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A DELOITTE SERIES ON THE FUTURE OF WORK IN MINING

The future of work in mining

What will jobs look like in intelligent mining operations?

Nerve Center orchestrator

Day-to-day management and operation of the Nerve Center by interpreting strategic business insights, managing constraints, liaising with business stakeholders, ensuring the implementation of business initiatives identified through analytics, and using analytics and AI to make informed decisions to deliver value for the business

NERVE CENTER ORCHESTRATOR

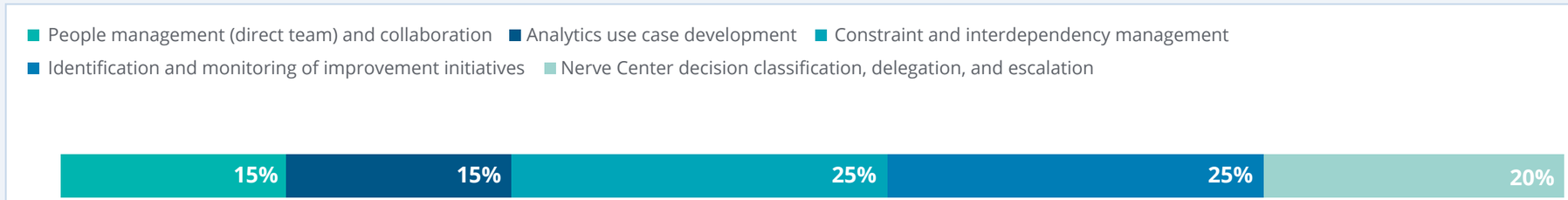
Summary

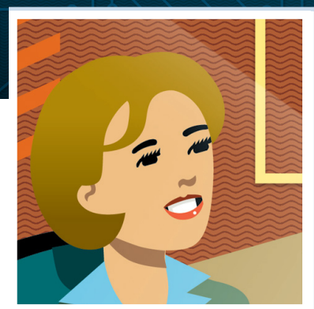
The Nerve Center orchestrator plays a critical role in setting the vision and strategy for the Nerve Center team, with a focus on integrated, optimized digital operations and creating synergy between all operations, engineering, processes, and assets within the value chain. Through the holistic view and management of digitized assets, operations, and processes, they evaluate mine and plant performance and contribute significantly to the short-term operational efficiency and long-term strategy. Their decisions are augmented through AI and analytics, and their leadership style drives healthy tensions across teams, with a strong influencing capability across operations. They use their industry experience and understanding of data science to manage core activities and processes within the Nerve Center, with a focus on identifying and addressing bottlenecks. They identify constraints and deviations from plans, interpret trends, and generate insights and business solutions based on opportunities and underperformance. The Nerve Center orchestrator works with business stakeholders to codevelop analytics and data visualization use cases that solve business-related problems by extracting value from the data and drawing on knowledge and experience, and hands the use cases over to the Nerve Center data scientist to develop and implement.

Responsibilities

- Drive collaboration of cross-functional teams, enabling strong situational awareness and decision-making based on knowledge, data, and insights from relevant teams
- Codevelop analytics and data visualization use cases with business stakeholders and the Nerve Center data scientist
- Track production losses and high costs, and work with the Nerve Center team to reduce these
- Classify and delegate decisions, escalations, and recommended actions
- Manage, coach, and work closely with the direct team within the Nerve Center

Time spent on activities





JAMIE MCKAY

NERVE CENTER ORCHESTRATOR
Mining Inc.

Jamie is an agile and forward-looking individual. She understands the mining value chain well, both practically and strategically, and she has an appreciation for data analytics. She believes that intelligent operations allow for greater flexibility and mobility to rapidly deliver business outcomes. Her background in engineering and mining, as well as her affinity for building innovative capabilities, helped her become a Nerve Center orchestrator.

Experience

Nerve Center orchestrator
Mining Inc. | *Aug 2020-present*
Works within the digital Nerve Center, advising and optimizing performance of digital operations and processes

Mining manager
Mining Inc. | *Jun 2018–Jun 2020*
Managed mining and processing operations to achieve maximum productivity and availability at the lowest cost per ton

Mining engineer
Mining Inc. Technologies | *Jun 2014–Jun 2018*
Designed safe and efficient mines for removing coal and metals

Education

- **BSc, Engineering**
- **Data analytics foundational certificate/ diploma**

Toolbox

Nerve Center
A visual display that presents data, live information, and analysis from multiple sources to facilitate informed decision-making

Intelligent Enterprise
A visual display intended for C-suite management that presents data, live information, and analysis in order to make strategic decisions

Skills and endorsements

HUMAN

Business performance management · 432
Endorsed by **Jenny** and **Roger**, who are highly skilled at this

Strategic application of business insight · 320
Endorsed by **Gina**, who is highly skilled at this

Interdependency management · 216
Endorsed by **Lamar** and **Seema**, who are highly skilled at this

Communication (empathetic) · 417
Endorsed by **Patricia** and **Jim**, who are highly skilled at this

Decision orchestration · 398
Endorsed by **Danny**, who is highly skilled at this

Discretionary information thinking · 345
Endorsed by **Jamie**, who is highly skilled at this

Leadership skills (influencer) · 278
Endorsed by **Tanya** and **Oliver**, who are highly skilled at this

TECH

Digital fluency · 280
Endorsed by **Scott**, who is highly skilled at this

Data fundamentals · 143
Endorsed by **Brian** and **Rose**, who are highly skilled at this

Data verification · 368
Endorsed by **Pete** and **Meera**, who are highly skilled at this

Data interpretation · 510
Endorsed by **Rod**, who is highly skilled at this

A DAY IN THE LIFE

06:30 AM — Logs into the Nerve Center from her tablet to see if there are any urgent matters to attend to that may have occurred during the night shift

07:00 AM — Arrives at the Nerve Center and meets with the night shift supervisor for a handover. The Nerve Center data scientist joins the meeting via video conferencing and the three of them review the dashboards and discuss key issues, including information relating to a potential pipeline failure

08:15 AM — Engages with the reliability engineer to further explore the potential pipeline failure that occurred overnight and was handed to the day shift to continue to support

08:30 AM — Checks in with the Nerve Center data scientist to ensure the Nerve Center and operations are running smoothly, and supports any queries on Nerve Center notifications that have been raised

09:00 AM — Receives a request from the CEO to add an additional KPI for community engagement, and liaises with the Nerve Center data scientist to start preparing the data visualization and its requirements

10:30 AM — Liaises with the exponential geotechnical engineer and integrated master scheduler to evaluate the implications on the mine plan resulting from ground deterioration identified through the AI-enabled analytics built into observation reports

11:15 AM — Receives feedback from the reliability engineer that the pipeline had a minor weakness that could have led to a leak but has since been repaired. Jamie assesses the video footage received indicating the pipe weakness prior to repair

12:00 PM — Receives a notification on her Nerve Center dashboard that there is a deviation from the plan that cannot be corrected without intervention. She arranges a virtual conferencing meeting with the relevant site personnel, Nerve Center data scientist, integrated master scheduler, and an engineer

12:15 PM — Leads the meeting and asks for and supports everyone's input and knowledge to understand the implications of the deviation. They review the information together and run a simulation to show the impacts of different scenarios. A collective decision is made on how to resolve the issue and is executed

02:00 PM — Uploads information into the real-time shift log to capture the plan deviation and the corrective actions the teams will be taking

03:00 PM — Reviews the latest mining trends and identifies a new data visualization use case to be discussed with the Nerve Center data scientist the next day

A DAY IN THE LIFE

03:30 PM Reviews dashboards and short-interval control tools and updates the handover log, ready for the night shift staff to take over

04:00 PM Completes a walk-around and check-in with the team. The scheduler requests some leave the following month. Jamie asks the scheduler to enter the leave details in the leave request app, which she will review the next day

04:15 PM Holds handover meeting with the incoming shift staff. They review the dashboard and shift log together, and any issues that could impact the night shift are communicated

04:30 PM Ends her shift and heads home for the day

About the authors

ANDREW SWART is both the global and Canadian leader of the Mining & Metals practice as well as the global leader for the sector. In his global roles, Swart leads a team from around the world and sets the strategic direction and go-to-market strategy for the global practice. With 20 years of industry and consulting experience, he is passionate about client service, having worked across many major mining and metals geographies, including Canada, Chile, Russia, Ukraine, Kazakhstan, Brazil, Germany, India, South Africa, the United Kingdom, and the United States. Swart's areas of expertise include corporate and competitive strategy engagements, digital and innovation systems, and large organizational transformation programs.

JANINE NEL is Deloitte's global Future of Work leader for Energy, Resources & Industrials, and Deloitte's global co-lead for the People & Diversity pillar of the mining and metals group. Leading delivery and thought leadership in the area of digital and its impact on work, Nel focuses on the workforce and the workplace in the future of work. She helps clients unpack the elements of work that are truly human, what can be done by machines, and what this means for people. She is also part of an effort that pioneers the people impacts of the mine of the future.

JULIE HARRISON is Deloitte's global co-lead for the People & Diversity pillar of the mining and metals group, and Deloitte Australia's Human Capital lead for Energy, Resources & Industrials. Harrison has worked extensively in consulting for the past 25 years and within the ER&I sector for nearly 15 years where she has led many transformation programs with a strong focus on people-centered transformation. Her areas of expertise include global transformations, organization redesign, workforce optimization, HR transformation, leadership and culture, and global talent programs. Passionate about the future of work, Harrison is a regular speaker at local and international conferences.

TALITHA MULLER is the Future of Work program manager for Deloitte Africa and a member of the Global Future of Work Regional Leadership forum. Muller plays an integral part in leading the Future of Work movement within South Africa by providing strategic guidance to business leaders on navigating the complexity of digital disruptions pertaining to changes in work, workforce, and workplace, and how to create exponential professionals.

JENNA WING is an industrial psychologist with two years of experience within the Energy and Resources industry. Wing has worked with the Future of Work team on developing the digital Nerve Center solutions for the intelligent mine. She focuses on the future of the workforce, the change in skills and capabilities, how roles will be deconstructed, and the business case for reskilling/repurposing people. Through creative ways of working and learning, Wing wants to continue to be a part of, and build, high-performing teams by challenging everything we do from a personal, work, and mindset perspective.

Deloitte Consulting's Mining & Metals practice has helped clients transform to integrated operations through the adoption of digital technologies, artificial intelligence, and analytics solutions. Our future of work assets examine what future mining jobs will look like and enable the fundamental redesign of work, workforce, and workplace. Our work in intelligent mining includes the realization of operational efficiency improvements, enhanced decision-making and productivity, improved safety performance, remote management of resources and optimization of workforce allocation. Contact the authors for more information or read more about the future of work and intelligent mining in our mining and metals services on Deloitte.com.

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