

4SIGHT SOLUTIONS FOR MINING

Unlocking **AI** for Sustainable Mining Excellence

Version 4.5



A New Era of Mining
The Connected Mine

4Sight in Mining
Embracing a Holistic
Collaboration

4Sight Solutions
Enterprise 5.0

**Value Chain
Optimisation**

Digital AI Transformation
Where to Start?

 **START**

WHAT DRIVES MINING ORGANISATIONS?



SAFER

Safer Workforce

- ↑ 20% Workforce Safety Improvements
- ↑ 35% Workforce Training Retention
- ↓ 40% Accident incident Reduction
- ↓ 25% Training Cost Reduction



GREENER

Energy Efficiency

- ↑ 15-20% Energy Efficiency Improvement
- ↑ 20% Sustainability / Carbon Footprint Improvement
- ↑ 25% Demand & Supply Chain Sustainability Modeling Improvement



LONGER

Asset Reliability

- ↑ 25% Asset Availability Improvement
- ↓ 40% Asset Delay Duration Reduction
- ↓ 20% Asset Management Cost Reduction
- ↑ +6% weeks Failure Predictions



FASTER

Asset Productivity

- ↑ 30% Operational Efficiency Increase
- ↑ 3-5% Yield improvement
- ↓ 25% Process Variability Reduction
- ↑ 35% Faster Innovation & Engineering



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OPERATIONAL CHALLENGES IN MINING

Despite anticipated increased demand, the mining industry faces a multitude of challenges. Market fluctuations directly impact businesses, complicating long-term planning for new ventures or site upgrades. The ever-changing landscape of legal and governance regulations demands continuous attention, keeping mining companies on constant alert. Moreover, the balancing act between satisfying shareholders and securing social acceptance from stakeholders adds complexity.

Crucially, optimising operations and assets becomes paramount, necessitating the bridging of skill gaps and adapting to shifting workforce demographics to ensure sustainability.

A focused strategy to tackle these pivotal areas can pave the way for resolving numerous other challenges within the industry.



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THE FUTURE IS DIGITAL

Worldwide mining sites serve as engineering marvels, community cornerstones, and crucial components for sustained mineral and metals supply. The shift from traditional mining to Mine 4.0 is in progress - a transformation characterised by integrated digital operations delivering improved results and connected experiences for miners, customers, and suppliers. This evolution lays the groundwork for autonomous mining, envisioning the future.


Goal Actions

 Decarbonisation

 Increased productivity

 Uptime

 Cost Control

 Optimised capacity

 Workforce safety



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WHAT DIGITAL SOLUTIONS ARE OUT THERE?

In instances where mining companies face a shortage of in-house expertise, they are increasingly relying on 4Sight to access top-tier experts in cyber security services, predictive maintenance, critical equipment, process performance optimisation, and collaborative risk management.

There are five digital solution areas in the 4Sight portfolio, representing the following value pillars:



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EMBRACING A HOLISTIC COLLABORATION

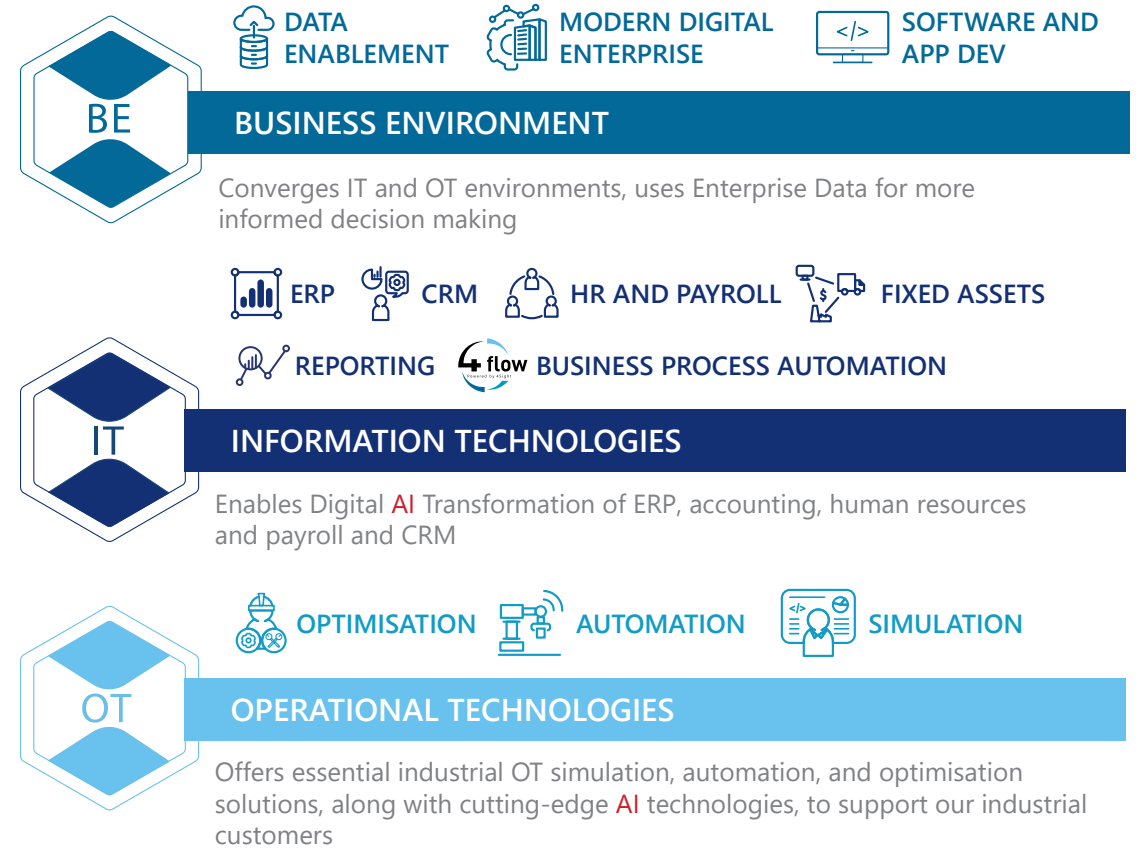
Merging our cutting-edge portfolio of electrification, automation, and digital technologies alongside more than four decades of mining industry expertise, 4Sight leads the charge in this transformative journey alongside our technology partners. However, this vision cannot be achieved by any one entity alone. We firmly believe that through collaboration, we can forge the electric, interconnected, and autonomous mine of tomorrow, fostering sustainable advancements not only within the mining sector but also in the wider global landscape.

“Partnering with 4Sight transforms mining into a safer, smarter, and sustainable venture.”

Our strength lies in the expertise of our three clusters

Through 4Sight Holdings’ various subsidiaries and strategic partnership network, our teams can bring a wealth of experience and expertise in Industry 4.0 Digital AI Transformation solutions and services to our mining customers. 4Sight’s subsidiaries focus on a cross-section of established, new, and emerging technologies. This includes (but is not limited to) Autonomous and Artificial Intelligence (AI) solutions with Machine Learning, Big Data, Cloud and Business Intelligence solutions, Simulation, Augmented and Virtual Reality solutions.

Through our strategic partnership network, our solutions are coupled with industry-leading digital AI transformation software to address multiple market segments.



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HARNESSING 4SIGHT'S EXPERTISE AND RESOURCES

Mastery in Mining

Our deep-rooted expertise extends to the fields of mining and mineral processing, enabling us to provide unparalleled insights and solutions in these domains.

Comprehensive Consultation

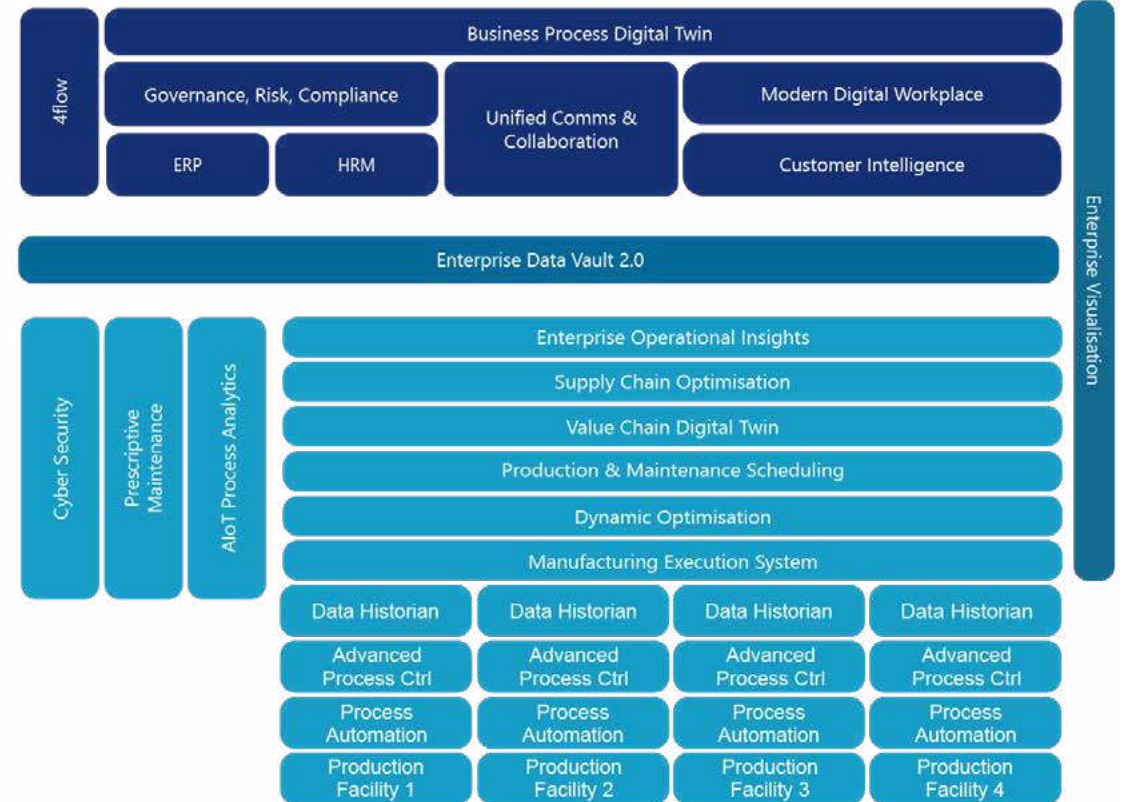
We offer a wide range of consulting services, encompassing digital technologies, software solutions, supply chain enhancement, integrated operations, operational excellence, process optimisation, and energy efficiency.

Global Support Network

Our dedicated team of 100+ professionals worldwide is committed to assisting customers and their projects with unwavering expertise and service.



4Sight's answer | Our Enterprise 5.0 solution set for Mining



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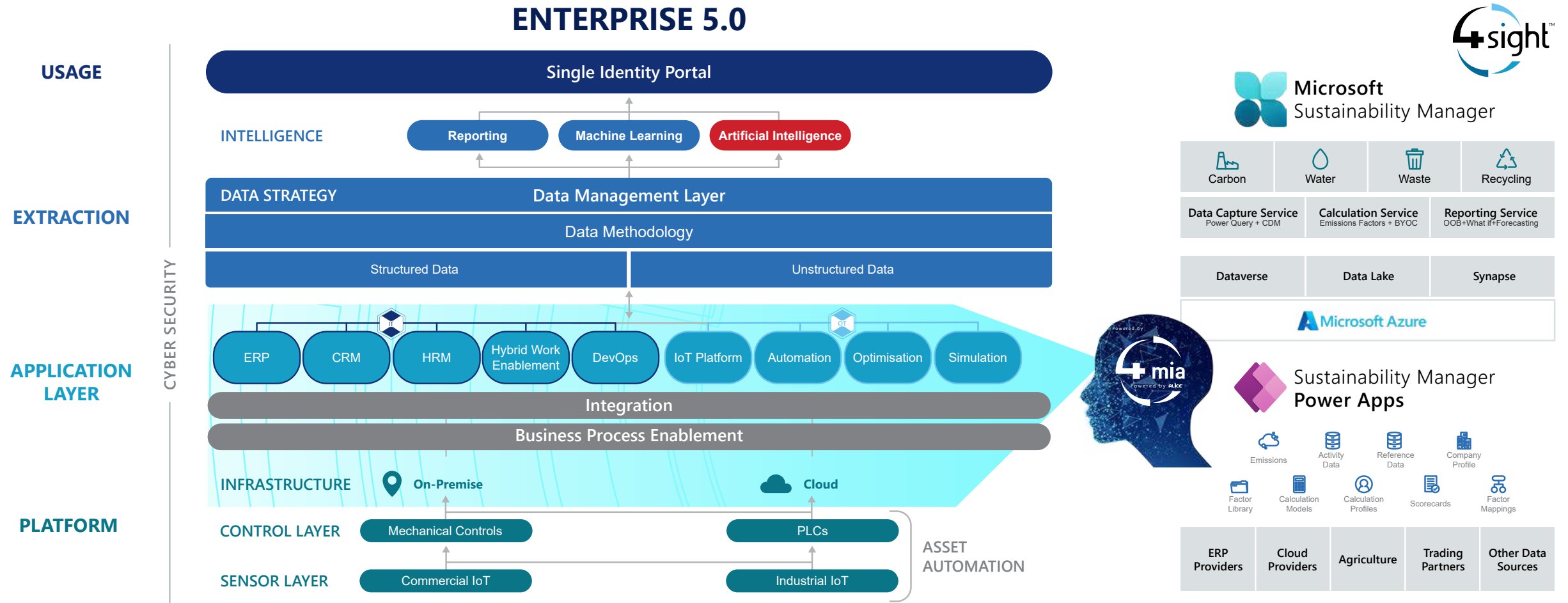
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4Sight manages, connects and delivers data analytics from operational technologies (OT) and information technologies (IT) across the entire enterprise, from intelligent field devices to the edge and the cloud.



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THE CONNECTED MINE | END-TO-END ARCHITECTURE AND SYSTEM INTEGRATION

4Sight Central Operations Centre stands as an enterprise visualisation solution tailored for intelligent operations centres. Employing a system of systems approach, 4Sight Central Operations Centre seamlessly converges operations technologies (OT), information technologies (IT), and engineering technologies (ET). Access all operational information through a unified interface and act swiftly on contextualised insights.

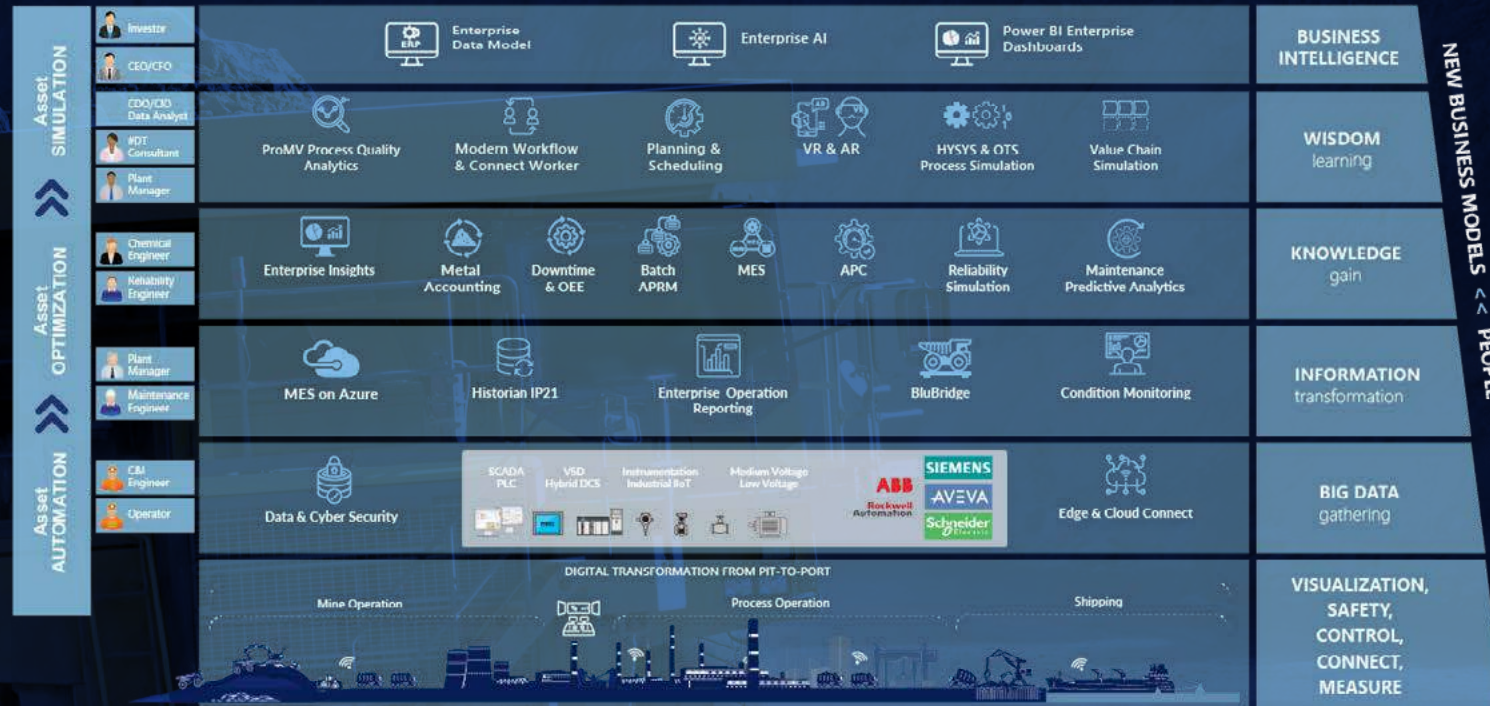
Facilitate agile decision-making across the entire mining value chain leveraging the centralised perspective offered by 4Sight expertise. Enhance predictive capabilities concerning inventories and raw material blends to optimise recoveries and mitigate logistic disruptions' impacts.



Solution Applications for Mining



Remote Operations



NEW BUSINESS MODELS << PEOPLE << TECHNOLOGY << DATA

OT DIGITAL TRANSFORMATION



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OUR STRATEGIC PARTNERSHIP

4Sight and Microsoft collaborate to expedite industrial innovation across pivotal sectors, granting customers the ability to influence the future. Leveraging Microsoft's comprehensive cloud solutions and 4Sight's profound industry knowledge, our distinctive blend of capabilities empowers enterprises to harness technology's potential, fostering agility, resilience, and sustainability throughout their operations.



Microsoft

4Sight's decade-long relationship with Microsoft illustrates our ongoing commitment to providing best-of-breed solutions that empower customers and support our shared vision of driving industries forward through innovation and collaboration," said Tertius Zitzke, CEO of 4Sight. "Together, we're not just addressing current market needs, we're shaping the future of technology in industrial automation.



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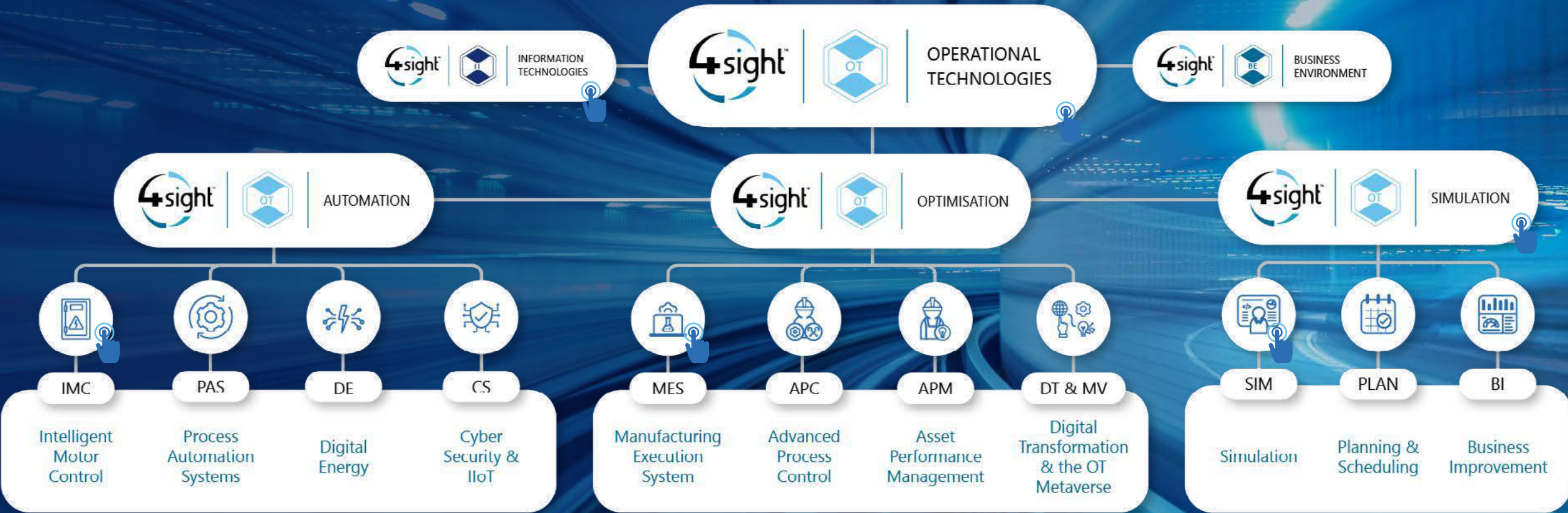
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4SIGHT MINING SOLUTION STRUCTURE



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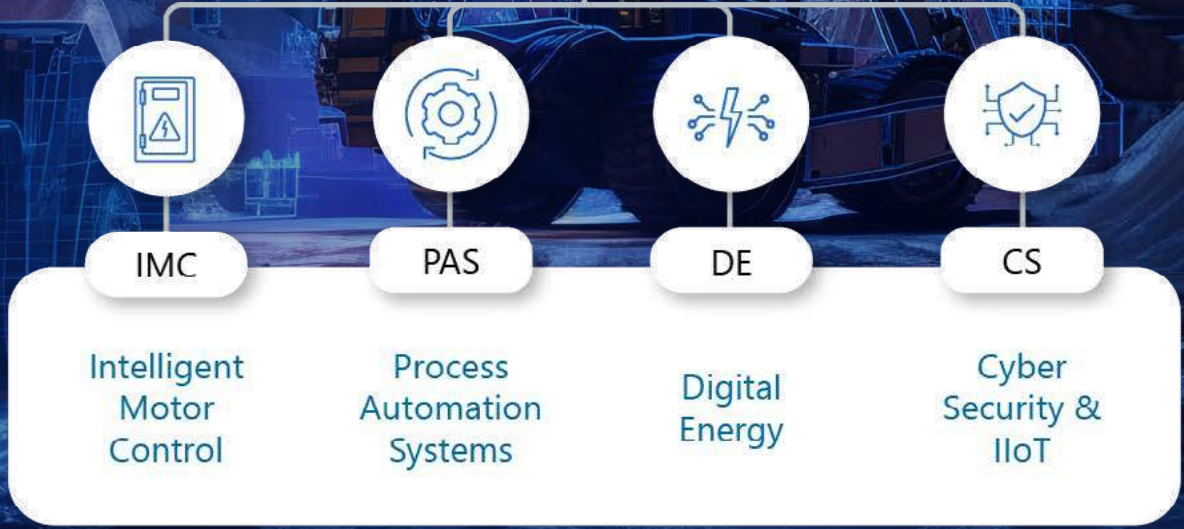
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AUTOMATION

OPTIMISE PRODUCTION PROCESSES

4Sight OT | Automation solutions is a comprehensive suite of tools and technologies designed to streamline and optimise industrial processes. This suite encompasses various components, including Intelligent Motor Control, Process Automation Systems, Digital Energy, and Cyber Security & IIoT.



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 IMC

Intelligent motor control is a key feature of the 4Sight OT Automation solution. It enables the efficient management and control of motors used in industrial applications. By leveraging advanced algorithms and real-time data, this technology allows for precise motor control, resulting in improved energy efficiency and reduced maintenance costs.

Optimise Operations & Drive Efficiency with intelligent IMC features

-  Intelligent motor
-  Predictive Maintenance
-  Condition Monitoring
-  Fault Diagnostics

INTELLIGENT MOTOR CONTROL

At 4Sight OT Automation, we specialise in the design, manufacturing, installation, testing, and commissioning of intelligent motor control centres that empower businesses to optimise their operations and drive efficiency. With our expertise and commitment to innovation, we deliver state-of-the-art solutions tailored to meet the unique needs of our clients. From concept to completion, our dedicated team ensures seamless integration and top-notch performance, enabling you to take control of your industrial processes with confidence.

Our IMC Solutions includes:

- Flexible and custom designs
- Intelligent and connected control
- Data integration and advanced diagnostics
- Energy efficient designs and load management
- Maintenance and cost-effective designs
- Faster project deployment
- Full factory testing
- Enhanced safety installation and commissioning services



ISO certification

All operations are ISO certified, and all components, enclosures, parts and materials are inspected, tracked and kitted per ISO 9001 protocols to ensure timely processing of orders.

E-House Solutions

We also design and construct E-House solutions customised for the mining industry. Our E-House solutions serve as centralised, integrated hubs housing critical electrical and automation equipment. These compact, modular structures are engineered for efficiency and reliability, offering a comprehensive approach to housing and protecting vital systems.





AUTOMATION



PAS

Process Automation Systems (PAS) are another crucial aspect of the 4Sight OT Automation solution. These systems automate and optimise industrial processes, making them more reliable, efficient, and safe. By integrating various sensors, controllers, and software applications, these systems enable seamless process control and monitoring, leading to increased productivity and reduced downtime.



HARDWARE



SOFTWARE



STANDARDS



DATA



SECURITY

Key Components of 4IR Control Systems



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AUTOMATION

PROCESS AUTOMATION SYSTEMS

A consistent methodology and pre-designed content for control, monitoring, visualisation, alarms, and reporting facilitate the replication of proven best practices across all sites, ensuring their tested and validated implementation. Tailored libraries and advanced functionalities have been meticulously crafted to cater specifically to the unique needs of the mining industry.

PROCESS AUTOMATION SYSTEMS



DESIGN



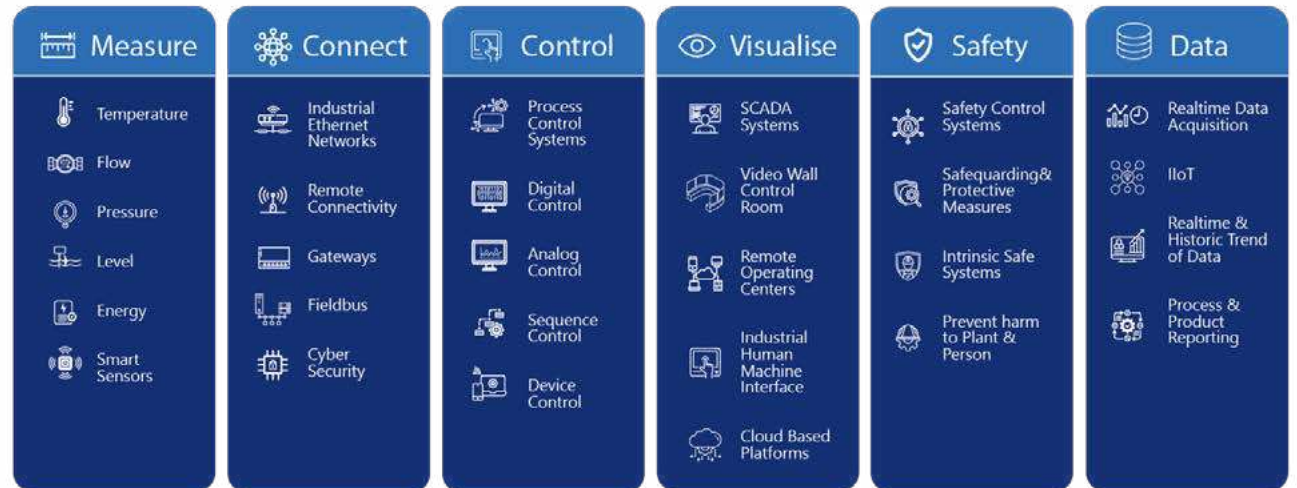
DEVELOP



DELIVER



SUPPORT





AUTOMATION



DE

Digital Energy empowers users to gain deep insights into their energy infrastructure, make well-informed decisions, and unlock a wide array of benefits. Providing improved safety, availability, and operational efficiency, as well as reduced energy costs. Enhancing equipment reliability and ensuring sustainability.

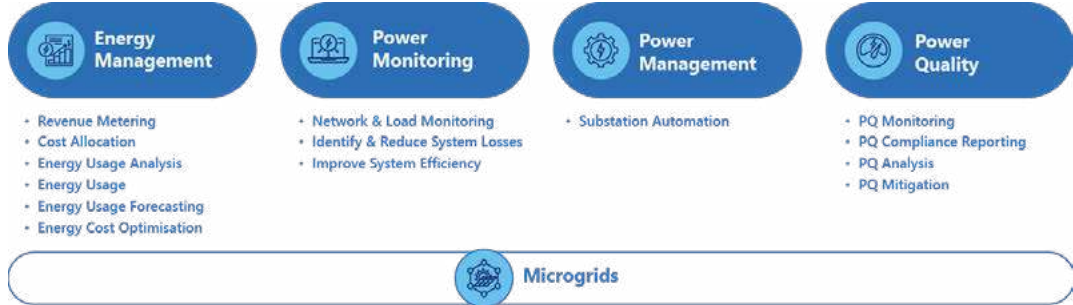
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AUTOMATION

DIGITAL ENERGY SOLUTIONS

By harnessing digital technologies, Digital Energy aims to enhance energy efficiency, reduce costs, improve reliability, and support sustainability goals. It encompasses a wide range of energy types, including electricity, gas, water, air, and steam.



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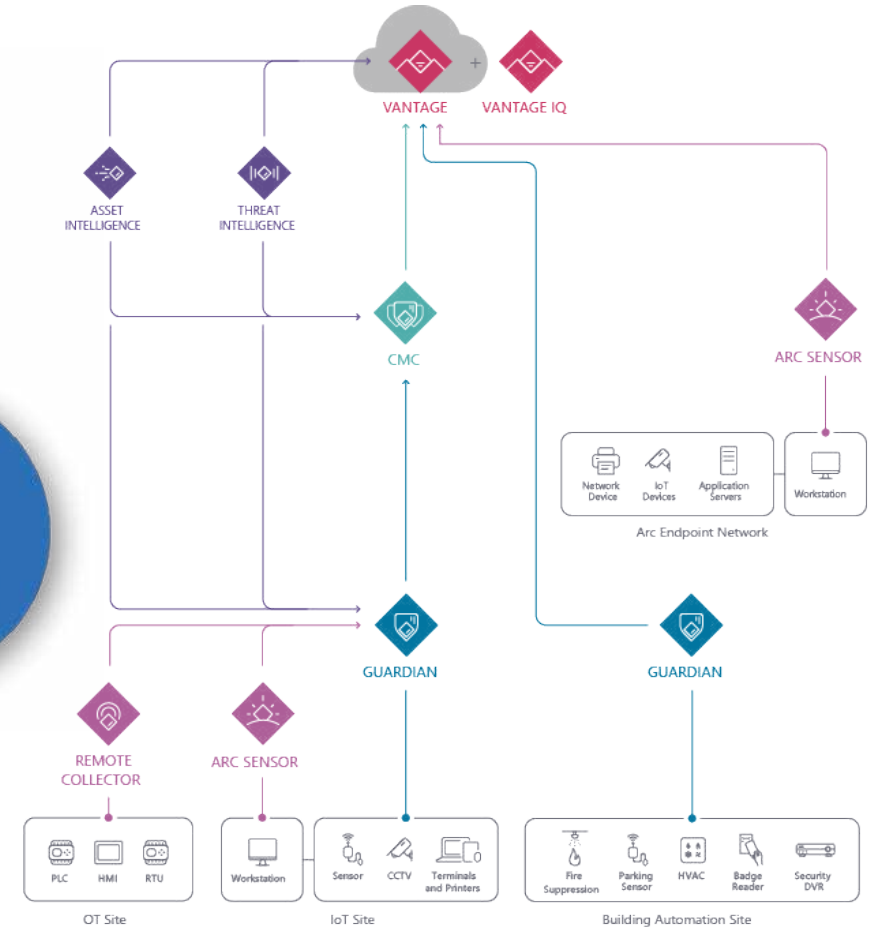
Our comprehensive asset inventory management, AI-powered continuous monitoring and guided remediation playbooks protect your extraction, refinement and resource management processes against cyberattacks, while improving operational efficiency.



CYBER SECURITY

From assessment to deploying a response plan, we offer a comprehensive lifecycle service dedicated to industrial security. Our experts adeptly integrate IT and OT, ensuring the secure alignment of your infrastructure, safeguarding assets, and upholding network availability.

Deployment Architecture Example



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AUTOMATION

Our expertise in Industrial Internet of Things (IIoT) solutions equips the mining industry with advanced technological capabilities.

Five benefits IoT is having on mining



Predictive maintenance



Improving safety



Automation



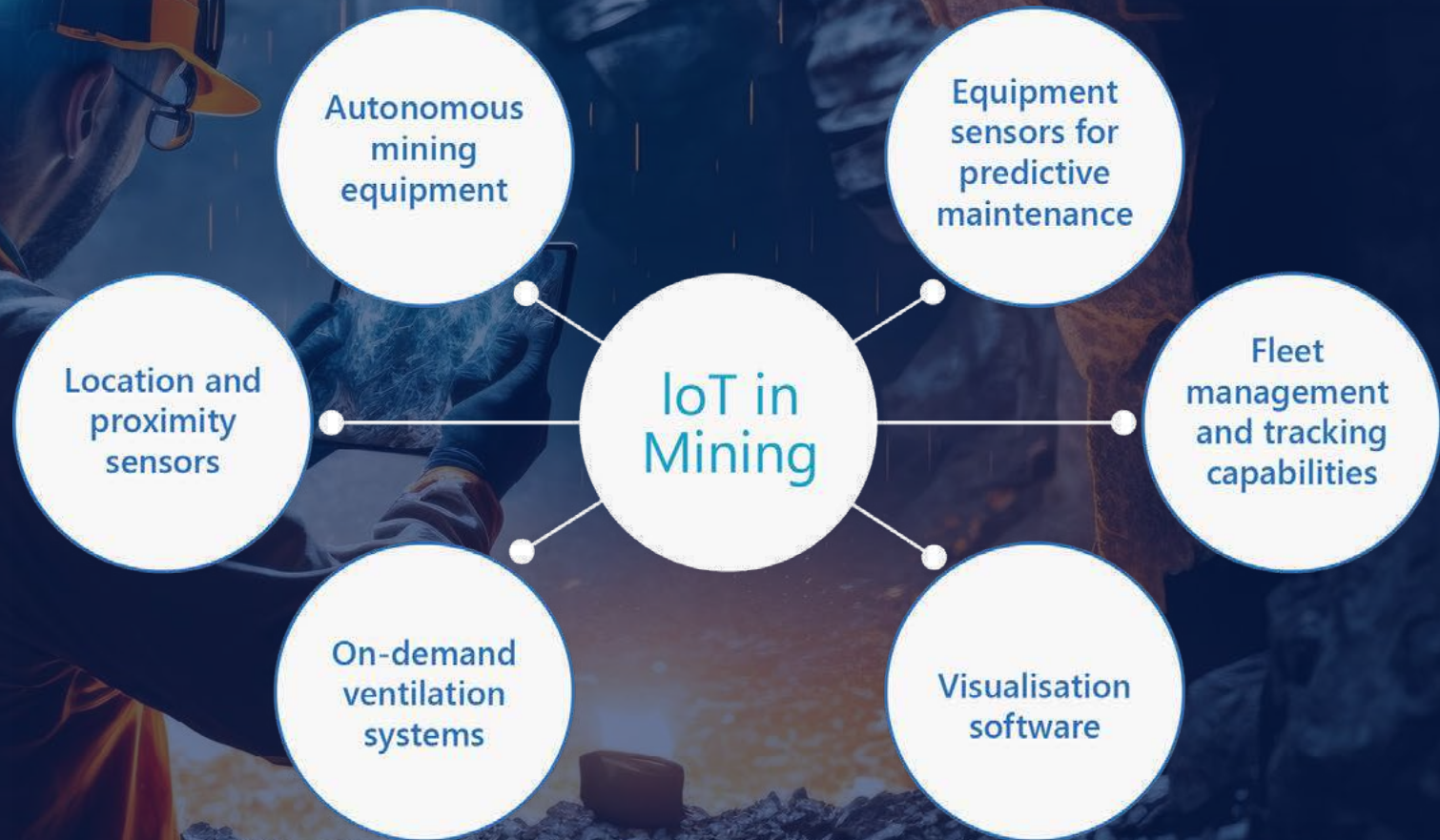
Time-saving



Energy and cost benefits

INDUSTRIAL IOT

Six applications of IIoT in the Mining industry



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OPTIMISATION

INCREASE OPERATIONAL EFFICIENCY

4Sight OT | Optimisation is 4Sight's engineering technology cluster that focuses on delivering Industry 4.0 software solutions to the industrial sector. These solutions enable companies to optimally operate processing plants or streamline manufacturing processes to maximise revenues, eliminate inefficiencies and minimise costs.

We provide software, consulting services, training and support services to customers to increase profitability through supply chain. Our solutions address complex environments where it is critical to optimise the asset design, operation and maintenance lifecycle.



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OPTIMISATION



MES

Unparalleled visualisation and analytics in a single, real-time environment

Bring together the power of data to operate your plant more efficiently with advanced visualisation software that helps production, quality and process engineers remedy and avoid events that limit production profitability.

Transform your operation with our edge-to-enterprise solutions



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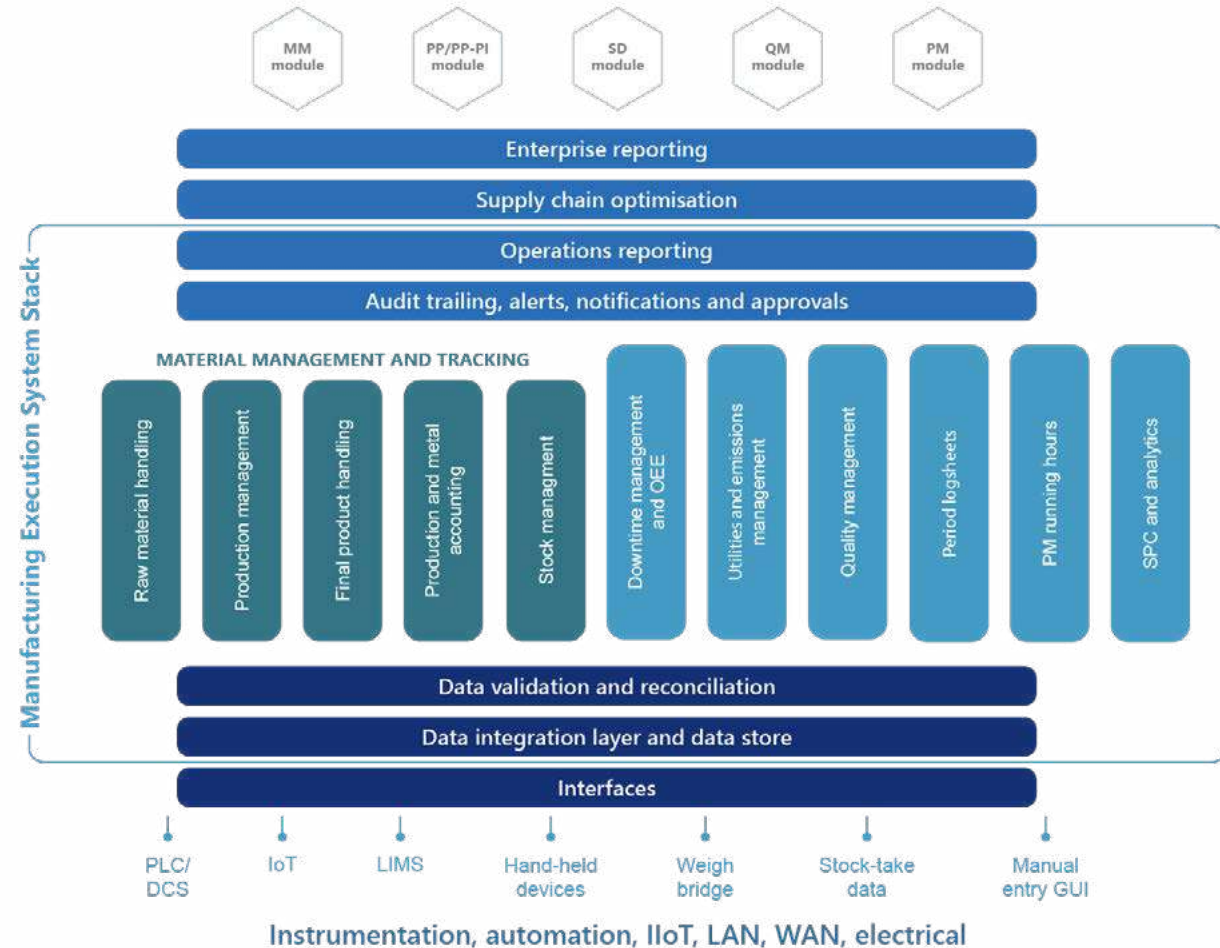
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MANUFACTURING EXECUTION SYSTEM

Timely, relevant & sharable information

ERP (Enterprise Resource Planning)





OPTIMISATION



APC

Bring together the power of data to operate your plant more efficiently, with advanced control software that helps production, quality and process engineers remedy and avoid events that limit production profitability.

4Sight's Advanced Process Control expertise has been on the forefront of Multi-variable Model Predictive Control (MPC) projects and a multitude of benefit-driven projects have been implemented across the world in mining sectors.

Increase production by up to

5%

Reduce energy by

10%

Improve yields by

3%



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ADVANCED PROCESS CONTROL

Sustain peak plant performance by automatically adapting & optimising to ever changing plant conditions.

Advanced process control helps engineers increase profits and deliver more value using robust model identification and linear dynamic models. Model Predictive Control (MPC) optimises complex processes and delivers more throughput, better recovery and less variability all while minimising use of energy and reagents.

The Sustainability features available in Advanced Process Control help to quickly identify diagnose and correct problems with eroding performance.

Opportunity areas for APC and Optimisation



Milling Circuits

- Manage individual mill circuit constraints (e.g. power draw, load)
- Improve cyclone performance by stabilising discharge density
- Optimise against overall
- Constraints (production limits)



Settlers / Counter Current Decanter (CCD)

- Utilise surge capacity for multiple integrators in series
- Whilst managing individual density, load, etc



Flotation Control

- Throughput optimisation
- Ability to manage multiple integrators in series (where tight level control is required)
- Reagent dosing



Filter Buildings

- Manage multiple parallel pieces of equipment, with individual constraints (bowl level, cake thickness etc.)
- Manage, overall / common constraints (feed tank, level, filtrate tank level)



Reagent Dosing

- Cyanide concentration control
- Lime dosing optimisation for pH control



Metal Plants

- Pellet plant dryer control
- Ram material grinding mills
- Temperature profile control in metal & pellet manufacturing
- Water Cooling or Feed Volume control
- Gas heating, Oxygen or Compressed Air control



Calciner Control

- Optimise furnace temperature, stack opacity, excess O2, etc.
- Managing overall/ common constraints (feed supply, overall gas consumption)



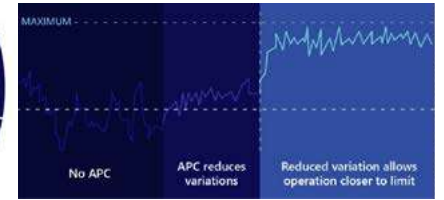
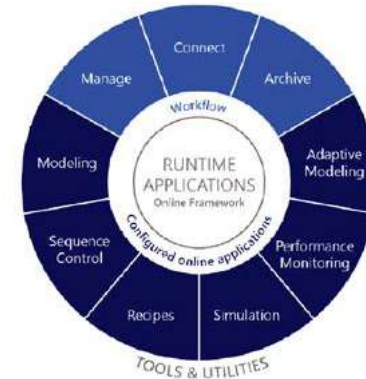
Steam & Power Generation

- Steam header balancing
- Electricity import / export optimisation



Multi-Effect Evaporators

- Discharge concentration control
- Steam consumption optimisation



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OPTIMISATION



OPTIMISATION



APM

Asset performance management (APM) solutions provide a sound entry point for digital investments, ensure that the equipment miners need is available to keep production on track. Having the appropriate assets available is critical for successful operations; without this element in place, other efforts to optimise will falter.



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OPTIMISATION

ASSET PERFORMANCE MANAGEMENT

Drive uptime with actionable insights from models and machine learning



Prescriptive maintenance

Machine learning

Accurate anomaly and failure alerts weeks or months in advance with real-time data and predictive analytics.



Process Analysis

Multivariate analysis

Analytics tools that can find correlations, trends and other valuable information hidden within big data that was inaccessible through previous data analysis methods.

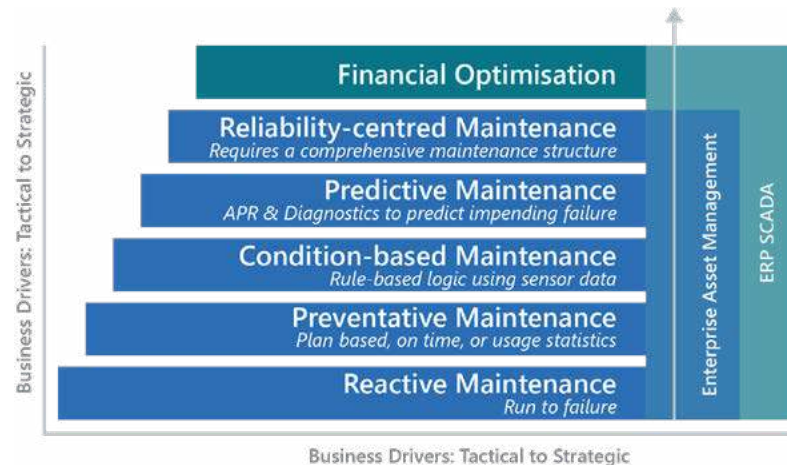


Predict Asset Performance

Reliability Simulation

Make better decisions with reliability, availability and maintainability analytics of your mine, mill or refinery, built on a virtual model of the equipment and process using real-time data.

4Sight APM | Asset Maintenance Advisory Assessment



Features solutions & Services



Predictive asset analytics



Mobile rounds



Asset information management



Energy performance monitoring



SMART analytics



Deployment and adoption services



OPTIMISATION



DT & MV

The advent of the Industrial Metaverse heralds an era of transformative possibilities for the mining sector, offering a dynamic virtual environment that redefines traditional operational paradigms. In this digital realm, mining companies can simulate, visualise, and optimise every facet of their operations, from exploration and extraction to processing and distribution. The Industrial Metaverse integrates real-time data, advanced analytics, and immersive technologies to create a hyper-connected ecosystem where stakeholders interact and collaborate seamlessly. By leveraging this virtual landscape, miners can conduct comprehensive scenario planning, assess the impact of decisions in a risk-free environment, and fine-tune strategies for optimal efficiency and sustainability.

Augmented and virtual reality-powered visualisations aid in swiftly comprehending and embracing the significance of information. This immersive approach equips your team to swiftly and comprehensively make precise decisions with unwavering confidence.

INDUSTRIAL METAVERSE

4Sight OT - Solution Innovation Projects and Flexible Modelling Visualise, Analyse, Simulate and Predict the future of operations.



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SIMULATION



INDUSTRIAL PROCESS SIMULATION FOR SUSTAINABLE OPERATIONS

4Sight OT | Simulation has over 50 years of collective experience in conducting simulation studies in mining, logistics, manufacturing and service industries and have offices in Cape Town and Centurion. We are a global consulting company and a leader specialising in creating accurate, discrete-event computer simulation models.



SIMULATION



SIM

Simulation



PLAN

Planning & Scheduling



BI

Business Improvement

Mine Electrification



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SIMULATION



SIM

Simulation modelling stands as a cornerstone in the evolution of modern mining practices, offering a dynamic and predictive framework that revolutionises operational decision-making. In the mining industry, where precision and efficiency are paramount, simulation modelling emerges as a powerful tool.



Improve decision-making



Identify bottlenecks & unoptimised processes



Test "what-if" scenarios without risk



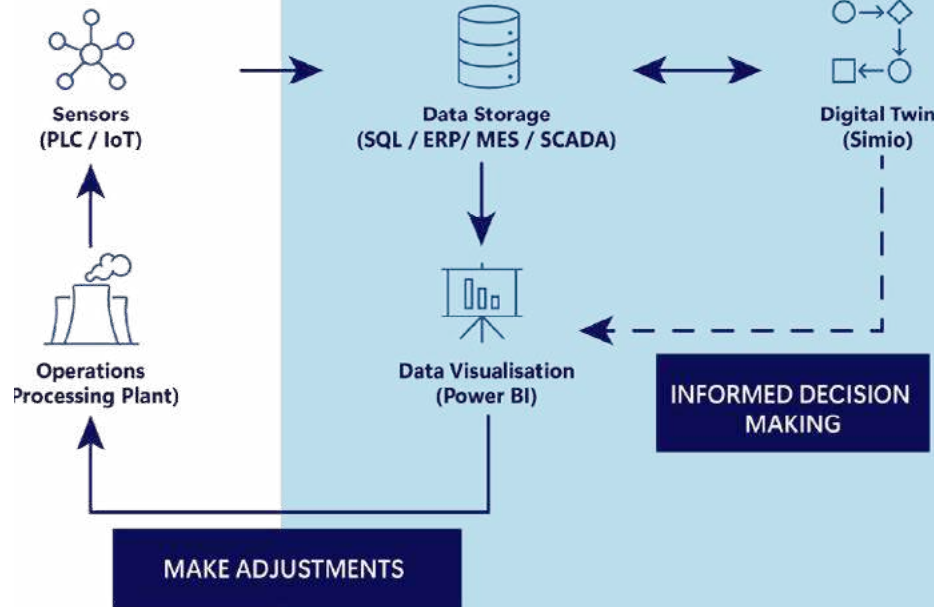
Optimise processes

SIMULATION MODELLING

By digitally replicating complex mining processes, from extraction to logistics, and considering diverse variables such as geology, equipment performance, and environmental factors, simulation modelling enables precise forecasting and strategic planning. It allows stakeholders to explore various scenarios, optimise resource allocation, mitigate risks, and streamline workflows before implementing changes in the real world. This innovative approach empowers mining companies to make informed, data-driven decisions, enhancing productivity, safety measures, and overall operational performance.

AL WORLD

PROCESS DIGITAL WORLD



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SIMULATION



PLAN

With Risk-Based Planning and Scheduling (RPS) with simulation solutions, you generate a schedule by simulating the flow of the planned work through a model of your system.

Traditional scheduling is deterministic and does not account for unplanned events or process variation. Therefore it yields optimistic and unreliable outcomes and your schedule goes from being feasible to unfeasible over time.

PLANNING AND SCHEDULING

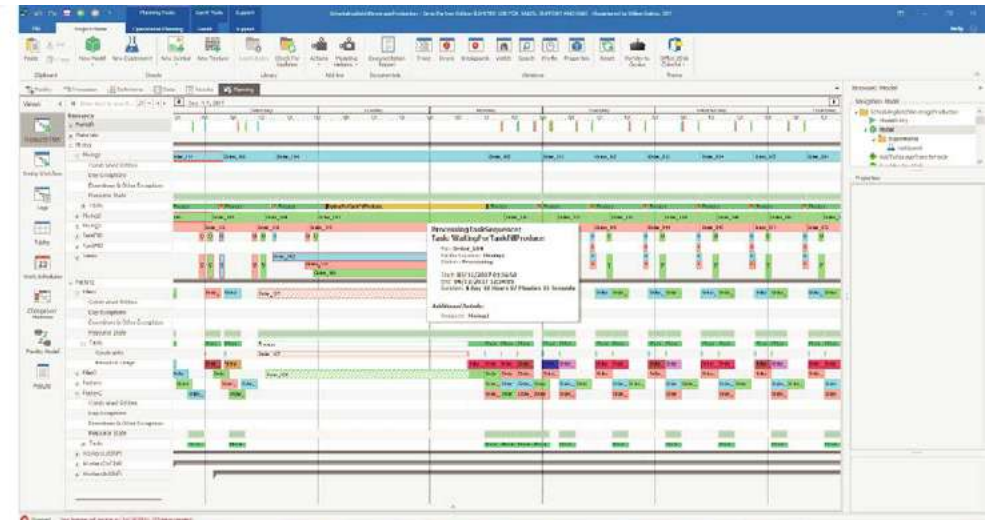
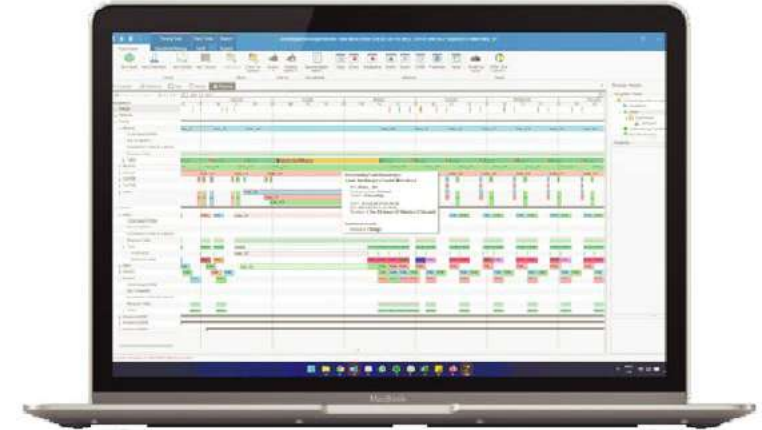
Our comprehensive suite of services extends beyond conventional approaches, integrating cutting-edge Risk-Based Planning and Scheduling (RPS) solutions into our offerings for the mining sector. By infusing risk assessment methodologies into planning and scheduling processes, we empower mining enterprises to proactively identify, assess, and mitigate potential risks across operations.

RPS solutions enable a holistic view of project timelines, considering various risk factors such as geological uncertainties, equipment failures, and market fluctuations. This meticulous approach allows for optimised resource allocation, contingency planning, and adaptive scheduling, ensuring resilience in the face of uncertainties while maximising productivity and minimising disruptions.

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BI

Unlock the Power of Business Improvement in Mining Operations

In the dynamic and competitive landscape of mining, staying ahead requires not only extracting valuable resources efficiently but also leveraging cutting-edge technologies and strategic methodologies. Our comprehensive suite of Business Intelligence (BI) solutions is tailored to revolutionise the mining industry, providing actionable insights that drive operational excellence.

BUSINESS IMPROVEMENT



Business Intelligence Dashboards

Streamline your mining operations through integrated BI dashboards, providing real-time analytics and performance metrics. Our user-friendly dashboards offer insights into production rates, equipment efficiency, and safety indicators, empowering decision-makers with a consolidated, real-time view. Enhance communication and collaboration from the mine face to the boardroom with visual representations of key performance indicators.

Lean Six Sigma

Optimise mining practices with Lean Six Sigma integration, streamlining processes, minimising waste, and boosting productivity. Our BI solutions offer tools for identifying, analysing, and implementing continuous improvement initiatives, ensuring peak operational efficiency.

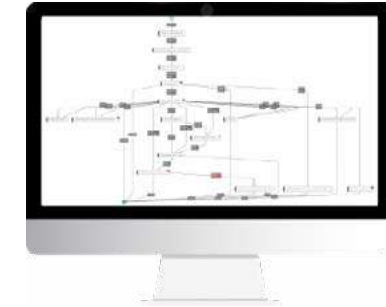
External Logistics and Warehouse Optimisation

Enhance mining supply chain efficiency with our solutions, covering external logistics and warehouse optimisation. Gain visibility, optimise inventory, and reduce lead times through data-driven insights for informed decision-making.

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SIMULATION



Process Mining

Enhance mining efficiency using process mining and your ERP system. Analyse event logs to uncover inefficiencies, bottlenecks, and improvement opportunities. Visualise the workflow for automation possibilities, downtime reduction, and increased operational efficiency. Our process mining includes simulation for proactive issue identification, workflow optimisation, and predictive insights, promoting agile and adaptive mining operations.

Mine Traffic Studies

Improve safety and efficiency through mining traffic studies. Analyse patterns, identify congestion points, and proactively mitigate risks. Optimising traffic flow enhances overall safety, reduces accidents, and boosts operational efficiency.

Maintenance Planning

Minimise downtime and extend equipment lifespan through predictive maintenance planning. Leverage BI insights to monitor equipment health, predict potential failures, and schedule maintenance activities strategically. By adopting a proactive approach, you can optimise maintenance schedules, reduce costs, and maximise the reliability of your mining equipment.



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SIMULATION

Electrification is the solution that hits economic, environmental, and health goals – this means that once it reaches a tipping point, the transition will accelerate. The road to zero emissions requires vehicles and machinery powered by renewable energy.

Example of Electric Vehicle Functionality



Charging Stations

- Impact of location and charge rate
- Connected to electrical reticulation network
- Battery swap vs fast charge



Batteries

- Battery discharge rate will correspond to the BEV's power consumption
- Battery regeneration on declines
- Variable battery recharge levels



Battery Electric Vehicle (BEV)

BEV power consumption parameters:

- Loading and tipping
- Variable Speed (full and empty)
- Incline and decline gradients

MINE ELECTRIFICATION

Simulation is the key to understanding the impacts of electrification on mine operations.

Groundbreaking collaboration between 4Sight and SimGenics, brings a comprehensive simulation solution designed to revolutionise the mining industry. With a shared commitment to sustainability and efficiency, our integrated platform offers a full-scope simulation approach that delivers unparalleled insights into the cost and carbon footprint impact throughout a mine's entire life cycle. By harnessing advanced modelling techniques and cutting-edge technologies, our solution empowers mining companies to make informed decisions that optimise operations, reduce environmental impact, and maximise profitability.

With clear and integrated results at your fingertips, you can make informed decisions on the carbon footprint impact over the life cycle of your mining operation.

Mine Electrification

Full-scope Simulation provides integrated, clear results of the cost and carbon footprint impact over the life cycle of the mine



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Your strategic partner in unlocking the earth's wealth since the year 2000. With a rich heritage that spans across two decades, we have been at the forefront of extracting value from the world's most sought-after commodities. From the deep-seated veins of diamonds to the surface riches of open-pit coal mines, our expertise covers a vast spectrum including tin, nickel, platinum, gold, manganese, and copper.

Our journey began at the dawn of the millennium, where our passion for progress led us to delve into the complexities of both open-pit and underground mining solutions. We've not only adapted to the evolving landscapes of these industries but have also shaped them, implementing innovative solutions and sustainable practices that stand as a testament to our commitment to excellence.



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WELCOME TO 4SIGHT IT MINING SOLUTIONS

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At 4Sight Mining Solutions, we've been at the helm of an industrial revolution, spearheading the seamless integration of Operational Technology (OT) and Information Technology (IT) within the mining landscape. This ground breaking convergence is more than just a technological leap; it's a strategic transformation that has redefined the essence of mining operations.

Our innovative approach has bridged the gap between the rugged frontlines of mineral extraction and the sophisticated algorithms of data processing. By doing so, we've created a symbiotic ecosystem where machinery and analytics coexist in harmony, driving efficiency and foresight to unprecedented levels.

The fusion of OT and IT has enabled us to implement smart mining solutions that are predictive, proactive, and precise. Our mines have become living, breathing entities, equipped with sensors and systems that communicate in real-time, ensuring every decision is data-driven and every action is optimised for peak performance.

We've not only enhanced the safety and sustainability of our operations but also empowered our workforce with tools that augment their capabilities. The result is a 21st-century mining operation that is resilient, responsive, and ready to meet the challenges of a resource-hungry world.

At 4Sight Mining Solutions, we understand that the backbone of any successful mining operation is its people. That's why we offer comprehensive HR and payroll solutions tailored specifically for the mining industry, supporting the entire employee lifecycle from hire to retire.

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At 4Sight Mining Solutions, our partnerships are the bedrock of our success. We've cultivated strong alliances with a diverse array of mining partners, each bringing unique strengths and capabilities to the table. These collaborations are built on a foundation of mutual respect, shared goals, and a commitment to excellence in the mining industry.



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4Sight Mining Solutions has established itself as a dominant force in the realm of artificial intelligence (AI) for mining, revolutionising the industry with sustainable and efficient practices.

Our AI-driven initiatives have been pivotal in redefining the future of mining, focusing on reducing environmental impact and enhancing operational efficiency.

4Sight's role in the mining industry is not just about adopting technology; it's about leading a movement towards a more sustainable, ethical, and technologically advanced mining ecosystem. Our dedication to AI is a testament to our vision of a more prosperous and responsible future for mining.

4Sight Mining Solutions is proud to be at the forefront of information security in the mining industry, having achieved ISO 27001:2013 certification for our Information Security Management Systems (ISMS). This prestigious certification is a testament to our unwavering commitment to maintaining the highest standards of data protection and privacy.



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4SIGHT IT SOLUTION STRUCTURE



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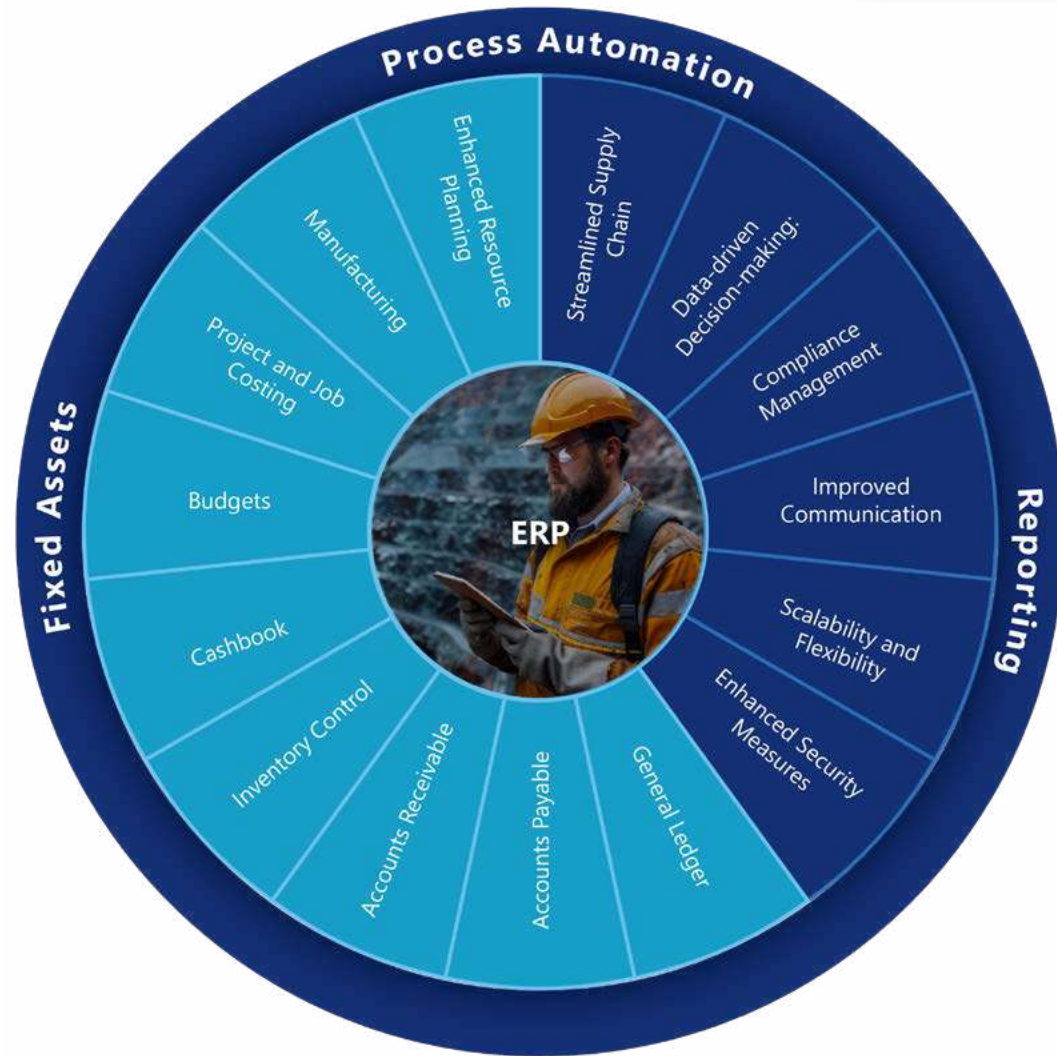


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ERP

ERP solutions for mining customers are tailored to address the unique challenges and complexities of the mining industry. Here's what sets them apart.



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ERP

Enhanced Resource Planning: Mining-specific ERP systems excel in optimising resource allocation, ensuring that every asset is utilised to its fullest potential, which is crucial in an industry where resources are vast and operations are spread across remote locations.

Streamlined Supply Chain: The complex web of supply chain management in mining can be challenging to navigate. ERP solutions for mining simplify this by providing tools that manage the entire supply chain efficiently, from procurement to delivery.

Data-Driven Decision-Making: With the vast amount of data generated in mining operations, ERP systems help in consolidating and analysing this data, enabling informed decision-making based on accurate, real-time information.

Compliance Management: The mining industry is heavily regulated. ERP solutions help ensure compliance with environmental standards, safety regulations, and other legal requirements, reducing the risk of non-compliance penalties.

Improved Communication: Effective communication is vital in mining operations. ERP systems facilitate better communication and collaboration across different departments and locations, ensuring that everyone is on the same page.

Scalability and Flexibility: As mining operations grow or change, ERP systems can scale and adapt to new requirements without disrupting existing processes, providing the agility needed to respond to market changes.

Enhanced Security Measures: Given the sensitive nature of data in the mining industry, ERP solutions offer robust security features to protect against cyber threats and ensure the integrity of financial and operational data.

These features are designed to meet the specific needs of mining companies, helping them to manage their operations more effectively and gain a competitive edge in the market.

Enterprise Resource Planning (ERP) systems are integral to the mining industry, especially in the realm of finance.

General Ledger: Serves as the core of the financial management system, tracking all financial transactions and providing real-time visibility into the financial status of the mining operation

Accounts Payable: Manages outgoing payments and expenditures to suppliers, ensuring timely and accurate financial obligations are met, which is crucial for maintaining good supplier relationships.

Accounts Receivable: Handles incoming payments from customers, streamlining the billing and collection processes to improve cash flow and reduce days sales outstanding.

Inventory Control: Monitors stock levels, manages procurement processes, and optimises inventory to meet production demands without excess expenditure, thus maintaining cost-effectiveness.



ERP

ERP solutions for mining customers are tailored to address the unique challenges and complexities of the mining industry. Here's what sets them apart.



Reporting



Business Process Automation



Fixed Assets



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ERP

Cashbook: Tracks all cash transactions, providing a detailed record of cash flow which is essential for effective liquidity management in the volatile mining market.

Budgets: Facilitates the creation and monitoring of financial plans, allowing mining companies to forecast and plan for future financial performance and resource allocation.

Project and Job Costing: Offers detailed tracking of costs associated with specific projects or jobs, enabling precise cost management and profitability analysis for mining projects.

Manufacturing: Integrates with other modules to manage the production process, from resource allocation to final product, ensuring efficiency and cost control throughout the manufacturing cycle.

Overall, ERP systems enhance operational efficiency, improve financial management, and support strategic decision-making in the mining sector by providing a unified platform for all financial operations.



ERP

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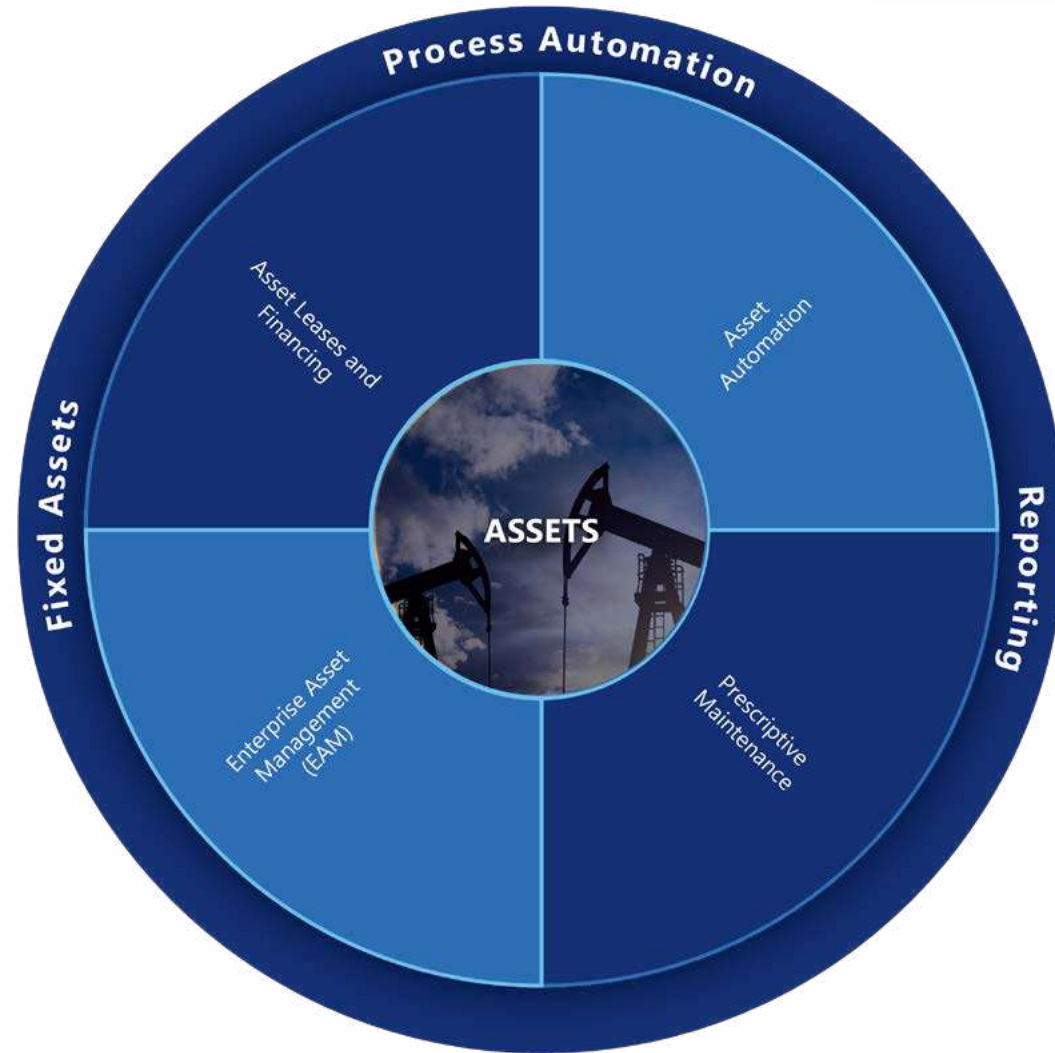
Assets

Asset management in a mining environment is a comprehensive approach that ensures the optimal use of assets, from acquisition to decommissioning.

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ASSETS

Asset Automation: Automation in mining integrates advanced software and machinery, allowing for real-time monitoring and control of assets. This leads to improved safety, increased productivity, and enhanced equipment reliability.

Prescriptive Maintenance: This proactive maintenance strategy uses data analytics, machine learning, and AI to predict and prevent equipment failures. It ensures high asset reliability by providing early warnings and efficient spare parts planning, thus reducing downtime and maintenance costs.

Enterprise Asset Management (EAM): EAM systems provide a centralised platform for tracking and managing the lifecycle of mining assets. They support operational processes by offering real-time visibility into asset performance, facilitating better decision-making, and improving safety and efficiency.

Asset Leases and Financing: Mining companies have various financing options, including leases that allow for the use of new or used equipment without large upfront costs. This financial flexibility supports the acquisition of necessary machinery while maintaining cash flow and adapting to technological advancements.

Overall, effective asset management in mining is crucial for optimising performance, reducing costs, and ensuring the longevity and profitability of mining operations.



Assets

Asset management in a mining environment is a comprehensive approach that ensures the optimal use of assets, from acquisition to decommissioning.



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Operations

In the mining industry, operational solutions are supported in various areas to enhance efficiency, reduce costs, and ensure compliance.



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OPERATIONS

Material Resource Planning: Ensures optimal allocation of materials and resources, aligning with production schedules and minimising waste.

Management: Streamlines the handling of contracts with suppliers and service providers, ensuring compliance and mitigating risks.

Travel Management: Facilitates the efficient movement of personnel to remote locations, optimising travel logistics and costs.

Demand Management: Balances supply and demand by forecasting resource needs and adjusting procurement accordingly.

Procure to Pay Process Automation: Automates the procurement process from order to payment, enhancing transparency and reducing manual errors

Fuel Management: Monitors and controls fuel consumption, crucial for cost management and operational efficiency in mining operations

Vendor Management: Manages relationships with suppliers to ensure timely delivery of goods and services, maintaining production schedules.

Tender Management: Oversees the tendering process for services and equipment, ensuring fair competition and selection of the best vendors.

Asset Management and Tracking: Keeps track of assets, ensuring they are maintained, utilised efficiently, and available when needed.

Warehouse Management: Manages storage and retrieval of materials, optimising space and ensuring inventory accuracy.

Internal Issuing: Controls the distribution of internal resources and materials to various departments within the mining operation.

Field Services: Provides on-site support and maintenance for equipment, ensuring minimal downtime and operational continuity.

Sustainability Management: Implements practices that minimise environmental impact and promote sustainable use of resources.

These solutions collectively contribute to the robustness and resilience of mining operations, adapting to challenges and ensuring long-term success.



Operations

In the mining industry, operational solutions are supported in various areas to enhance efficiency, reduce costs, and ensure compliance.



Reporting



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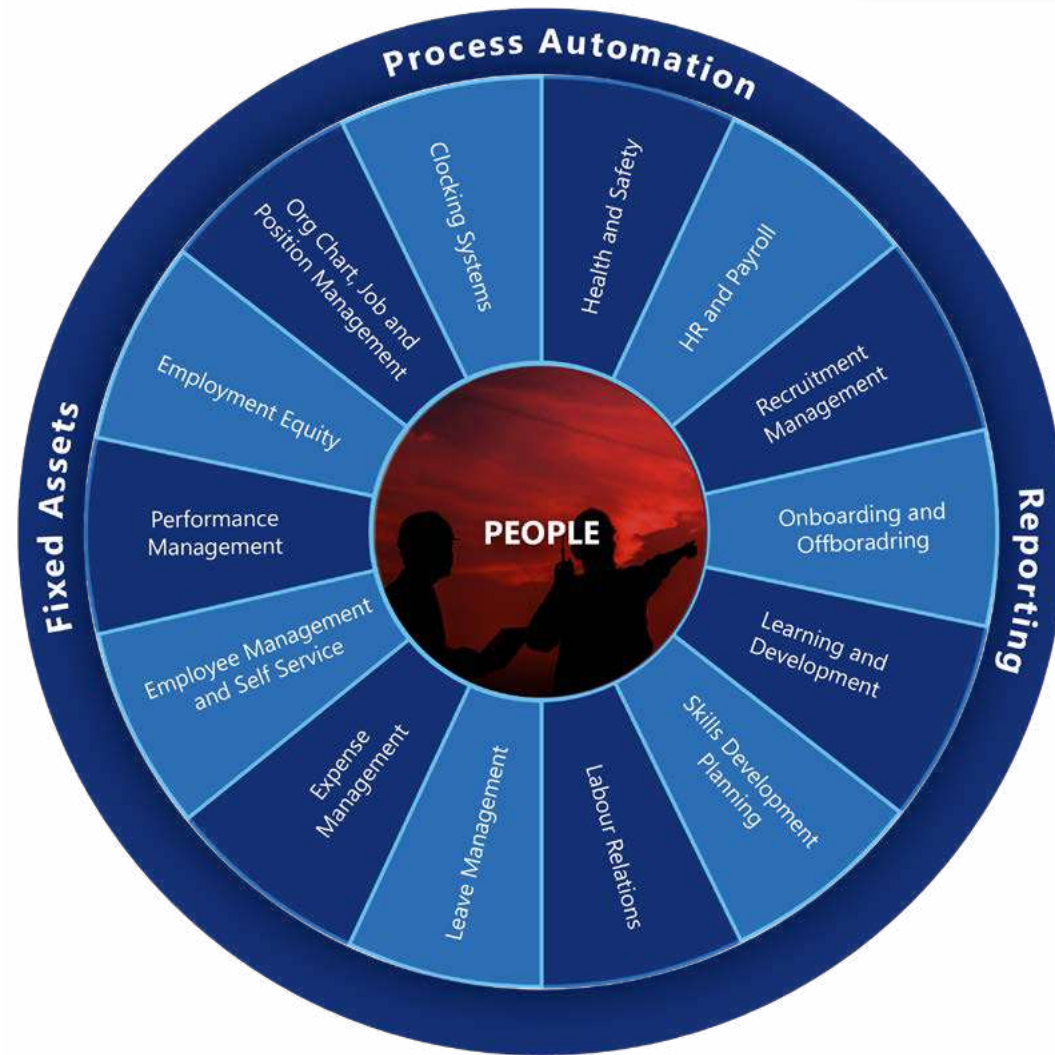


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People

Managing people solutions in a mining environment involves a comprehensive approach that addresses various key aspects to ensure the workforce is efficient, skilled, and safe.



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PEOPLE

HR and Payroll: HR departments handle employee compensation, benefits, and compliance with labour laws, ensuring workers are paid accurately and on time.

Recruitment Management: Mining companies actively seek skilled workers, often working with specialised recruitment agencies to fill positions with qualified candidates.

Onboarding and Offboarding: New employees go through an onboarding process to familiarise them with the mining operations, while offboarding procedures ensure a smooth transition for departing staff.

Learning and Development: Continuous training programs are implemented to enhance the skills and knowledge of the workforce, adapting to new technologies and methods in mining.

Skills Development Planning: Strategic planning is essential to identify and address the skills needed for current and future mining operations.

Labour Relations: Effective communication and negotiation with labour unions are crucial to maintain a harmonious work environment and prevent disputes.

Leave Management: Systems are in place to manage employee leave requests fairly and in compliance with labour regulations.

Expense Management: Careful monitoring and management of expenses related to environmental management and rehabilitation are critical for sustainable mining practices.

Employee Management and Self Service: Empowering employees with self-service tools for administrative tasks and performance tracking fosters engagement and productivity.

Performance Management: A structured approach to evaluating employee performance helps align individual goals with the company's strategic objectives.

Employment Equity: Ensuring fair employment practices and diversity in the workplace is a priority, aligning with legal requirements and social responsibility.

Org Chart Job and Position Management: Clear organisational structures and job descriptions help streamline operations and clarify roles and responsibilities.

Clocking Systems: Accurate timekeeping systems are used to manage work hours, overtime, and ensure compliance with labour laws.

Health and Safety: A paramount concern in mining, rigorous health and safety protocols are enforced to protect employees from the inherent risks of mining operations.

These aspects collectively contribute to a well-managed workforce that can meet the challenges of the mining industry while promoting safety, efficiency, and employee satisfaction.



Managing people solutions in a mining environment involves a comprehensive approach that addresses various key aspects to ensure the workforce is efficient, skilled, and safe.





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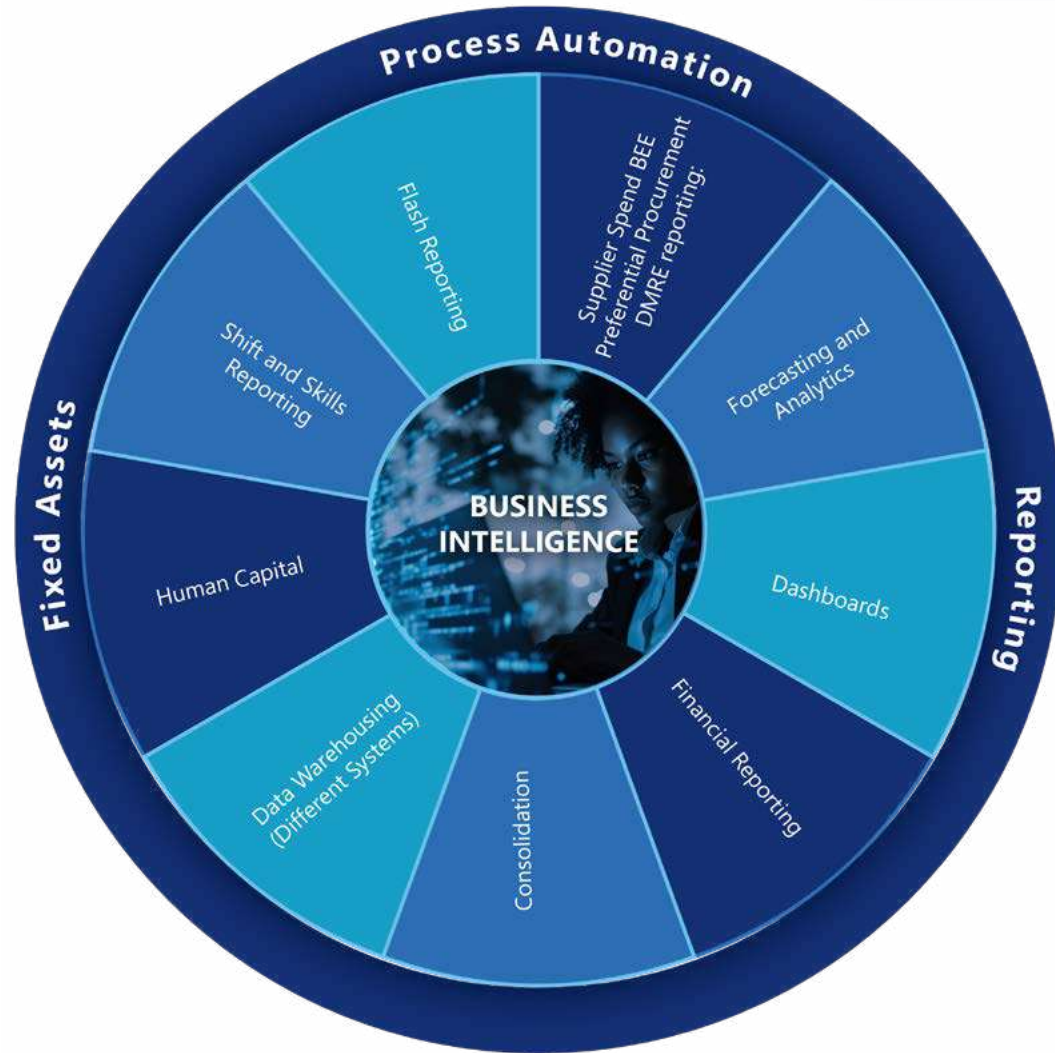


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BI

Business Intelligence (BI) plays a crucial role in the mining industry by enhancing decision-making and operational efficiency.



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BUSINESS INTELLIGENCE

Forecasting and Analytics: BI utilises historical data to predict future events, leveraging statistical techniques and machine learning to identify trends and patterns, which is essential for optimising equipment maintenance, production schedules, and minimising downtime.

Dashboards: Mining dashboards provide real-time insights into operations, helping to identify areas of improvement and ensuring efficient resource management. They are crucial for tracking performance and making informed decisions quickly.

Financial Reporting: The mining industry relies on financial reporting to manage exploration and evaluation activities, development expenditures, and to comply with regulatory requirements. Accurate financial reporting is vital for transparency and investor confidence.

Consolidation: Mergers and acquisitions in mining require a balanced technical appraisal and valuation process. Consolidation helps companies grow, improve market positioning, and achieve economies of scale.

Data Warehousing: Data warehousing in mining involves organising and compiling data into a centralised database, which is then used for data mining to extract meaningful patterns and insights from vast datasets.

Human Capital: The mining sector invests in human capital through skills development, learnerships, bursaries, and training programs. Effective human capital management is key to improving safety, productivity, and ensuring workforce sustainability.

Shift and Skills Reporting: Shift reporting in mining ensures legal compliance and adherence to quality mining practices. Skills reporting is integral to tracking the development and deployment of the workforce's capabilities.

Flash Reporting: Flash reports are concise, timely reports that provide a snapshot of business performance, allowing for rapid decision-making. They are particularly useful for monitoring sudden changes or exceptional events.

Supplier Spend BEE Preferential Procurement DMRE reporting: The mining industry is required to invest in socio-economic development and comply with the Mining Charter, which includes preferential procurement from BEE-compliant suppliers and reporting to the Department of Mineral Resources and Energy (DMRE) to ensure transformation and community development.

In conclusion, BI supports the mining industry by providing tools and methodologies for effective data management, predictive insights, and strategic planning, all of which are essential for the industry's growth and compliance with regulatory frameworks.



BI

Business Intelligence (BI) plays a crucial role in the mining industry by enhancing decision-making and operational efficiency.



Reporting



Business Process Automation



Fixed Assets



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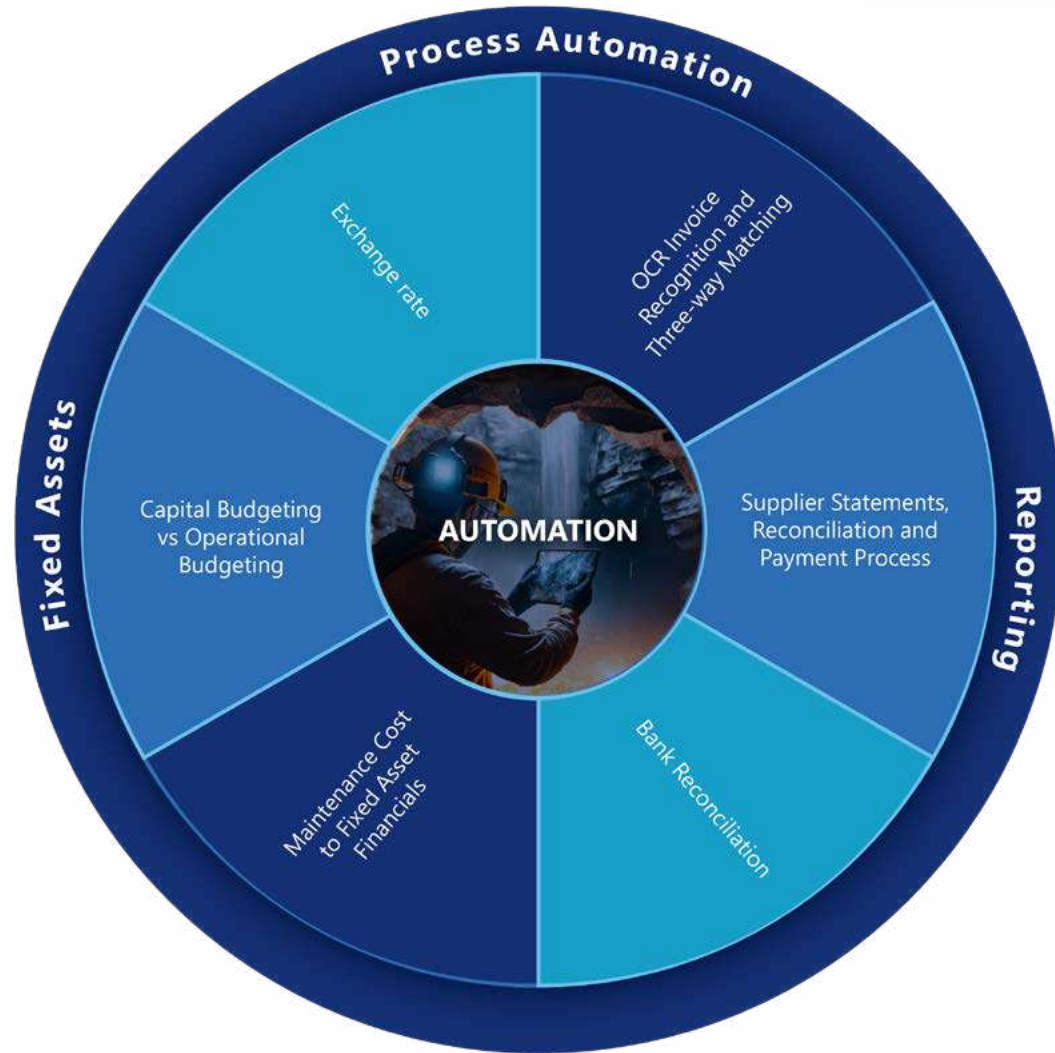
Automation

Automation in mining is transforming the industry by streamlining processes, reducing errors, and enhancing efficiency.

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AUTOMATION

OCR Invoice Recognition & Three-Way Matching: Optical Character Recognition (OCR) technology automates the matching of invoices, purchase orders, and receiving reports, ensuring accuracy in payments and reducing manual entry errors.

Supplier Statements Reconciliation & Payment Process: Automated systems reconcile supplier statements with ledger entries, facilitating timely payments and maintaining supplier relationships. This process ensures that all transactions are accounted for and discrepancies are resolved promptly.

Bank Reconciliation: Automation in bank reconciliation matches the transactions recorded by the company with the bank statements, identifying discrepancies and ensuring accurate financial reporting.

Maintenance Cost to Fixed Asset Financials: Predictive maintenance powered by automation helps in forecasting equipment failures and scheduling maintenance, thereby reducing downtime and extending the life of fixed assets. This is crucial as maintenance costs can account for a significant portion of total operating costs in mining.

Capital Budgeting vs Operational Budgeting: Capital budgeting involves long-term investments in assets, while operational budgeting focuses on day-to-day financial activities.

Automation aids in both by providing accurate data for informed decision-making, whether for long-term strategic investments or managing immediate cash flows.

Exchange Rate: Exchange rate fluctuations can significantly impact the mining industry, affecting commodity prices and profitability. Automated exchange rate importing tools can help manage the risks associated with exchange rate volatility, allowing for more stable financial planning.

In essence, automation in mining finance not only optimises current operations but also strategically positions companies for future growth and stability.



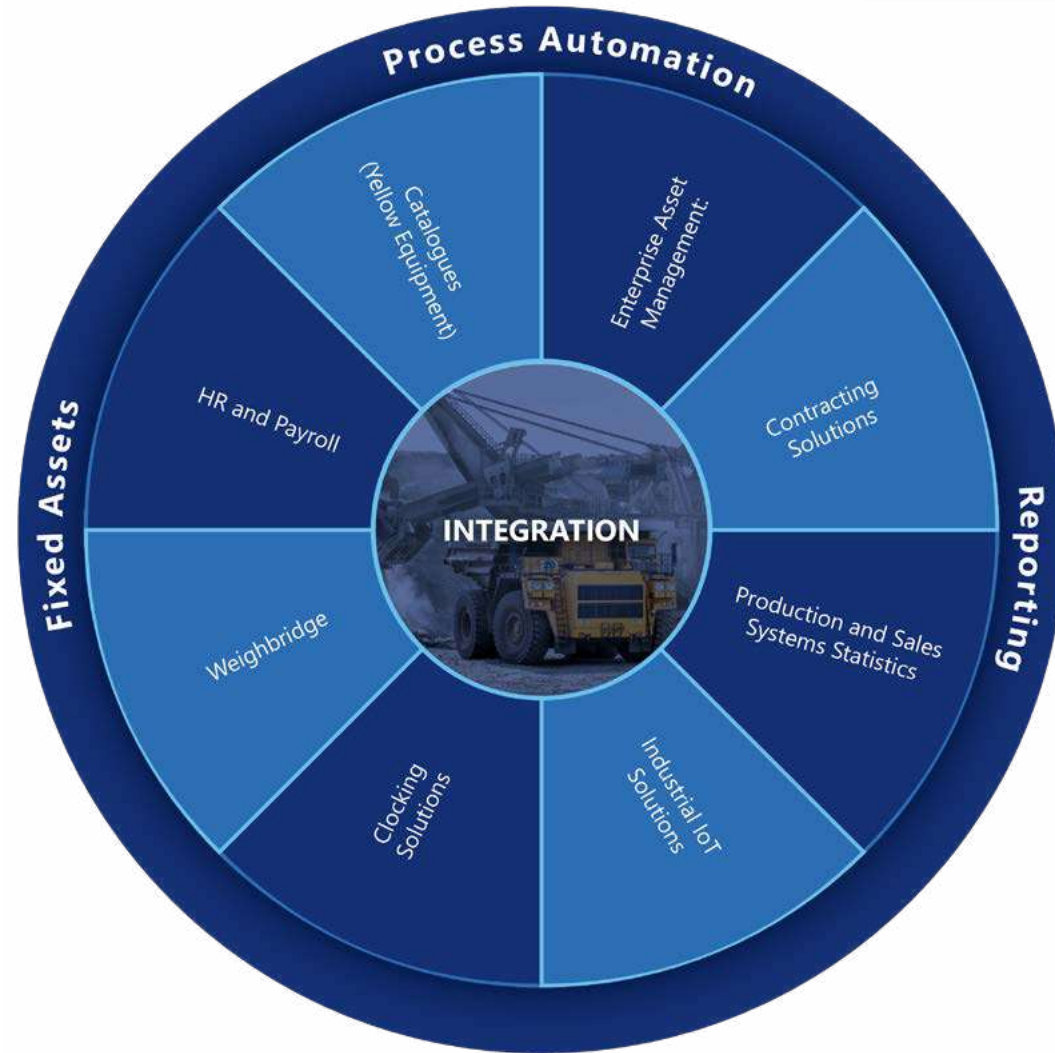
Automation in mining is transforming the industry by streamlining processes, reducing errors, and enhancing efficiency.





Integration

Enterprise Resource Planning (ERP) systems are crucial in the mining industry, integrating various operational aspects to streamline processes and enhance efficiency.



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INTEGRATION

Enterprise Asset Management: Integrates asset lifecycle management, from procurement to disposal, ensuring optimal asset utilisation and maintenance scheduling.

Contracting Solutions: Facilitates contract management, from creation to execution, ensuring compliance and risk mitigation across mining operations.

Production and Sales Systems Statistics: Provides real-time data on production and sales, enabling accurate forecasting and inventory management.

Industrial IoT Solutions: Connects equipment and devices, allowing for real-time monitoring, predictive maintenance, and operational insights.

Clocking Solutions: Manages workforce time tracking, ensuring accurate labour cost allocation and compliance with working hours regulations.

Weighbridge: Automates the weighing of vehicles and materials, integrating with ERP for accurate billing and inventory management.

HR and Payroll: Streamlines human resources and payroll processes, ensuring efficient workforce management and compliance with labour laws.

Catalogues (Yellow Equipment): Manages equipment catalogues, ensuring accurate tracking of machinery and facilitating maintenance and procurement decisions.

These integration points collectively enhance the strategic and operational capabilities of mining entities, driving productivity and profitability.



Integration

Enterprise Resource Planning (ERP) systems are crucial in the mining industry, integrating various operational aspects to streamline processes and enhance efficiency.



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Digital **AI** transformation of an entire enterprise requires the convergence of the OT and IT environments so that business applications can be developed on enterprise data that enable better and more informed business decisions.

The Business Environment cluster partners with our customers to drive value-creating digital **AI** transformation starting with assessments of their ICT landscapes. We become our customers' digital transformation partner and assist them in building a self-funding digital **AI** transformation roadmap.



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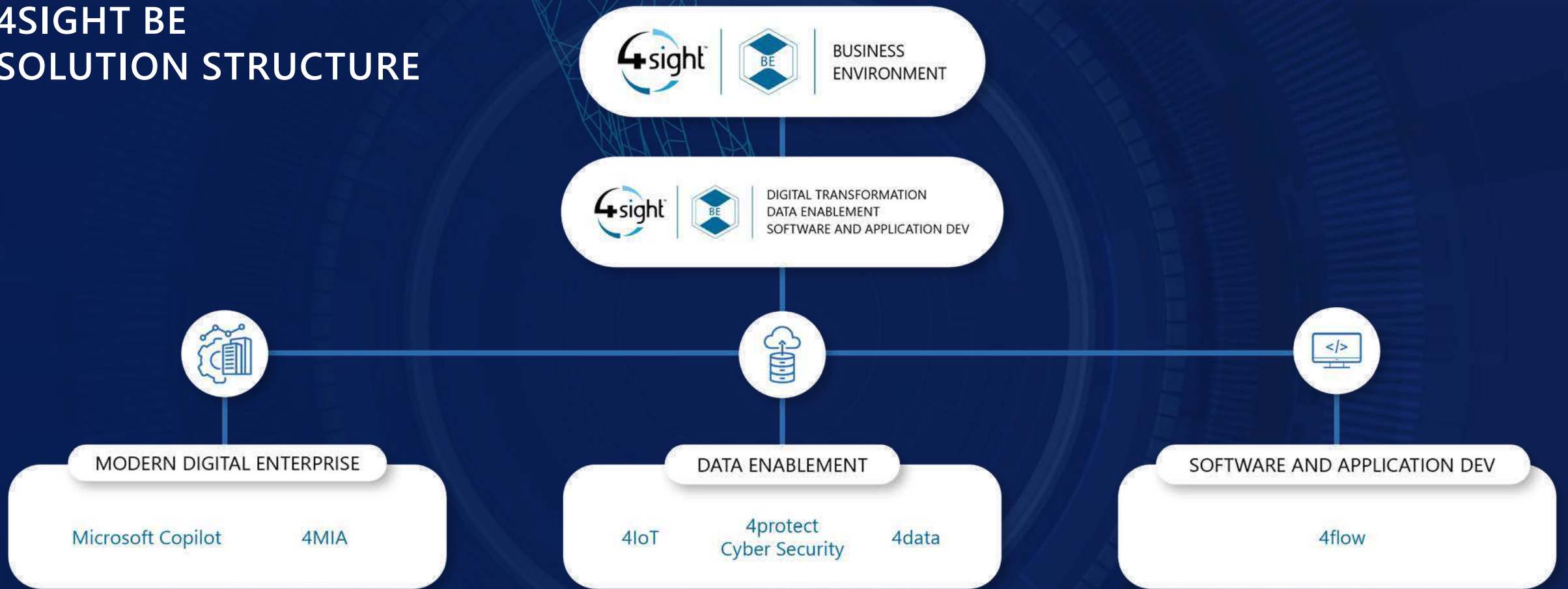
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4SIGHT BE SOLUTION STRUCTURE



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BUSINESS ENVIRONMENT

INTRODUCING 4SIGHT BE CLUSTER CAPABILITY, A GAME-CHANGER IN THE MINING SECTOR.

4Sight BE Cluster empowers mining companies by establishing a robust, scalable, and independent enterprise data strategy. This strategy paves the way for a seamless integration of Information Technology (IT) and Operational Technology (OT) environments.

Enterprise 5.0

At 4Sight, we align ourselves with our market-leading Enterprise 5.0 framework, an end state that defines the ultimate goal of digital transformation. This approach empowers us to focus on implementing individual business solutions, while ensuring seamless integration within the overarching Enterprise 5.0 framework. In partnership with Microsoft, we leverage their cutting-edge technologies to enhance our offerings, reinforcing 4Sight's position as a leader in the digital AI transformation journey.

Our OT team collaborates with leading Original Equipment Manufacturers (OEMs) to deliver top-tier OT solutions, managing operational data with the best technologies available in the OT space. Simultaneously, our IT cluster excels in providing best-in-class IT solutions, including ERP, CRM, and HRM solutions from top OEMs, including Microsoft.

A Sustainable Data Strategy

In today's data-driven world, decision-makers in mining companies need access to near-real-time data from both IT and OT solutions across their enterprise. 4Sight BE Cluster bridges this gap by providing visibility through near-real-time Business Intelligence (BI) dashboards built on our enterprise data strategy. We guide mining companies from hindsight to insight, creating a single version of the truth that facilitates decision-making. This leads to cost savings, energy efficiency, enhanced safety, increased productivity, and higher throughput. We have a proven track record in the mining sector. Below are three references showcasing how we've helped mining companies achieve these outcomes.

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DATA ENABLEMENT

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BUSINESS ENVIRONMENT

Customer Project: Natural Resource Company in South Africa 2022 - 2024

Project Overview

4Sight BE Cluster partnered with this natural resource company, a leading player in the mining industry, to design and develop a comprehensive **Data Management and Data Analytics** solution in South Africa.

Project Execution

The project commenced with the development of digital data capturing forms on our 4flow Business Process Management platform to centralise vital data. This database was further enriched by integrating data from 13 diverse data sources, allowing for a broad spectrum of data inputs. To facilitate data analysis, Data Mart scripts were employed to calculate 25 Key Performance Indicators (KPIs). These KPIs were then displayed on a summary dashboard, providing real-time insights, and aiding in informed decision-making. In tandem, a DataVault model was developed to consolidate all data sources into unified business concepts. This led to the creation of Infomart objects encapsulating the KPIs, which were visualised on an alternative dashboard, offering a varied perspective on the metrics.

Project Outcome

The project's comprehensive approach included rigorous testing for data accuracy and extensive documentation, resulting in a robust framework for data management. This enhanced the decision-making process for senior management, driving efficiency and productivity in the mining operations.

This project stands as a testament to 4Sight BE Cluster's commitment to transforming the mining sector through data-driven insights and innovative solutions.



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Customer Project: Mine in South Africa 2018 - 2024

Project Overview

4Sight BE Cluster collaborated with this mining operation, a key player in the chrome mining sector in South Africa, to design and implement a comprehensive solution for **Data Capturing, Data Management, and Data Analytics**

Project Execution

The project marked a revolution in the way operations are managed and improved in the chrome mining sector. We developed digital data capturing systems utilising our 4flow Business Process Management Platform that digitised comprehensive operational data across the entire value chain. This enabled the mine to identify inefficiencies and optimise processes.

The project also embraced 4Sight's Data Management Strategy to enhance Data Maturity within the organisation. This strategy encompassed various aspects such as Data Strategy, Catalog, Replication, Quality, Master Data Management, Governance, Dashboarding/Reporting, Hybrid-Cloud Architecture, Data Warehousing, Data Modelling, and Project Management.

Project Outcome

The collective implementation of these elements ensured the successful deployment of an effective data management system. This project stands as another testament to 4Sight BE Cluster's commitment to driving efficiency and productivity in the mining sector through innovative data-driven solutions.

Customer Project: Mine in South Africa March 2022 - February 2023

Project Overview

4Sight BE Cluster partnered with the mining operation to develop and implement a comprehensive data strategy, which included **Data Governance, Data Management, and Data Analytics.**

Project Execution

The project kicked off with the definition of a high-level value chain and a thorough data strategy assessment. This led to the creation of a detailed roadmap that encompassed a consolidated data architecture, KPI definitions, reporting structures, and a Data Management Advisory framework.

Our advisory services covered Data Governance, ensuring the team was well prepared for the new data strategy. A significant achievement of the project was the creation of KPI Dashboards for Mining and Processing, providing real-time insights for the executive management.

The project leveraged a cloud-based architecture, utilising tools such as Azure, Purview, Power BI, and Data Vault Software. This was instrumental in enhancing strategic data-driven decision-making within the organisation.

Project Outcome

This project stands as another successful reference for 4Sight BE Cluster, showcasing our commitment to driving efficiency and productivity in the mining sector through innovative data-driven solutions.



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Value Chain Optimisation

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BUSINESS ENVIRONMENT



4FLOW

Another key initiative is centered around digitising data capturing and transforming paper-driven processes within the mining sector, leveraging our 4flow Business Process Management Platform. This initiative aims to streamline operations and enhance efficiency in the mining industry.



4SHARE

4Sight's 4share single sign-on (SSO) Single Identity portal, offers a more streamlined approach to accessing applications for business decision-making and management - designed to provide a unified access point to key applications and information, accessible from any device, anywhere.

4flow in South African Mines

Product Overview

4flow, a business process automation platform, is transforming the way companies digitise their paper-driven processes. As a Microsoft IP Co-sell solution running on Azure, 4flow works seamlessly with the Power platform and utilises Azure services, including Azure AI services.

Project Execution at South African Mine

At the mining organisation, we have facilitated manual data entry to ensure data availability on our enterprise data platform. This has allowed us to include previously unmeasured data points in our management and executive reporting, providing a more comprehensive view of operations. At the natural resource company, we are digitising their supervisor paper-driven processes and are planning the start of digitisation of their HR processes. The data from these processes, including the execution data, becomes part of the data strategy. This allows for the creation of reports that enable management to drive efficiency and manage bottlenecks that are now visible.

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4share in South African Mines

4share portal, is currently under evaluation as a potential deployment for blue-collar workers, contractors, and employees.

This SSO portal aims to provide a unified access point for various applications such as SAP, HR, SharePoint, O365, and more. It also enables access to essential documentation and Business Intelligence (BI) dashboards within a single environment. Furthermore, we are exploring the integration of Copilot with their SharePoint libraries to further enhance accessibility and efficiency.

4flow and 4share are testament to 4Sight BE Cluster's commitment to driving business value through innovative solutions. By delivering BI dashboards built on top of our data strategy, we continually drive business value, showcasing the transformative power of digitisation in the mining sector.

Building a single version of the truth and implementing a sustainable, agile data strategy with trustworthy data quality has always been crucial. 4Sight BE Cluster's ability to deliver this to mining companies has been a significant differentiator.



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BUSINESS ENVIRONMENT



AI AND ENTERPRISE DATA STRATEGY

The capability of **AI** to work with unstructured and structured data has transformed how we construct our enterprise data solutions. We can no longer solely cater to structured data in our data warehouses or data lakes. To include unstructured data, we need to transition to a data fabric platform, a modern approach to managing big data that allows seamless integration with both structured and unstructured data.

Microsoft is at the forefront with the release of Microsoft Fabric. We are currently initiating a Fabric Proof of Concept (POC) with a mining operation in South Africa, positioning 4Sight BE Cluster perfectly to make Microsoft Fabric the standard for the Enterprise Data platform of choice for mining companies.

Our mining customers are now eager to explore **AI** use cases that can deliver value, especially cost savings. There are numerous **AI** opportunities in the OT and IT environments such as prescriptive maintenance from the 4Sight OT team.

However, there is an even larger **AI** opportunity and use cases to explore when we consider data from multiple IT and OT data sources. Bringing these sources together in our data strategy is where the BE Cluster differentiates. We are in the initial phases with **AI** use case POCs, including Mining Safety Incident Prediction, Mine Plan Forecast, and Mining Absenteeism Prediction. All of these use cases will be delivered using Azure **AI** services, and in the case of one of the mines, it will include Microsoft Fabric.

By helping mining companies create a sustainable, scalable enterprise data strategy that can handle both structured and unstructured data sources from both IT and OT solutions, we enable them to make decisions using the correct near-real-time information. This allows them to run greener, safer, more cost-effective, and more efficient operations. Furthermore, by helping them digitise all their paper-driven processes and enabling the deployment of sustainable **AI** solutions using one version of the truth data, 4Sight BE Cluster is positioned as a market leader within the mining sector.



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VALUE CHAIN OPTIMISATION FOR SUSTAINABILITY & GROWTH

Unified Value Chain Optimisation is a holistic approach to improving the efficiency and effectiveness of the mining value chain. It involves the integration of data from the different stages of the mining value chain, from exploration to customer delivery. This is done to identify opportunities for cost savings and improved performance to achieve higher overall value. It can include the use of planning and scheduling optimisers, integrated with operations management, to identify potential limitations or ensure the most profitable activity sequence. It can also include the implementation of advanced visualisations such as remote operations centres or 3D digital twins to improve operational awareness. By using data-driven insights to improve the performance of the entire value chain, Unified Value Chain Optimisation can help to reduce costs, improve profitability, and create a more sustainable mining industry.

Value Chain Optimisation Benefits



Drive visibility across the entire supply chain with Value Chain Optimisation



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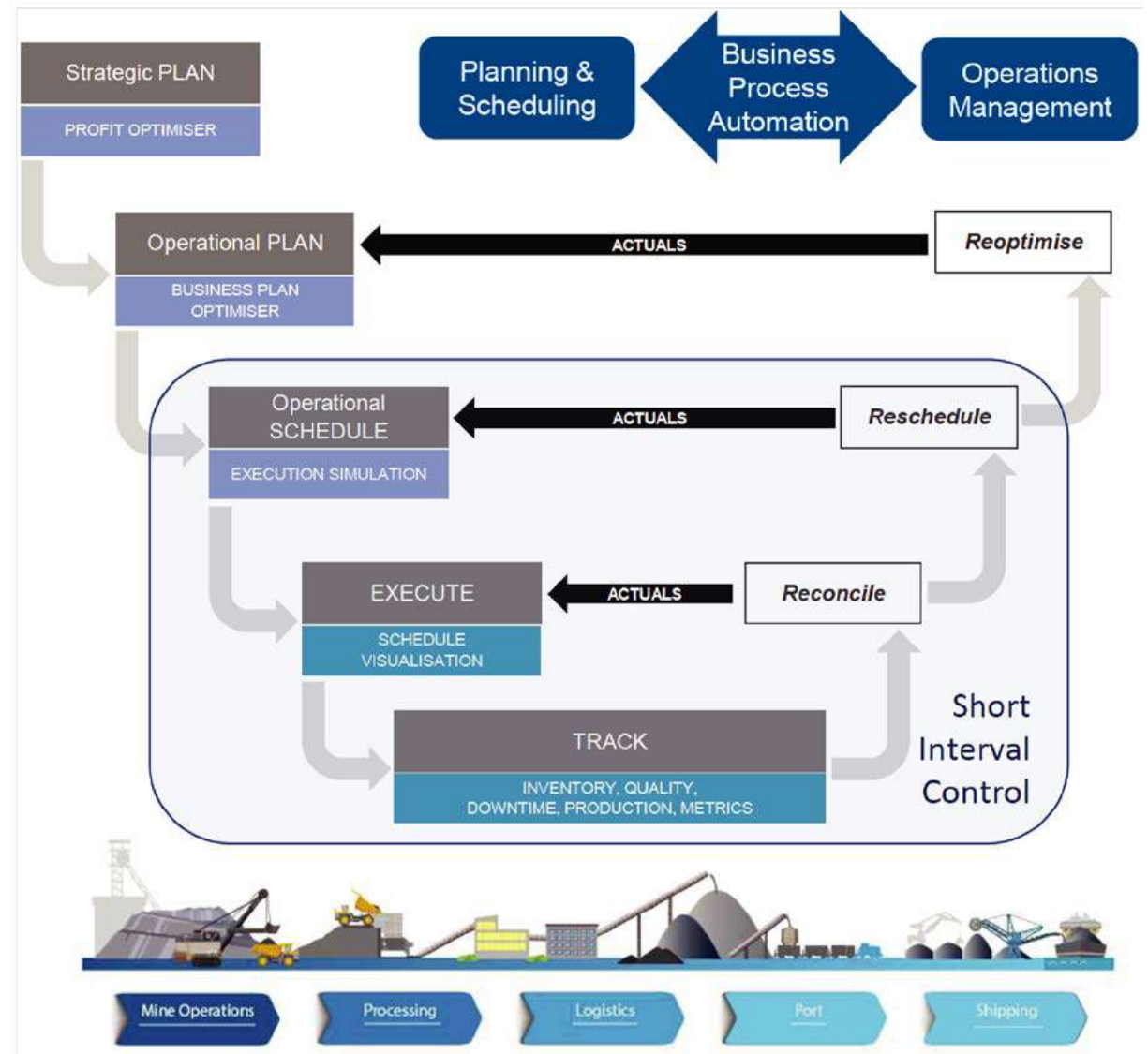
Value Chain Optimisation

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VALUE CHAIN OPTIMISATION BENEFITS

Benefits

- Improve accuracy and repeatability
- Aligned operations across the business
- Reduced effort
- Enhanced decision-making through optimised planning
- Respond rapidly to changing conditions
- Improved cost and profitability



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Value Chain Optimisation

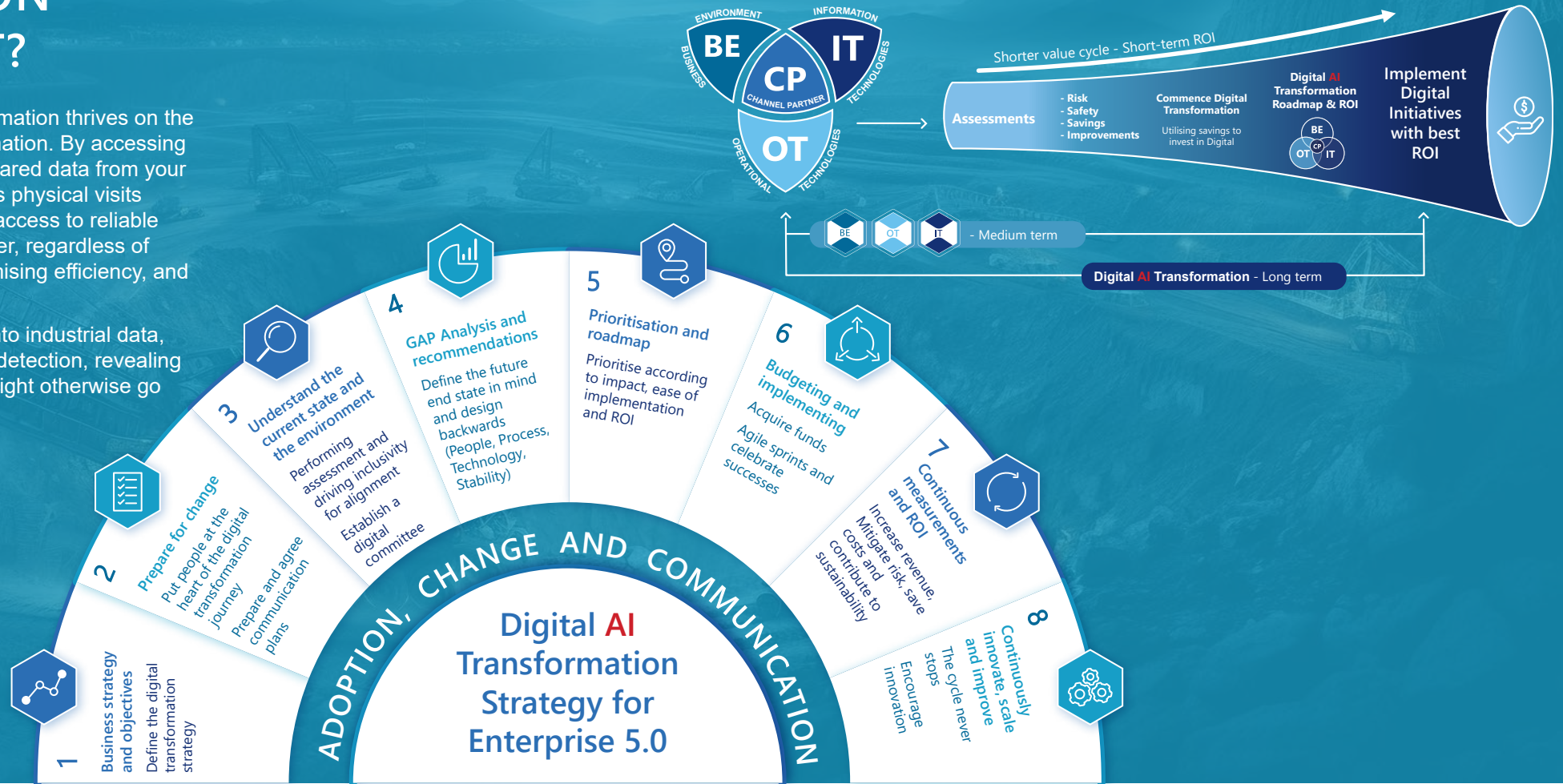
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DIGITAL AI TRANSFORMATION WHERE TO START?

Value creation through digital AI transformation thrives on the exchange of industrial insights and information. By accessing aggregated, meticulously curated, and shared data from your sites and assets, collaboration transcends physical visits or endless email threads. Instantaneous access to reliable information empowers every team member, regardless of their location, enhancing workflows, optimising efficiency, and minimising errors.

Furthermore, AI-driven software delves into industrial data, uncovering patterns that surpass human detection, revealing opportunities and potential failures that might otherwise go unnoticed.

Digital AI Transformation Approach



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Incorporated in 2017, 4Sight is a JSE AltX (ticker: 4SI) listed, multi-national, diversified technology group. Our purpose is to leverage our extensive product and services portfolio, focused on 4IR technologies, people and data-focused solutions to design, develop, deploy and grow solutions for our partners (customers and vendors).

The company's mission is to empower our partners to future proof their businesses through digital AI transformation to make better and more informed decisions in the modern digital economy.

4Sight's business model enables its partners to take advantage of products and solutions within its group of companies, which will allow them to enjoy turnkey digital transformation solutions across industry verticals.



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