



SNC • LAVALIN



PIT TO PORT





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INTRODUCTION

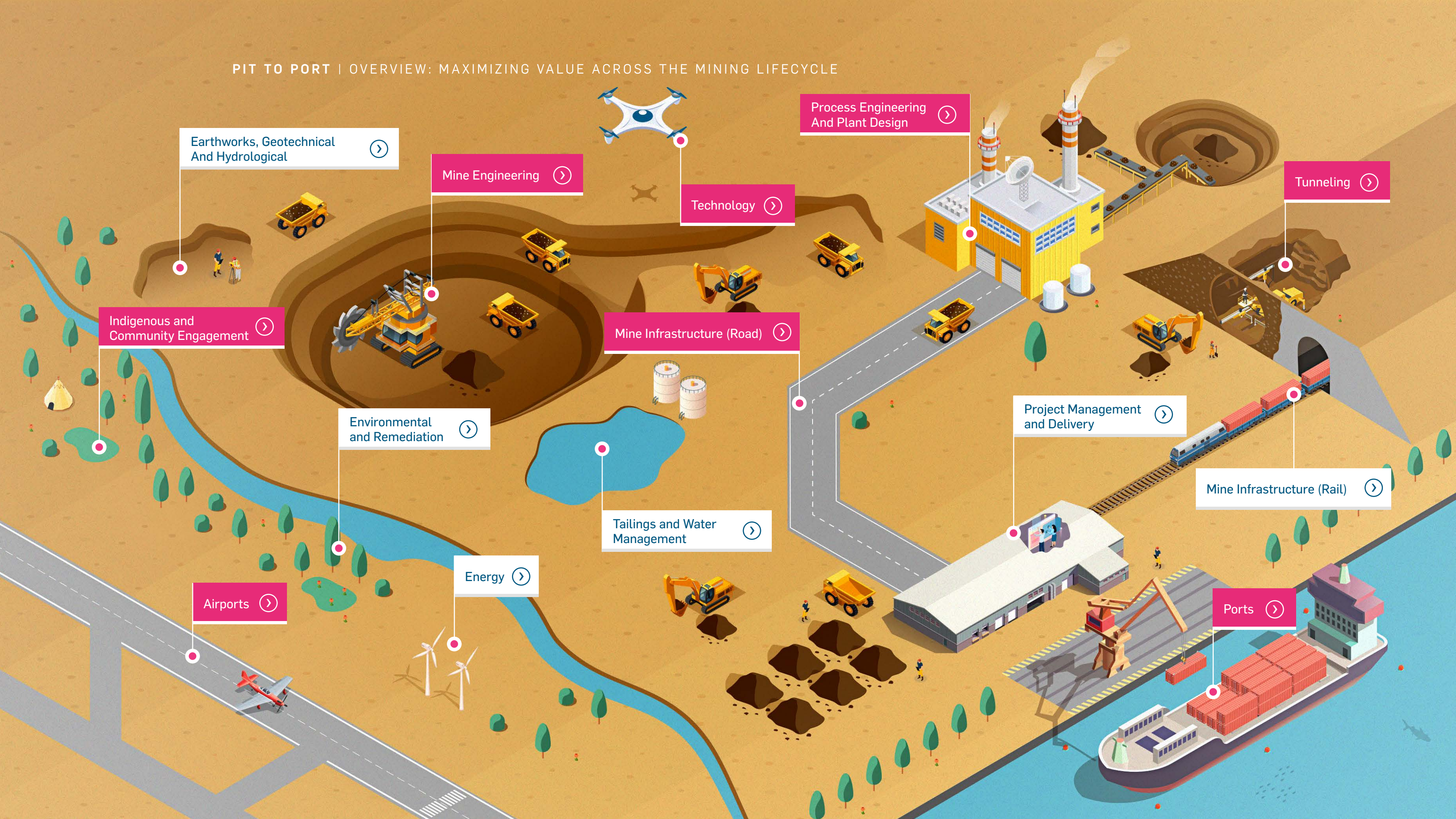
The Mining & Metallurgy industry needs efficient project operations to bring value to its stakeholders.

Given project complexity, multiple service providers are often working on different project components. This results in segmentation of a project and/or mine site. Gaps resulting from this segmentation can increase the risk profile of a project.

SNC-Lavalin understands all facets of a mining project and can deliver an integrated 'Pit to Port' offering. Our team delivers the oversight needed to improve efficiency and lower the project risk profile.



PIT TO PORT | OVERVIEW: MAXIMIZING VALUE ACROSS THE MINING LIFECYCLE



Earthworks, Geotechnical
And Hydrological

Mine Engineering

Technology

Process Engineering
And Plant Design

Tunneling

Indigenous and
Community Engagement

Mine Infrastructure (Road)

Environmental
and Remediation

Project Management
and Delivery

Mine Infrastructure (Rail)

Tailings and Water
Management

Energy

Airports

Ports

PIT TO PORT | OVERVIEW: MAXIMIZING VALUE ACROSS THE MINING LIFE CYCLE



PROJECT MANAGEMENT AND DELIVERY

Strong project management is essential for any successful project.

SNC-Lavalin's project management methodology uses a variety of dashboards, reporting, and digital tools to deliver projects, both safely and smartly. Our strong project management systems with monitoring, modelling and simulation capabilities, allow us to maximize the value of any mining asset. We pride ourselves in agile execution with integrated cross-functional teams delivering customized solutions that focus on maximizing CAPEX/OPEX, solving operation pain points and delivering sustainable projects that stand the test of time.



MINE ENGINEERING

Design and construction of mining projects requires an understanding of mining operations and how they interface with the processing facilities and overall project infrastructure.

Our teams understand how to integrate mining operation requirements into overall project design and are well versed in areas such as geotechnical design, mine infrastructure and fleet design.



PROCESS ENGINEERING AND PLANT DESIGN

A key value offering we bring to clients is the amount of practical construction and operations experience our personnel possess across all disciplines.

We understand how to ensure designs are constructible, maintainable and operable. Our teams understand how to work with operations during brownfield expansions. We have strong technical teams that covers multiple technical areas including pyrometallurgy, hydrometallurgy and mineral processing for commodities such as gold, silver, nickel, cobalt, copper, aluminum and others. We also leverage our capability in other sectors such as infrastructure and power to provide clients a true pit-to-port solution.



TAILINGS AND WATER MANAGEMENT

Tailings and water management is critical to the viability of any mine operation.

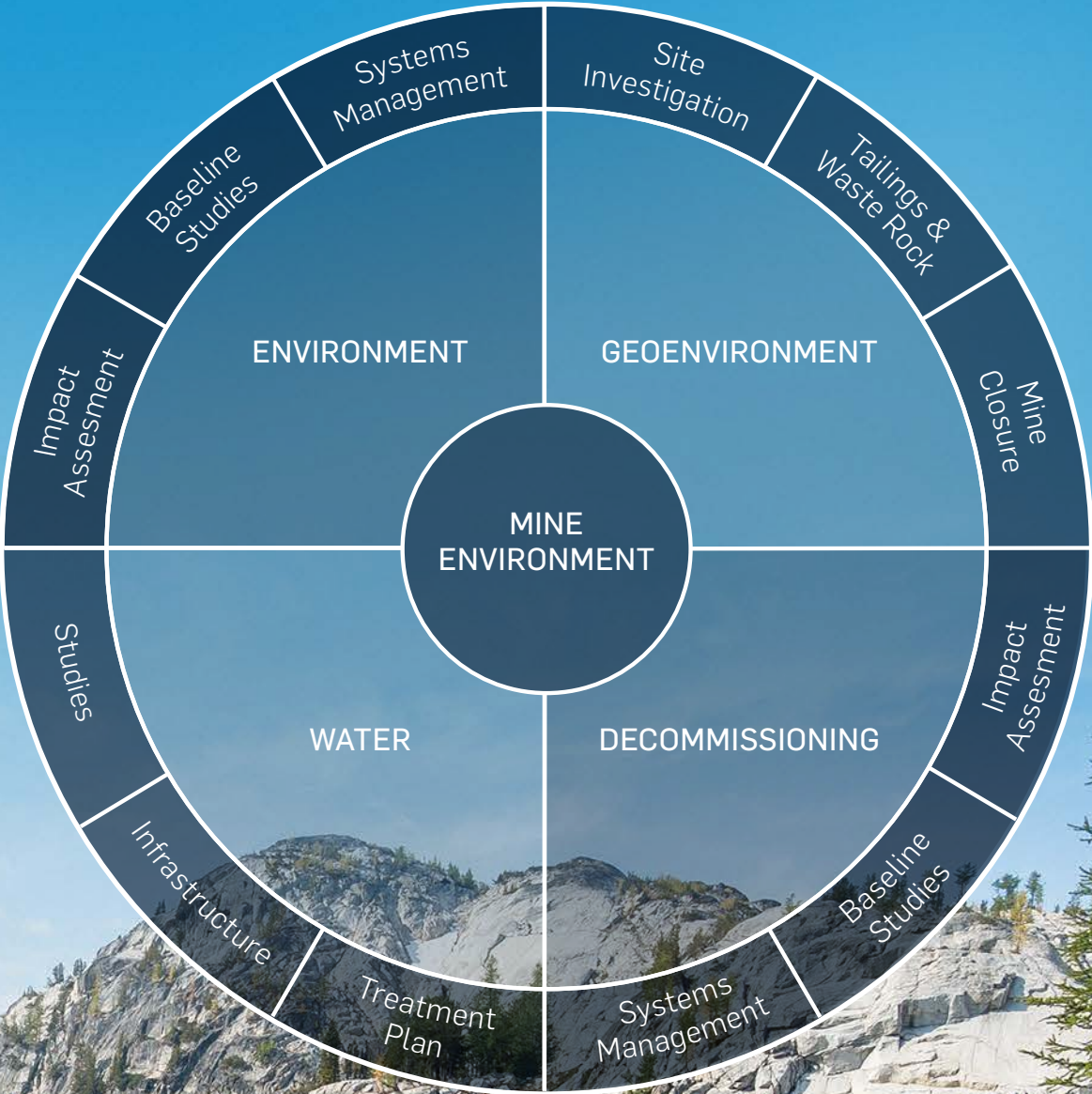
It is important to have a partner with a strong track record in the design, construction, operation of tailings storage facilities and water treatment plants. Our experts bring decades of expertise and experience to provide robust designs that are compliant with well-recognized Best Practices, and the new Global Tailings Standard to ensure safe and reliable operations.



ENVIRONMENTAL AND REMEDIATION

Understanding the natural environment is paramount in all phases of the mining lifecycle.

We focus on solutions that meet the unique needs and expectations of stakeholders as well as comply with best-practices and legislation throughout permitting, operation, and closure. Our team has the experience and expertise to support baseline studies, impact assessments, environmental monitoring, waste management, decommissioning, demolition, and rehabilitation.



INDIGENOUS AND COMMUNITY ENGAGEMENT

We understand the criticality of sustainable and socially beneficial projects.

Our teams work closely with those who live, work and play near the projects we develop. We believe the cultivation of meaningful involvement by local communities enhances project value. We support our clients in creating and managing community engagement strategies, social impact assessments, development initiatives, and community partnerships.



EARTHWORKS, GEOTECHNICAL AND HYDROLOGICAL

Our teams have expertise with any terrain, including harsh and remote locations.

When planning a mining project it is important to understand site conditions and our teams can help with:

- › Optioneering studies
- › Viability assessment
- › Site investigation
- › Geological modelling
- › Ground risk identification

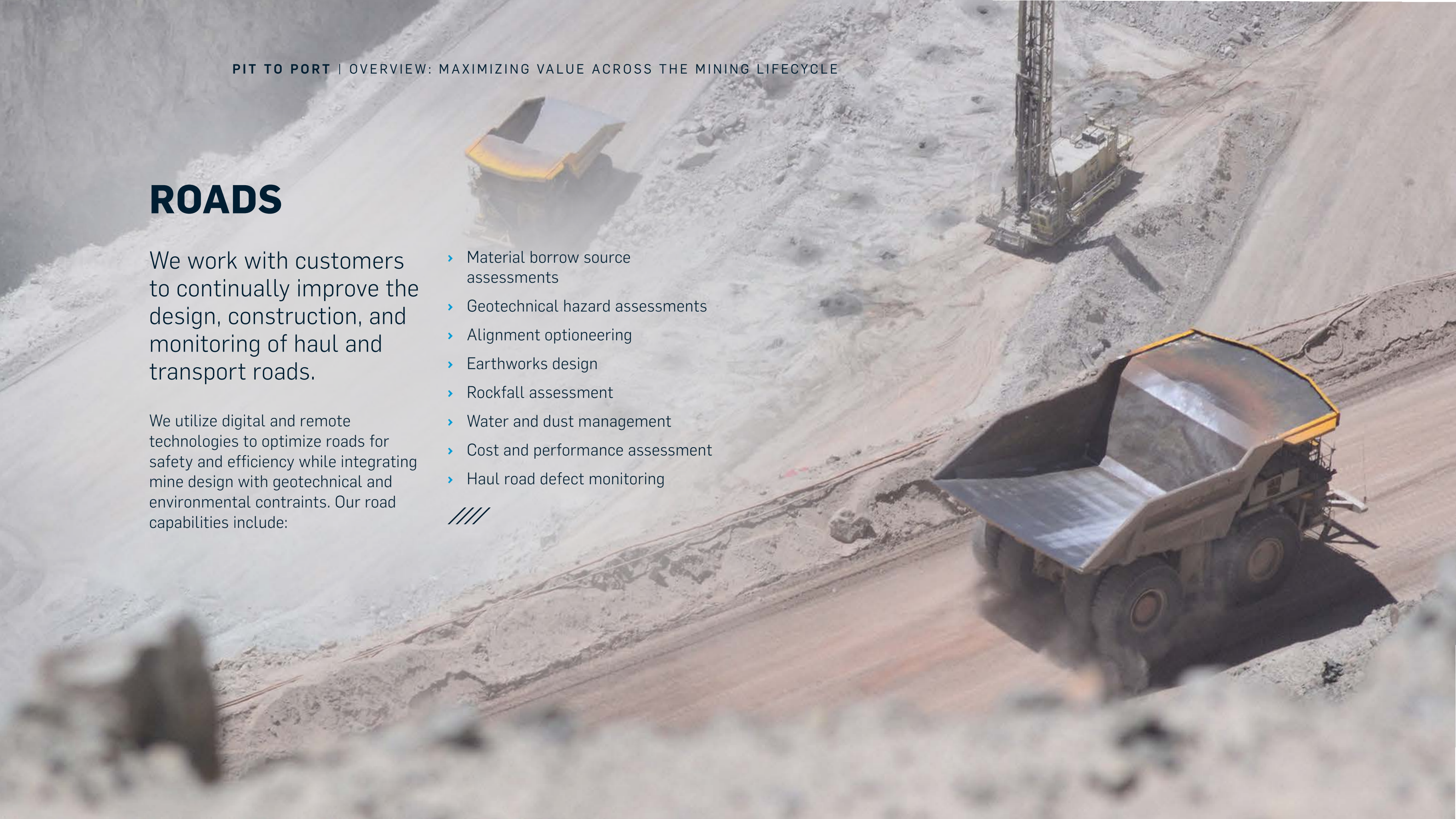


ROADS

We work with customers to continually improve the design, construction, and monitoring of haul and transport roads.

We utilize digital and remote technologies to optimize roads for safety and efficiency while integrating mine design with geotechnical and environmental constraints. Our road capabilities include:

- › Material borrow source assessments
- › Geotechnical hazard assessments
- › Alignment optioneering
- › Earthworks design
- › Rockfall assessment
- › Water and dust management
- › Cost and performance assessment
- › Haul road defect monitoring



RAIL

Our global experts in rail lead projects worldwide including heavy haulage, passenger, and mixed traffic for both single and multiple operators.

We regularly support customers in their rail operations including design, construction, and optimization to reduce cost and maximise productivity (speed and volume) from origin to destination. Our rail capabilities include:

- › Capital and operating cost modelling and estimation
- › Operations simulation
- › Logistical planning
- › Safety management
- › Program and risk management
- › Track and structures design
- › Locomotive and wagon specification, design, specification and procurement
- › Locomotive and wagon upgrades for reliability and performance including driverless freight operation
- › Material handling support (loading and unloading)
- › Traffic forecasting including modal forecasting and fit with other modes such as maritime and port

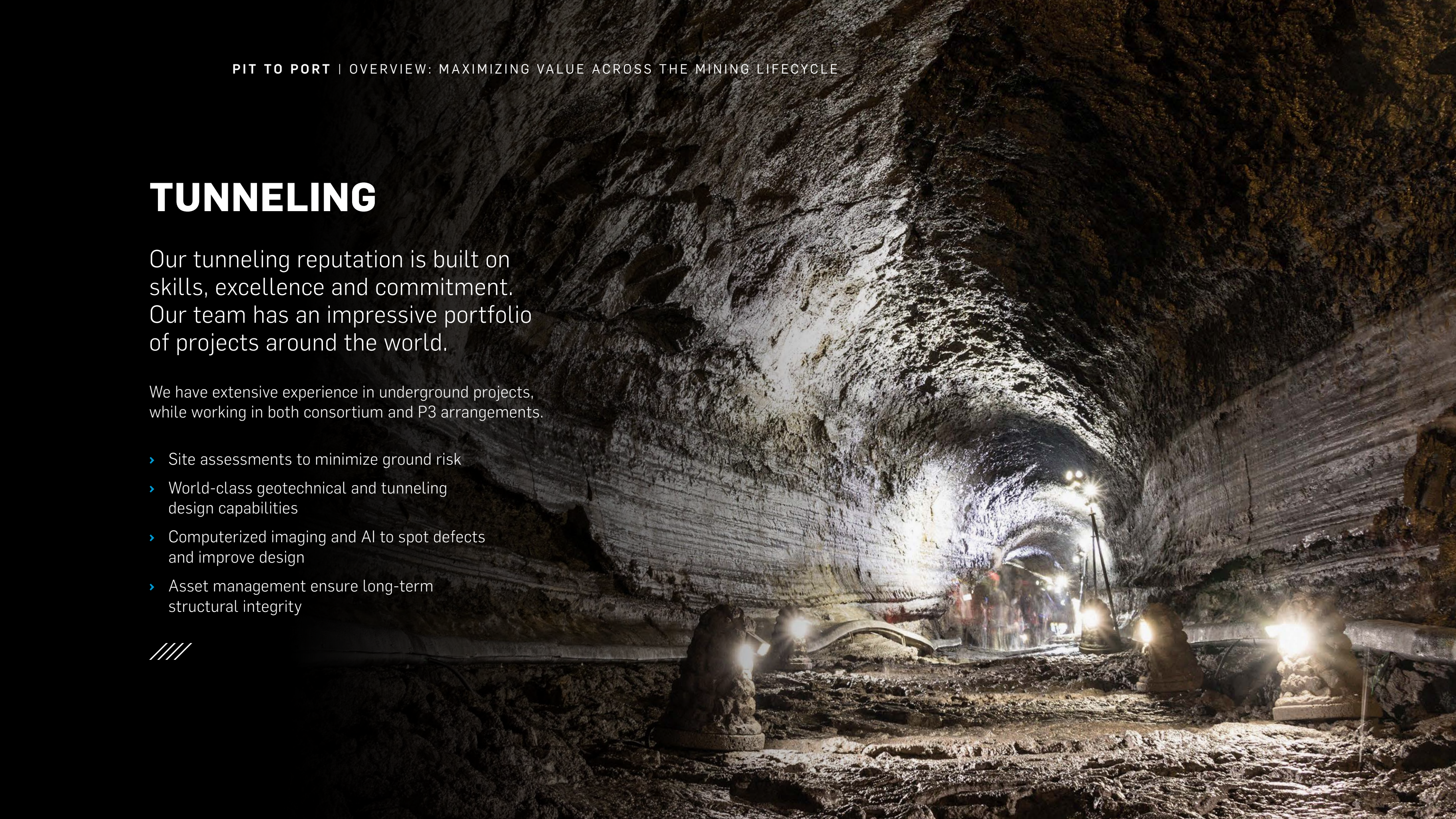


TUNNELING

Our tunneling reputation is built on skills, excellence and commitment. Our team has an impressive portfolio of projects around the world.

We have extensive experience in underground projects, while working in both consortium and P3 arrangements.

- › Site assessments to minimize ground risk
- › World-class geotechnical and tunneling design capabilities
- › Computerized imaging and AI to spot defects and improve design
- › Asset management ensure long-term structural integrity



ENERGY

Energy generation, transmission, and storage are key to all areas of mining and processing.

Our whole-system thinking approach provides an end-to-end capability across the whole lifecycle of energy system assets, ensuring our clients' aspirations and commitments to net-zero are achieved.

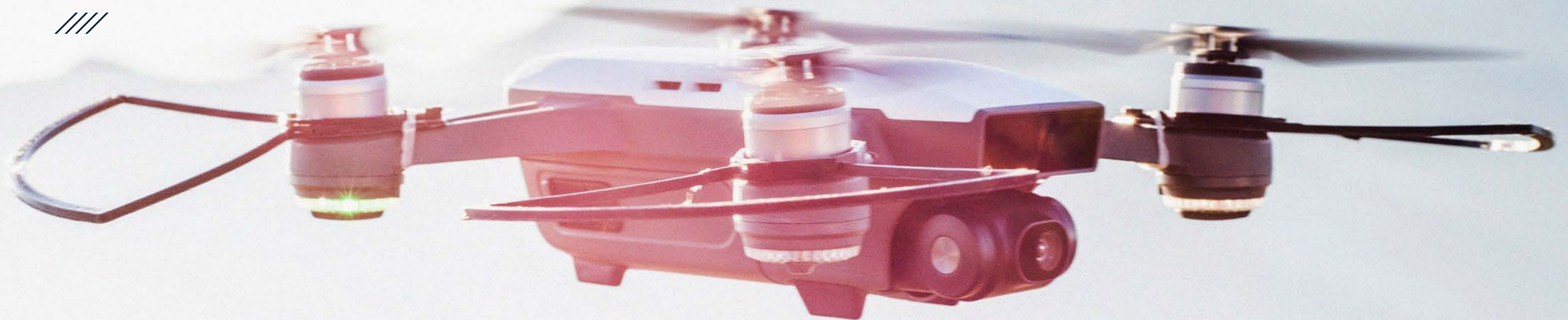
We understand how to assess clients' energy needs and design a clean-energy system through integrating equipment and infrastructure to maximise energy efficiency, reduce embodied carbon and create flexible space for plant longevity. Our teams bring a wealth of knowledge on the design, integration and modelling of different energy supplies and systems including renewables, nuclear and green fuels.



TECHNOLOGY

Integration of technology is weaved into every project.

We use digitalization, integrated engineering plant modelling software, and AI solutions to identify the best solutions across the mining lifecycle, from cradle to grave. Use of sensors, IoT technologies and advanced data analytics helps us manage assets in a timely and cost-effective manner once operations commence.



AIRPORTS

We specialize in a full range of operational, design and project management services within the aviation sector.

We enable our clients to develop and deliver cost effective, transformational projects within existing airports or future proof sustainable new airports, while also providing excellent passenger experiences.

- › Strategic Airport Advisory & Master planning
SMART airports

- › Design and Engineering -
Terminal and airfield design
- › Sustainability
- › Delivering Investment and Change
- › Project management
- › Asset management



PORTS

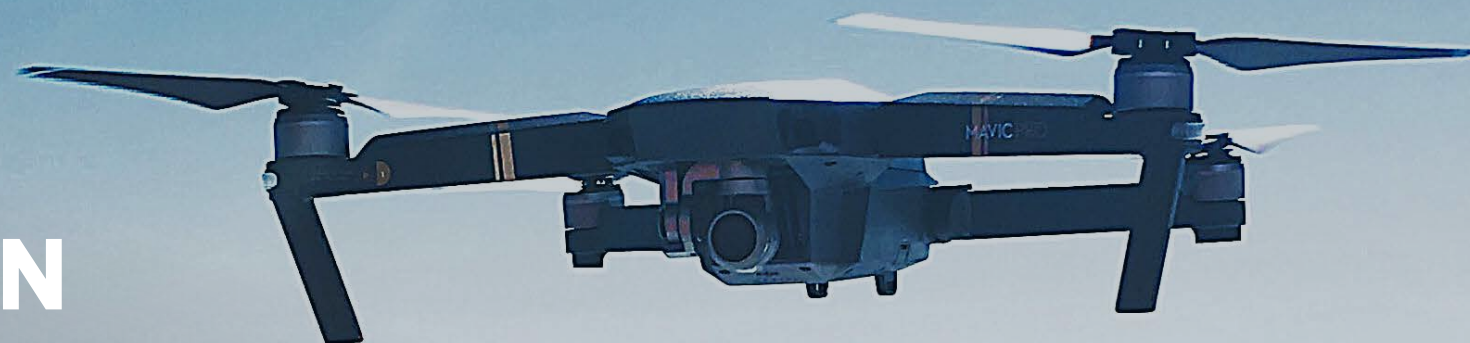
Our technical leaders have acquired significant ports knowledge and expertise by working on the most challenging development projects around the world.

When combined with a collaborative style and thirst to learn, insights are identified to accelerate development programs with cost and time savings, complementing the highest-quality outcomes.

- › Information Management
- › Intelligent Asset Management
- › Port Automation
- › Energy Optimisation Intelligent Management and Control
- › Technical Advisory
- › Design Services
- › Project Management



SNC-LAVALIN



PEOPLE. DRIVE. RESULTS.

We're connecting people, technology and data to meet today's most pressing challenges.

SNC-LAVALIN VISION

We create sustainable solutions that connect people, data, and technology to design, deliver and operate the most complex projects.

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