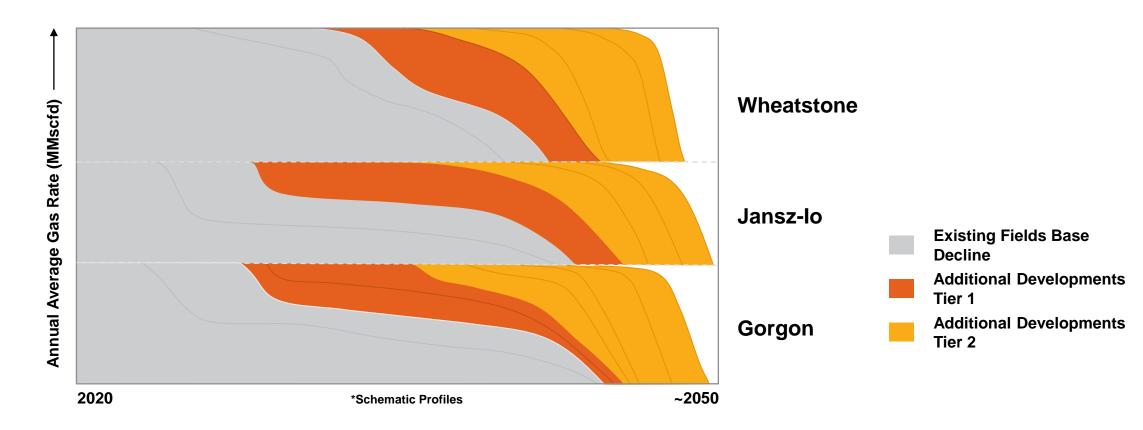# Fully Integrated Field Development Optimisation for Chevron's Australia's Gas Development Opportunities

Matthew Johnson
Chevron Australia Pty Ltd
Manager Applied Reservoir Management and Technology

Chevron Australia – Key Business Needs

- Competitive Development for Higher Returns – Costs, Cycle Time, Technologies
- Tens of Billions of Capital Required for Additional Developments – Capital Efficiency is Critical
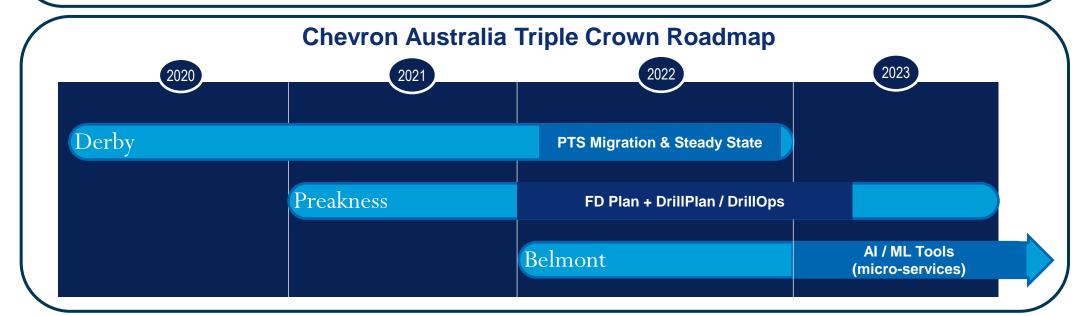- Key Focus is on Lower Carbon Development Alternatives

Triple Crown Partnership and Chevron Australia

Chevron

Schlumberger

Microsoft

The Triple Crown partnership is leveraging a unique opportunity for 3 global organizations to work together in accelerating development of cloud-native solutions and creating vastly improved, digitally enabled petro-technical workflows

Chevron Australia Triple Crown Roadmap

| 2020 | 2021 | 2022 | 2023 |

Derby — PTS Migration & Steady State

Preakness — FD Plan + DrillPlan / DrillOps

Belmont — AI / ML Tools (micro-services)

Digital Capabilities Required for Field Development Optimization
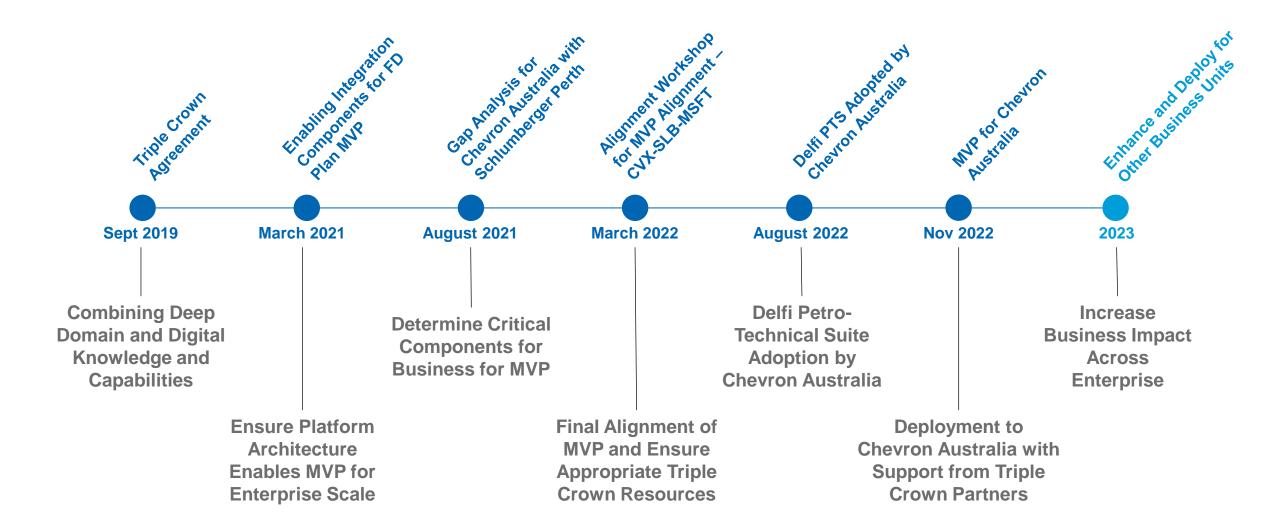
- Automation
  - End-to-end workflow
  - Significant reduction in concept generation and comparison cycle time
  - New data incorporated into scenario evaluation for rapid understanding of impact and value trade-offs
  - Automated knowledge management
- Integration, Compute and Data
  - Data architecture supports integration of significant and diverse data sets
  - Rapidly model significant number of development concept alternatives
  - Connect with dynamic data from operations
  - Quick access to high quality data
- UI/UX
  - Intuitive user interface that improves clarity of alternatives for decisions
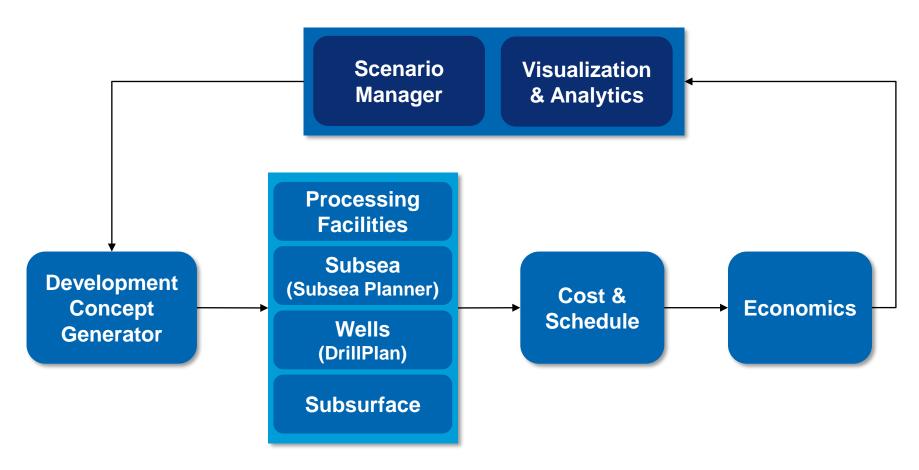 - Tools that end users help create and want to use!

Field Development Planning Timeline

Triple Crown Agreement

Enabling Integration Components for FD Plan MVP

Gap Analysis for Chevron Australia with Schlumberger Perth

Alignment Workshop for MVP Alignment – CVX-SLB-MSFT

Delfi PTS Adopted by Chevron Australia

MVP for Chevron Australia

Enhance and Deploy for Other Business Units

Sept 2019 — **March 2021** — **August 2021** — **March 2022** — **August 2022** — **Nov 2022** — **2023**

Combining Deep Domain and Digital Knowledge and Capabilities

Determine Critical Components for Business for MVP

Delfi Petro-Technical Suite Adoption by Chevron Australia

Increase Business Impact Across Enterprise

Ensure Platform Architecture Enables MVP for Enterprise Scale

Final Alignment of MVP and Ensure Appropriate Triple Crown Resources

Deployment to Chevron Australia with Support from Triple Crown Partners

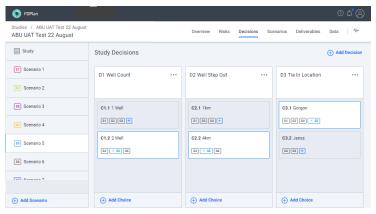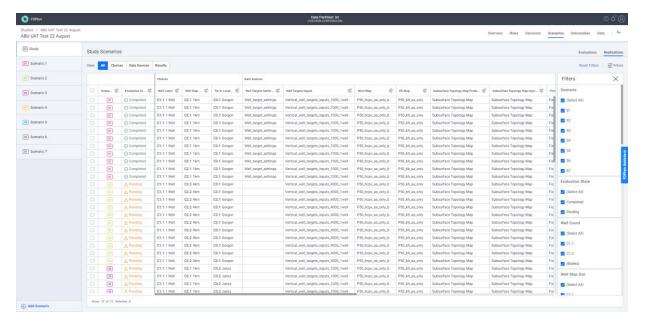# Field Development Planning End to End Solution

- End-to-end workflow helps determine possible value paths to test for field development
- Concepts leverage models (subsurface & network), production forecasts, well alternatives and subsea equipment needs for a range of possible cost and schedule alternatives with economic determinations
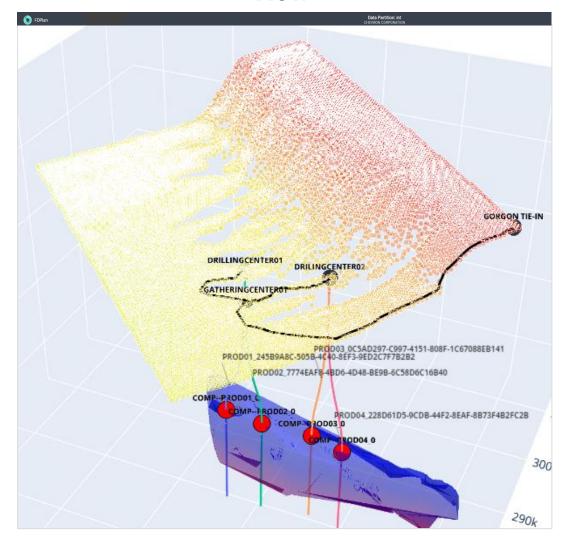
Scenario Management

Manager

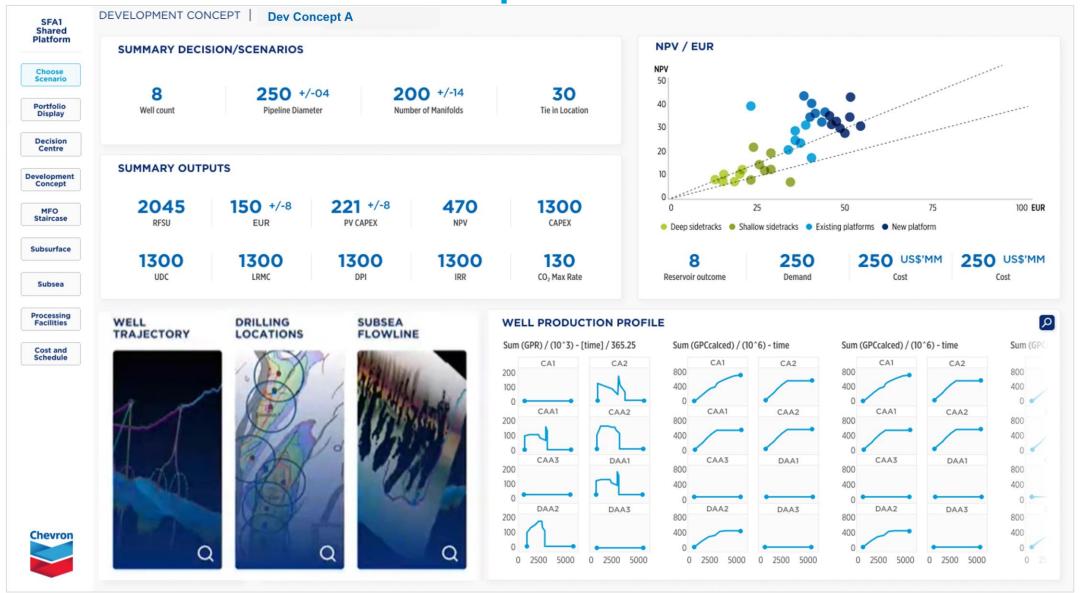**View**

Concept Results*

*Schematic Data

Concept Results

*Schematic Data

Estimated Value for Chevron

Direct Value

Reduce Cost

✓ Cost Saving $>10MM per year for Chevron Australia and greater for the Enterprise
- Reduction in unnecessary manual efforts
- Reduction in turnaround times for scenario modelling

Indirect Value

Data as an asset

✓ Enabling the use of data across the value chain

Better decision making

✓ Setting thresholds on business risk and maximising value by right timing

Digital machines (AI)

✓ Enhances our understanding of the Value Chain to generate new insights
✓ Reduce cycle time moving from "what if" scenarios to fully informed decision making

Resource management

✓ Provide data to inform field development and product supply teams on highest value opportunities
✓ Effectively assign resources to minimise the risk of negative outcomes

Balance risk

✓ Balance risk with opportunities for the portfolio under various gas supply alternatives
✓ Focus on critical risks for mitigation

Collaboration

✓ Breaking down silos in favour of collaborative ways of working

Insights and Where to Next?

- Collaboration
  - The team (CVX-MSFT-SLB) are located in at least 4 different time zones across the globe
  - Project acceleration occurred after the post-COVID March 2022 workshop whereby in-person collaboration enabled quick alignment on priorities and a delivery path
- Remaining Risks
  - Actual costs and ability of running the end to end workflow in production – data and compute
  - Continuing time zone pressures – late nights, early mornings
  - Deployment - change management
  - Updates and scaling for other Chevron Business Units
- Post Chevron Australia Deployment
  - Automated knowledge management – adapt Explore Plan knowledge board for FD Plan
  - Refinement of E2E workflow for improved cycle time reduction and significantly more cases
  - Portfolio level optimisation – multiple fields and value chain incorporation