

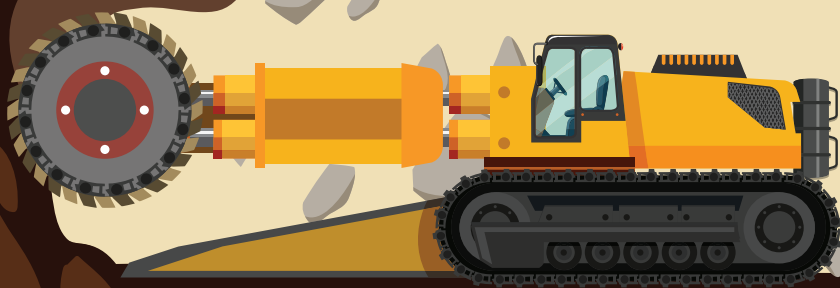
# MINING BUSINESS VALUE



**Digital transformation for growth,  
resilience and safety**



Technology innovation and the possibilities of the Cloud is driving growth at speed and scale for the mining industry. Challenges abound, though. The '*drift*' to holistic digital transformation needs to span across production systems, the workforce and the supply chain to deliver on the promise of safe, sustainable operations.



A connected value chain, legacy systems modernization and best in class safety & health standards can help the mining industry reinvent process efficiencies and pivot itself to business transformation.

## A culture of operational excellence

Our client, the world's premier publicly traded mining company, headquartered in the US, has large scale mining operations across the globe. A technology leader in the mining industry, the organization is at the forefront of exploring emerging trends and innovation to achieve competitive advantage. The need to transform processes and operations was all encompassing, with a culture of continually striving for operational excellence aligned seamlessly to their core priority of employee safety and health.





# In the spotlight – Truck haulage systems

In the journey towards ensuring automation and autonomous operations to improve efficiency and productivity, a critical enabler in the mining industry is haul trucks and the centralized systems that manage their operations. Vehicle automation using intelligent systems can be game changer for mining companies to get and stay future ready. The client's haul trucks were one of the most expensive assets, hence there was a pressing need to ensure optimum operations and high safety. With high maintenance costs, these trucks need expert driving skills, mandatory adherence to safety standards and compliance with GPS directives from the central system.

## The need of the hour

The client was looking to streamline operations across the whole mining value chain. With safety their prime requisite, it was imperative that they achieve minimal or low Total Recordable Incident Rate (TRIR) for quantifying their safety performance. The welcome consequence would be better throughput and productivity at the mining sites.

## The client was looking to

Facilitate efficient, real-time responses with accurate information to enhance operating behavior



Ensure compliance with Safe Operating Practices (SOP) & correct techniques to reduce operational near-misses and / or accidents



Enable quicker disaster recovery, higher efficiency, better analytics, real-time updates and absolute risk mitigation



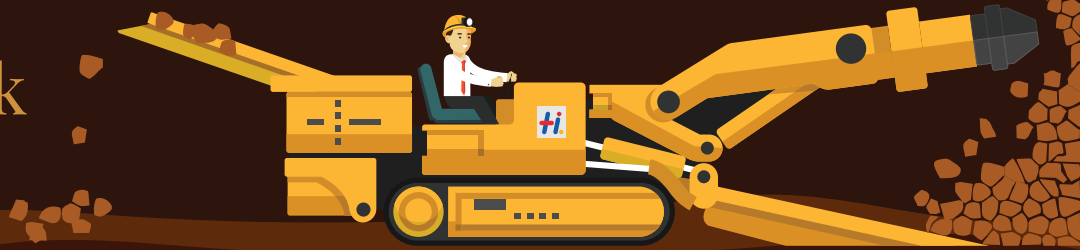
Ensure optimal utilization of haul trucks and effective maintenance measures aligned with their goals rather than the haul truck OEM's to get cost optimization and consistent throughput



Ensure compliance with regulations to encourage safe driving practices, minimize rocking the load in the truck, and enhance effective brake operations of the trucks

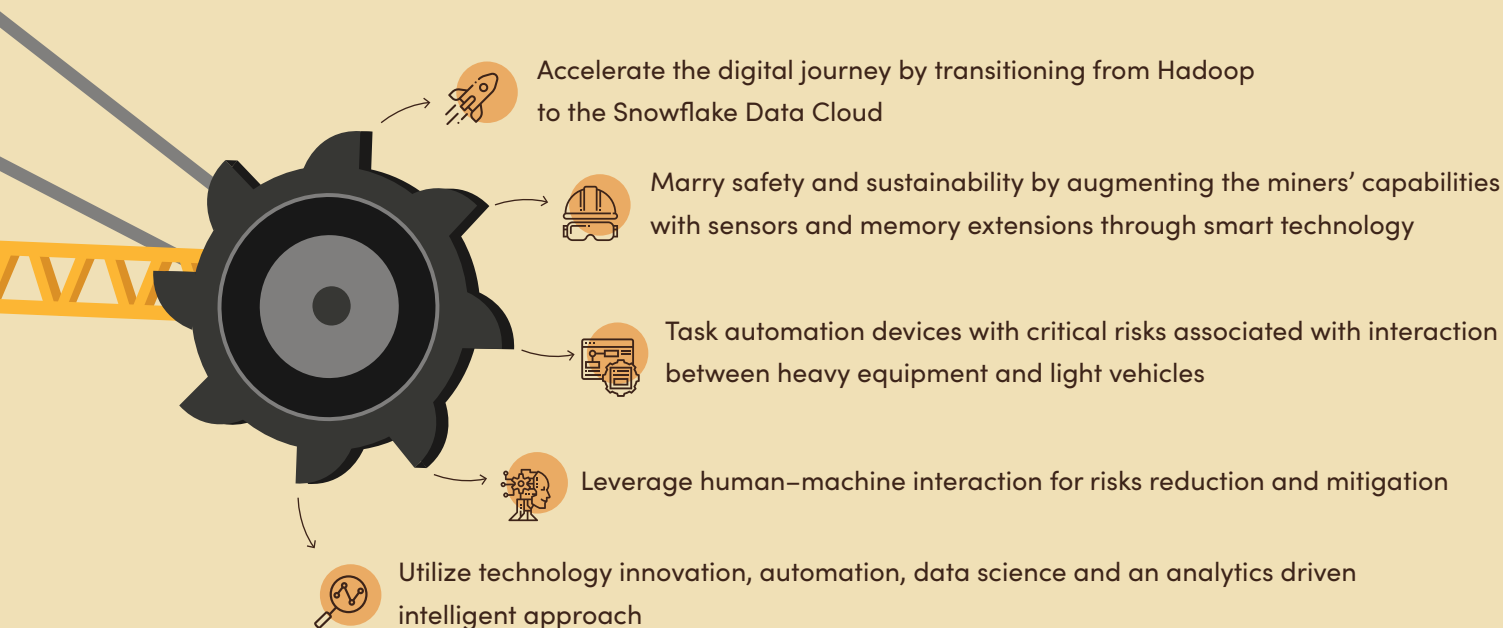


# Hexaware took the wheel



When the client approached Hexaware with their requirements, our team assessed their needs, analyzed the causes and set about defining the blueprint for a fail-safe solution. The roadmap was developed with focus on risk management with resiliency, strengthening the health and safety performance, efficiency in operations and processes and boosting productivity.

## The well-defined planned approach backed by best practices aimed to



## The Solution Spectrum

Hexaware proposed and leveraged Amaze™ for Data & AI, its proprietary state-of-the-art cloud modernization service that enables rapid transformation and deployment of data and analytics ecosystems on leading cloud platforms. Amaze™ for Data & AI modernizes the data and analytics landscape and offers more than 60% reduction in TCO towards Snowflake adoption.

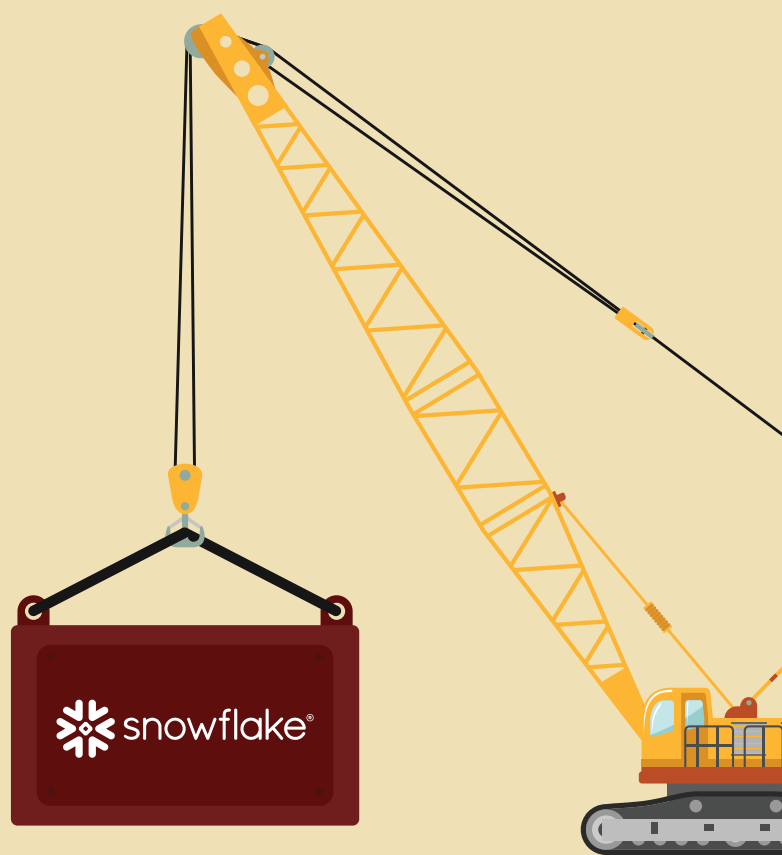


The Migration of data warehouse on Teradata and Data Lake on Hadoop to Snowflake was characterized by the following milestones



**Migrated applications for monitoring/controlling mining operations including SOP violations to Snowflake**

The newly migrated application for monitoring and controlling the haul trucks resulted in a significant decrease in safe operating practice violations and effective efficiency improvements. This increased sharing of timely and accurate information about risky operating behaviors and facilitated better collaboration amongst operations teams, innovation engineers, maintenance teams and equipment operators.



**Replaced dated Teradata data-warehouse running on-premise with Snowflake on the Cloud**

This migration enabled faster on time data loading for speedier reports to drive real time inputs for quick decision making. Also, Teradata for the enterprise and Hadoop for Big Data were reaching end of life, so they were shelved.



**In depth and swift analysis of data from the sensors onboard the haul trucks for optimized truck operations**

Haul truck transit within mines was analysed by sensors for speed, gear, braking, pressure, truck velocity, engine rpm, transmission gear selection, GPS position, etc. This was processed using Snowflake to provide timely information regarding SOP compliance & actionable insights to the haul truck operators, supervisors and trainers.



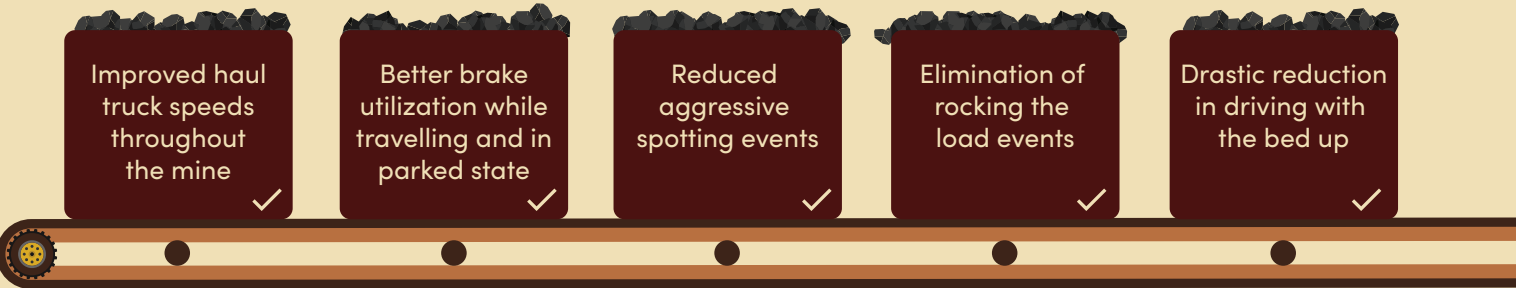
The Haul Truck monitoring and controlling application's scorecard has won our client accolades and the **NIOSH 2020 Mine Safety and Health Technology Innovation Award**



# The Results spoke volumes

Hexaware’s strategic approach and technology enabled innovation helped our client gain optimal operational efficiency to win their productivity battle and reap the benefits of improved safety, healthy performance, smart systems, reduced costs and safer haulage operations with reduction in SOP violations and marked decrease in TRIR counts.

The end result ticked all the right boxes as can be seen below.



## The process and technical benefits included

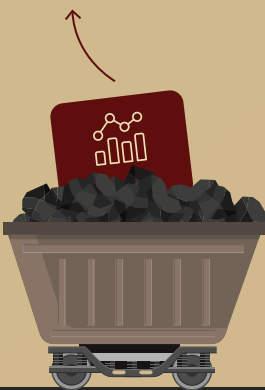


Minimizing idle and cycle times, sudden engines failures and productivity with real-time monitoring

Nearly real-time analytics and reporting for quicker decision making

Enhanced scalability, cost efficiency and enhanced data science and analytics

Improved collaboration with different work groups across the mine



## The primary business benefits delivered consist of

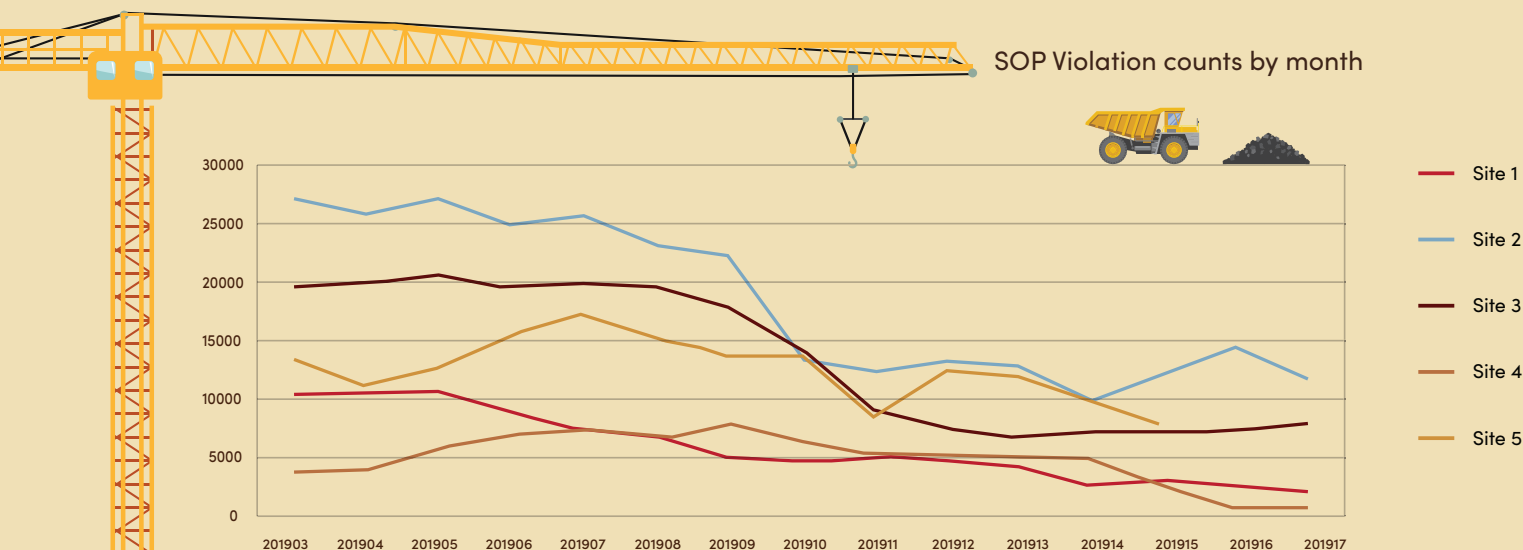


Figure 1: SOP Violation counts per month at operating sites



Reduction in OPEX  
by **~1.3 Million**  
per annum



Improved ETL Data  
load efficiency by  
**33.33%**



**Decrease in violation  
counts** by more than  
half with efficiency  
improvements



**4X increase** in  
improvement of  
business objects report  
execution time



**3X times** improvement  
in analytics data  
load times



Independent compute  
layer by subject  
areas/applications



**Improved health  
and safety** of  
mining operations

# The Big Picture

The mining industry is all poised for Digital leapfrogging that can help them sustain in all-weather scenarios and have a positive impact on all growth parameters. The real life story showcased how a forward thinking organization with a people first philosophy embraced technology innovation to drive winning outcomes across the entire mining value chain. The tangible results on the social, environment and financial fronts offered by automation

led digital transformation is a precursor of things to come. The mining industry has stepped up the ante. The early adopters have the competitive edge. The late bloomers are going the extra mile to catch up. The core objectives remain the same – to create a connected environment for a safe, sustainable and resilient growth story.



## About Hexaware

Hexaware is the fastest growing next-generation provider of IT, BPO and consulting services. Our focus lies on taking a leadership position in helping our clients attain customer intimacy as their competitive advantage. Our digital offerings have helped our clients achieve operational excellence and customer delight. We are now on a journey of metamorphosing the experiences of our customer's customers by leveraging our industry-leading delivery and execution model, built around the strategy— 'Automate Everything™, Cloudify Everything™, Transform Customer Experiences™'. Hexaware services customers in over two dozen languages, from every major time zone and every major regulatory zone. Our goal is to be the first IT services company in the world to have a 50% digital workforce. Learn more about Hexaware at <http://www.hexaware.com>

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