



NAVIGATE YOUR NEXT IN MINING

The Infosys road map to digitalize mining operations

Mining companies are adopting a digital approach to boost productivity and increase margins. We believe that the mine of the future will be more connected, automated, and supported by robust enterprise systems.

Let us evaluate current trends that are driving the mine of the future:

Digitalization

Digital thinking must be integrated into the core of the mining business strategy and practices, to transform how business decisions are made. Mining companies also need a vision of how the digital mine of the future will transform core mining processes, the flow of information, and support back office processes.

Automation

Mining enterprises are focusing on automating manual processes. This can cover everything from autonomous haulage to fully integrated operations. However, we believe that the mining industry needs to invest more in automation and integrate new technologies to remain cost-competitive.

Another aspect to consider is: how new automation systems can communicate with existing legacy systems and enterprise applications? Automation should be a complete integration of machines with the business, and not implemented in silos.

Agile digital at scale

Mining companies are traditionally risk-averse. A majority of strategic decisions are made over time spans of five to ten years. However, the business dynamics and shifts in technology have compressed strategic planning spans. Mining operations need to be more agile and flexible to align with changing strategies. Adapting to new technology swiftly is a business imperative for mining.

Sustainable operations

Mining operations have substantial impact on the environment as well as the community. Accordingly, sustainability should be a core element of the business strategy of mining companies. Sustainability is no longer confined to environment, health, and safety, but is a matter of business viability. Mining companies must explore how they can continue extracting natural resources, but in a more sustainable way.

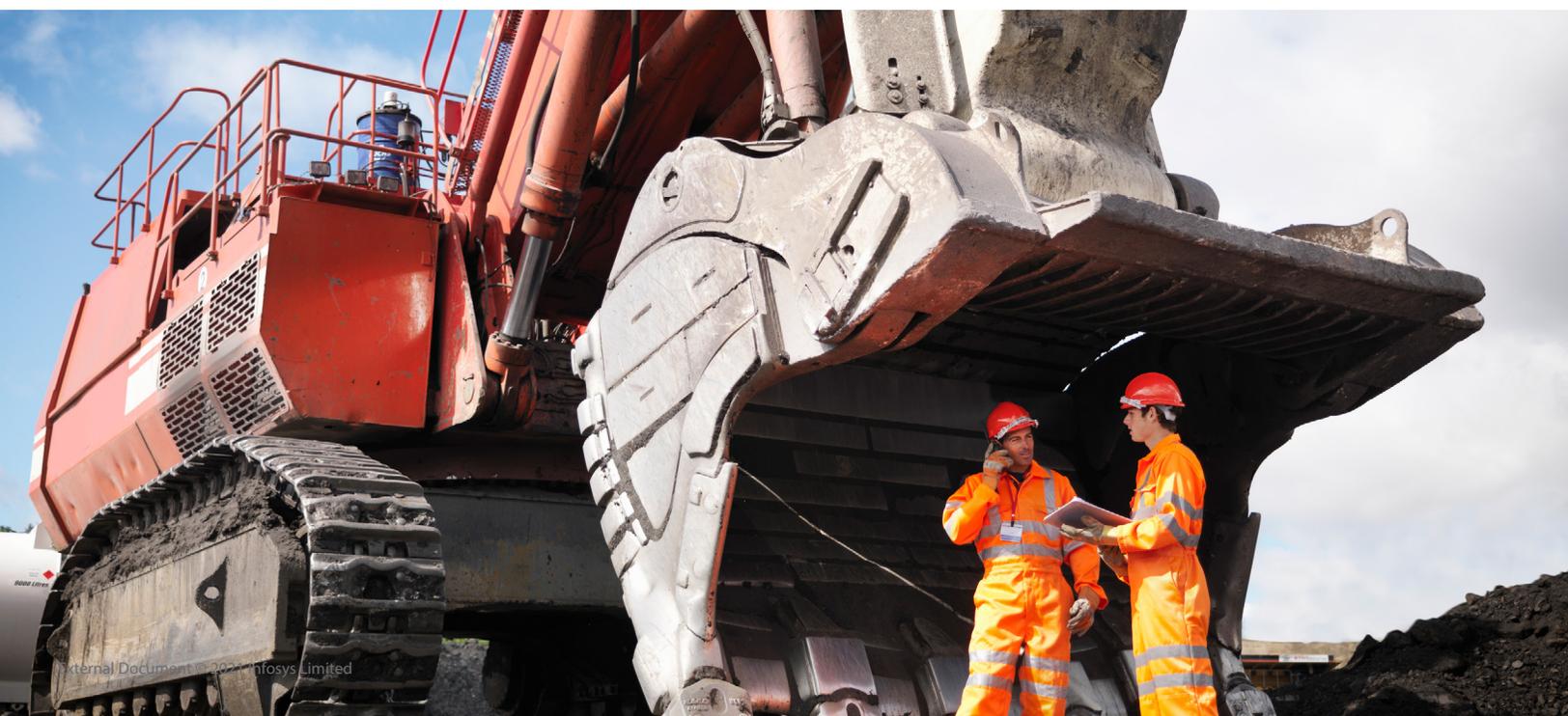
Since mining is an inherently carbon-

intensive business, enterprises can drive decarbonization by leveraging digital technology across operations. Further, mining enterprises are focused on increased adoption of electric vehicles for haulage and transportation of ore to minimize carbon footprint as well as reduce their operational costs.

Autonomy and interoperability

Advances in mining technology include making autonomy a part of the mining process and operations. Some examples of autonomy include remote operation centers, autonomous trucks, and autonomous rail operations.

Infosys has the expertise to develop relevant cyber-physical devices, platforms, applications, and rich experience in integration to enable autonomy in mining processes. With a focus on application interoperability, we provide robust communication support between machines, applications, and business processes.





Infosys offers digital solutions for the mine of the future:

Data and platform

Infosys believe that data will play a pivotal role in the digital transformation of mining companies. Mining companies need data architecture to support varying data frequencies, from machine (real-time data) to ERP (on-demand) data, with practically no cap on data volume.

Data architecture must be platform-agnostic and should support seamless platform integration. A mining company may have multiple platforms supporting the same business and operation processes. Integrating it to form one platform with conditional access to operational stakeholders ensures a smooth digital transformation.

Infosys foresees integrated platforms connecting plant sensors, programmable logic controllers (PLCs), L1 and L2 systems with enterprise applications.

Reskilling

Imparting digital skills for varying functions of mining is required to drive digital transformation at scale. Mining professionals should be equipped with

'design thinking'-based problem-solving skillsets, AI, and data-driven insights.

As a strategic digital partner, Infosys has rich experience in talent acquisition, transformation (training) of new and existing internal expertise. We provide our innovation assets, including our partner ecosystem, to develop algorithms for AI initiatives and prioritize processes to amplify outcomes with an appropriate level of automation.

Analytics-driven decisions

Migrating from data to insights can be a challenge, if data is ambiguous. Our mining solution provides a single version of the truth to all users, processes, and applications across the enterprise. This brings accuracy and repeatability to the insights.

Going beyond insights, Infosys enables actions based on learning from insights. Prediction and machine learning can be industry differentiators for precise mining operations and business control.

Cloud-first solutions

Our solutions for mining companies focus

on bimodal cloud adoption: first, run core mining operations reliably; then bring more agility, speed, and innovation to support areas.

Our mining solutions running on the cloud can enable multiple business units to benefit from joint decisions and shared end-user support for all cloud-based applications and solutions.

Cyber Security

While digital mining enables better collaboration, the secure protocols ensure access control and information privacy at all levels. Our suite of cybersecurity solutions adopt architectural best practices and governance processes to facilitate security compliance.

A digital mine demands that the enterprise is constantly vigilant and identifies vulnerabilities as the operations and technology footprint grows. The digital ecosystem needs to incorporate cybersecurity intelligence to safeguard it from breaches at system, device, and process levels.



Why Infosys?

- Infosys has consistently supported the mining industry to adopt advanced technologies – IoT, cloud, blockchain, and extended reality. We have enabled mining enterprises to build self-reliance through IT / OT convergence and merger of technology with downstream operations, and established the foundation of their digital mining ecosystem.
- Infosys AI-powered core re-energized by Infosys Nia, our next-generation intelligent automation platform, brings machine learning, together with deep knowledge of mining, to unearth business insights and industrialize the core process landscape.
- Infosys Industry 4.0 maturity framework and IoT platform help in defining the road map to connect business operations with appropriate standards and solutions. Industry 4.0 mining point solutions address critical business problems such as enhancing operation efficiency through autonomous hauling or optimizing mine production through digital mines, or enabling augmented reality, virtual reality, extended reality tools for health, safety, and environment monitoring.
- Infosys digital twin connects physical operations to their digital counterpart. This opens up a whole new world of process simulations and predictions, providing the ability to develop improvements in process without hampering operations.
- Infosys digital data management framework redefines data governance, data quality, data catalog, and master data for a digital mining ecosystem. More than 4,000 person-years of data management expertise provide data management accelerators, governance best practices, and data quality enhancement tools.
- Infosys mining industry cloud migration framework enables operators and service providers to migrate legacy business applications to the cloud. The cloud-enabled production monitoring platform helps clients monitor and optimize production at multiple asset hierarchies. Virtual reality solutions provide a collaborative platform to support troubleshooting at legacy process plants by multiple team members from different disciplines and partners.
- Infosys cybersecurity platform provides an integrated, unified view of your security profile, leveraging predictive analytics and AI. Mining cybersecurity solutions leverage the Infosys cybersecurity platform and offer features such as predictive threat analytics, automated cyberdefense center, managed security services portal and pre-built security dashboard. Cybersecurity consulting services help mining companies define the security architecture to safeguard data from different vendor environments, remote locations, and commercial applications.



Authors:

Joseph Michael, Senior Consultant,
Mining & Metals, Domain Consulting Group | joseph.michael@infosys.com

Abhishek Srivastava, Lead Consultant,
Mining & Metals, Domain Consulting Group | abhishek.s60@infosys.com

Dr. Indresh Rathore, Principal Consultant,
Mining & Metals, Domain Consulting Group | Indresh.rathore@infosys.com

To learn more about our Mining practice, visit our website at
<https://www.infosys.com/industries/Mining/> or write to us at askus@infosys.com

For more information, contact askus@infosys.com



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