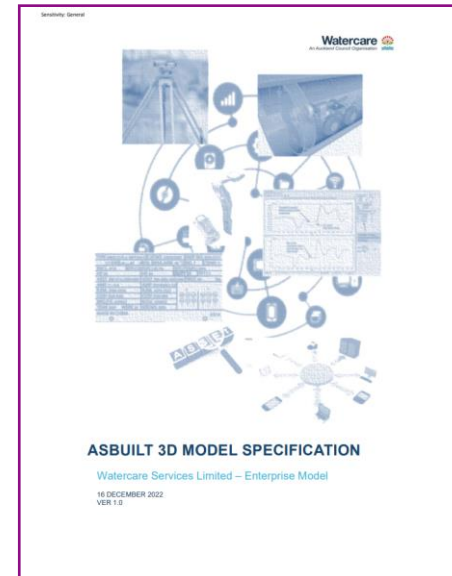
The EM Risks and Opportunities:

TOP 5 RISKS

1. Lack of availability of EM Partner / Watercare resources delays programme
2. Individual projects unable to achieve 40:20:20 outcomes
3. Escalation of project costs, poor planning, poor design solutions results in funding shortfall
4. Breakdown in key stakeholder relationship due to poor project level engagement
5. Unforeseen change in regulation/legislation impacts delivery

EM OPPORTUNITIES

1. Early Forward Work Allocation; Career development & Succession
2. Programme level Value Stream initiatives
3. ECI Value+, Standard solutions, Digital Engineering
4. Programme level engagement; Te Kaiwhakatere Role
5. Agile Mindset; Promote EM lessons & Innovations to Industry

CO_2 40/20/20 Reducing Carbon

40/20/20 Reducing Cost

40/20/20 Health, Safety and Well-being

Collaboration

Innovation

Digital

Maori Outcomes

Innovation

Watercare
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The EM Culture:

Value Through Digital Delivery:

PROGRAMME MANAGEMENT

Live reporting
- Risk
- Programme
- Health, Safety & Wellbeing

Integrated KPIs and Value Tracking
Portfolio Planning

DESIGN MANAGEMENT

Visual collaboration
Safety in design
Stakeholder engagement
Simulation
Automation
Supply chain engagement

VALUE THROUGH DIGITAL DELIVERY

ASSET MANAGEMENT

Asset data capturing
Quality checks
International Partnership
Asset data handover
Recycle and reuse information for operation

CONSTRUCTION & DELIVERY MANAGEMENT

Construction rehearsal and monitoring
Risk management
Sequencing and planning
H&S management
Virtual site induction
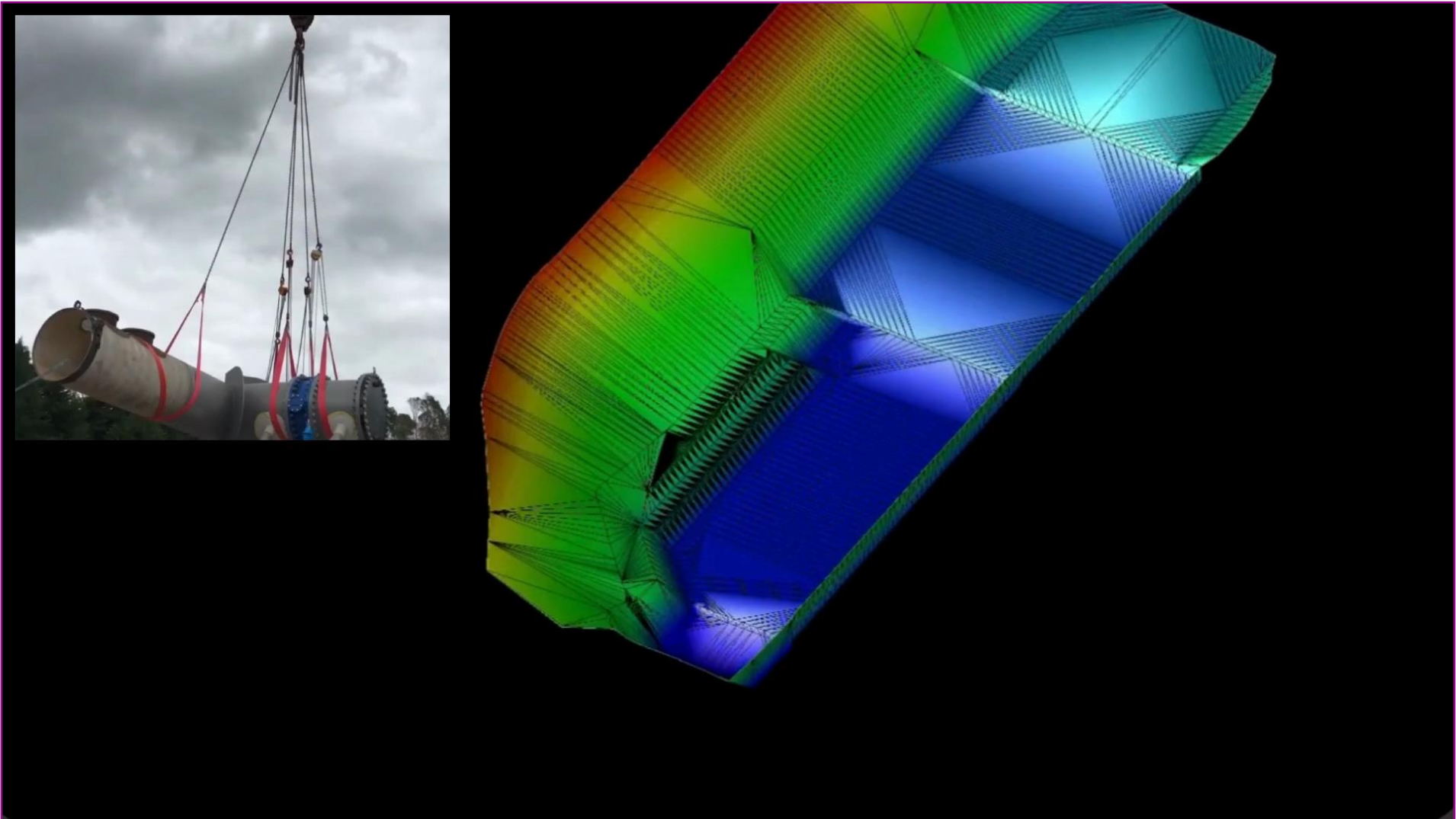
Watercare
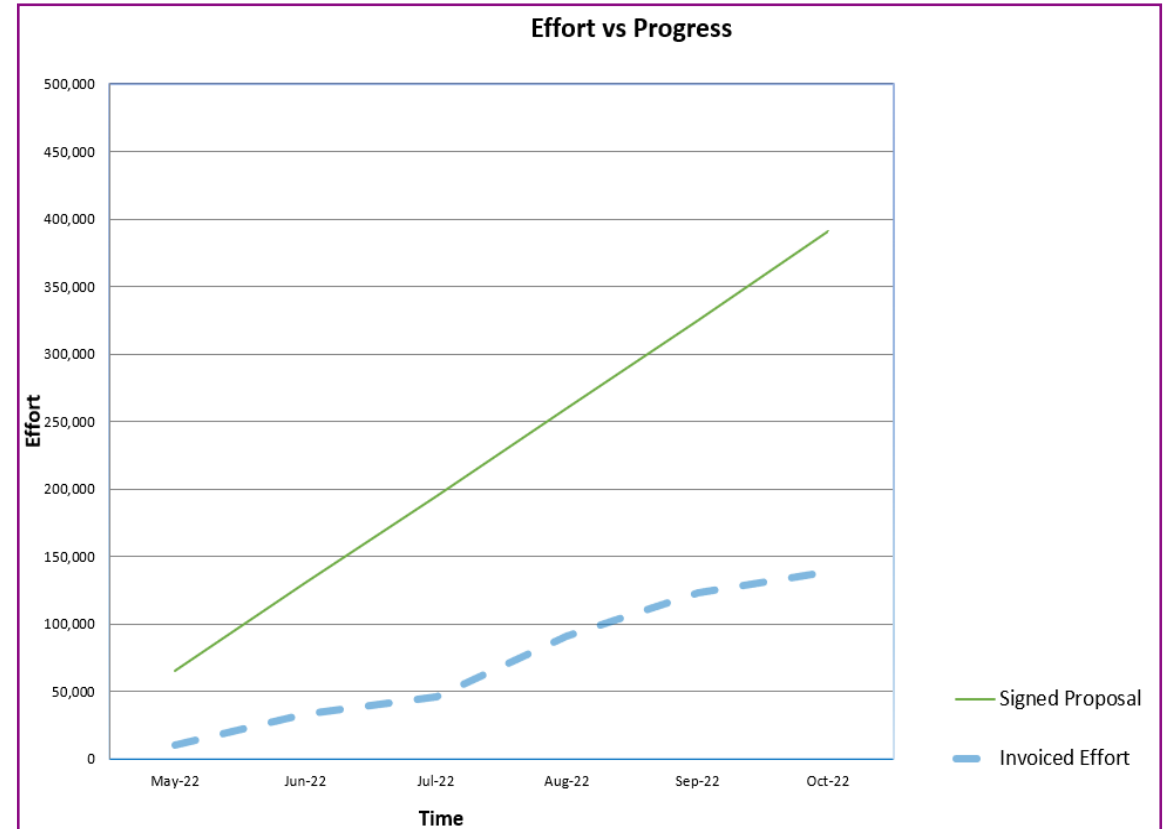*An Auckland Council Organisation*

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The EM Digital Delivery Strategies:

We focused on practicality, effectiveness, and agile improvement.

DIGITAL ENGINEERING EXECUTION PLAN

DIGITAL ENGINEERING - RETURN ON INVESTMENT

LEVEL OF DEVELOPMENT SPECIFICATION

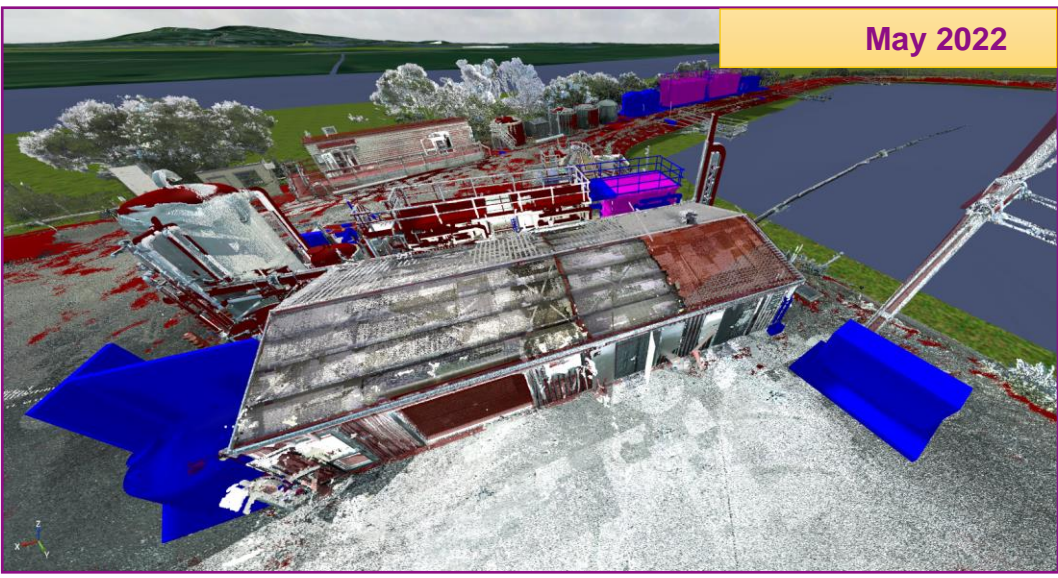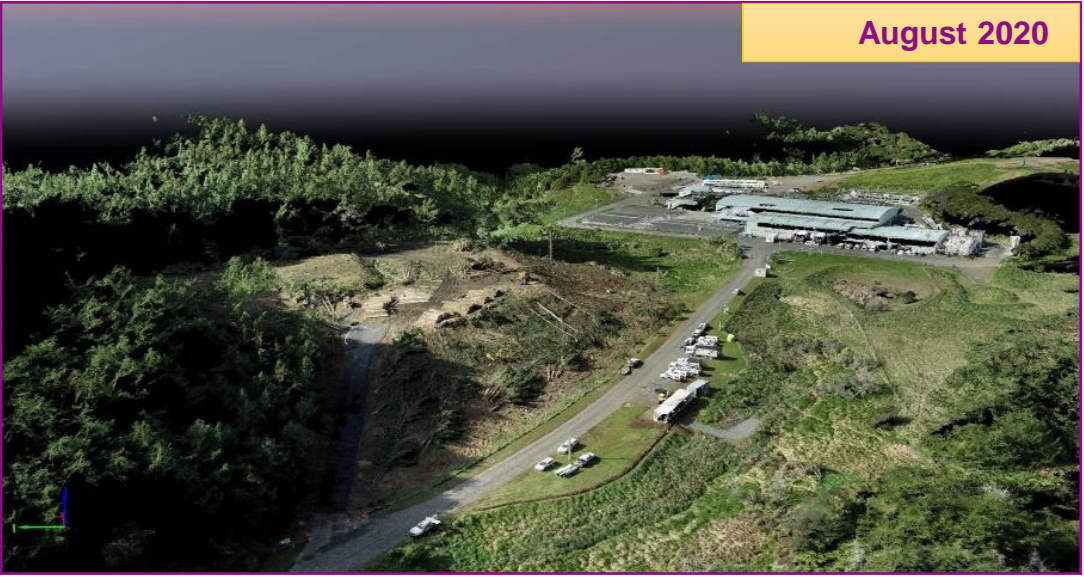ASBUILT 3D MODEL SPECIFICATION

DIGITAL ENGINEERING PROJECT SPECIFIC INFORMATION TEMPLATE
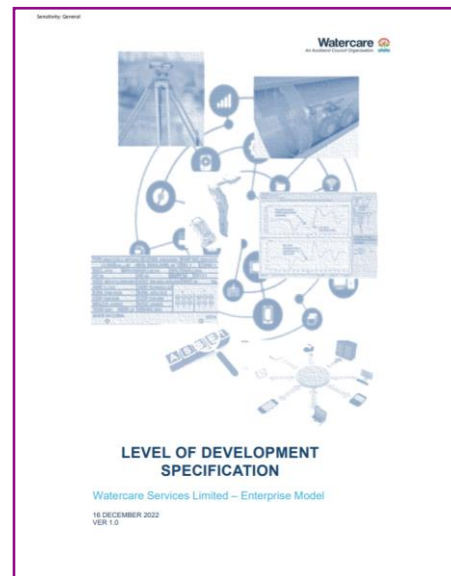
The Outcomes: Data driven solutions

The Outcomes: Minimising RFIs and reworks

RFIs vs Time
- Estimated RFIs (Construction Queries)
- Received RFIs (Construction Queries)

Effort vs Progress
- Signed Proposal
- Invoiced Effort
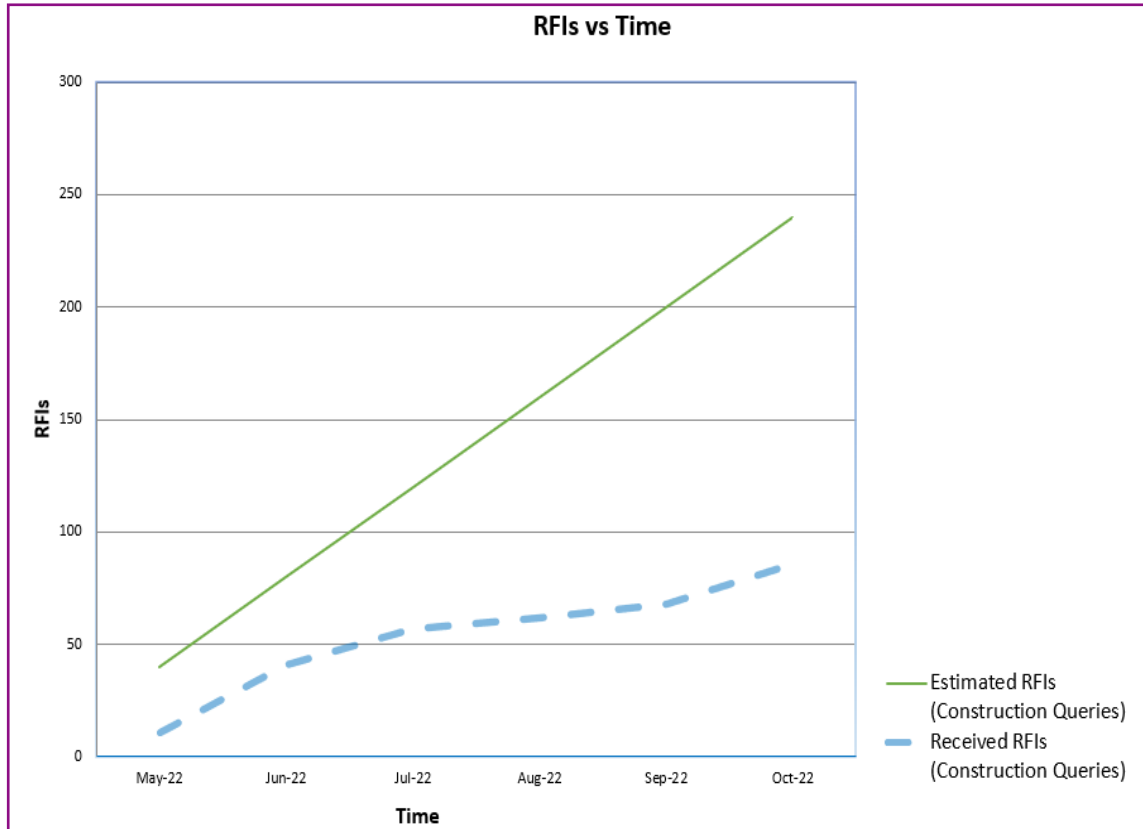
The Outcomes: Agile delivery

August 2020

February 2021

July 2021

May 2022

The Outcomes: Empowering the supply chain
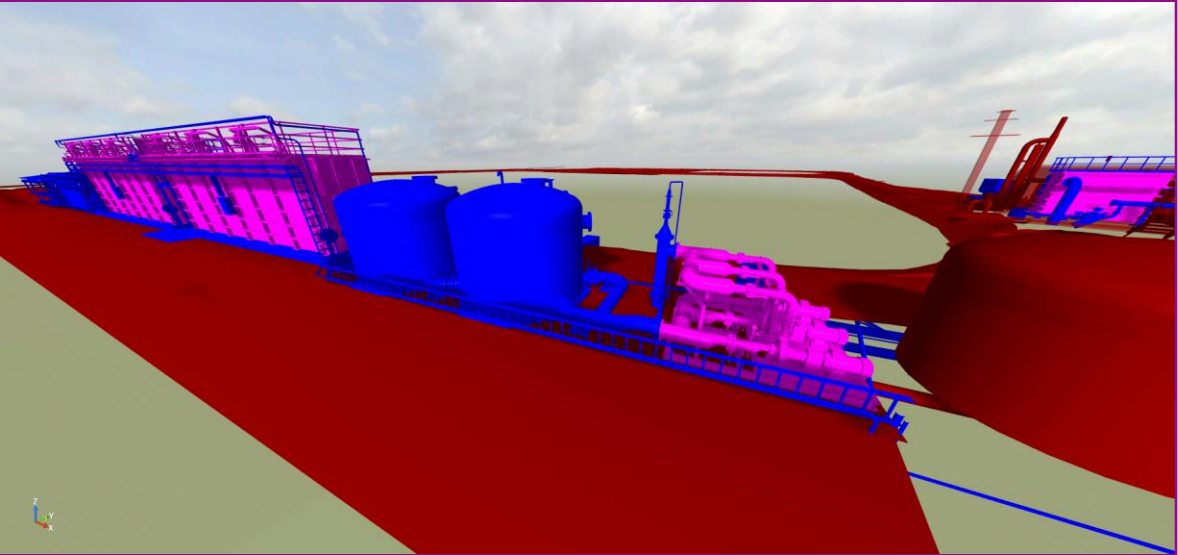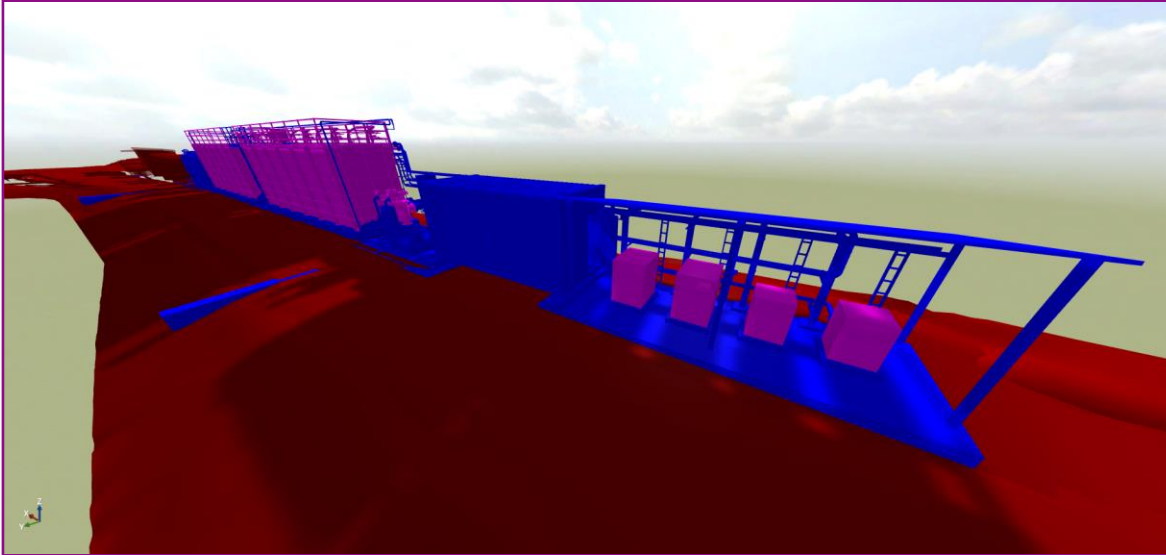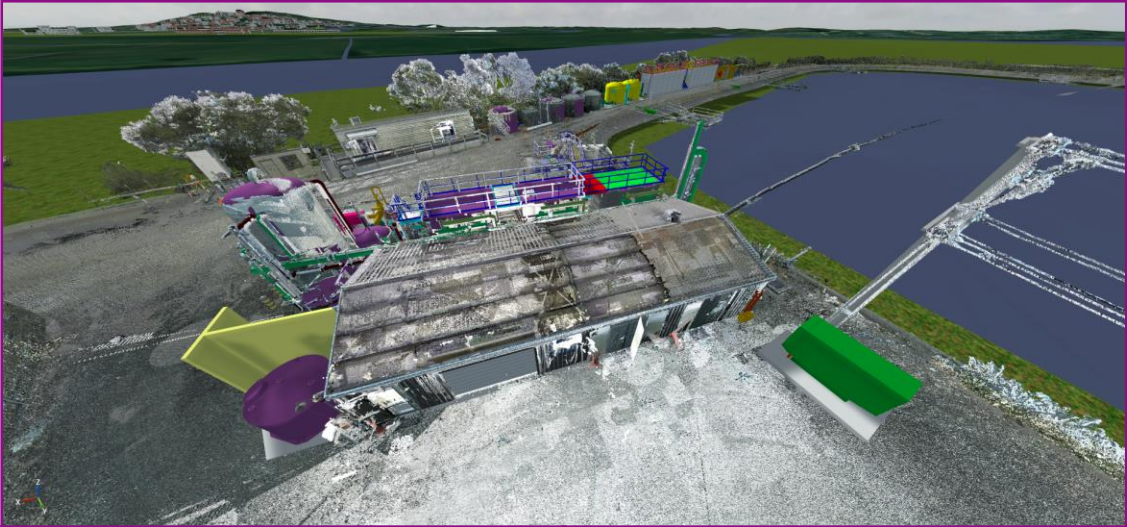
Reflections:

- Courage to try something and being willing to adapt

- Focus on practicality and agile improvement – progress vs perfection

- Manage technical and culture barriers – this is a people journey

- Alignment of expectations between users

- Digital is not an innovation, it needs to be our way of working

- Client maturity is a challenge – how do we use digital beyond the build?

- Value realisation is critical and needs to be communicated

Idea, Expectation, Framework or Requirement

There 1000,000 technical and cultural barriers/risks to manage

Outcome

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Conversation Corner:

- We will join Beca's conversation corner at 1 pm.
- Please join us; we look forward to meeting you and answering your questions.

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ENTERPRISE
MODEL

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