

**MINING RESPONSE
TO COVID-19:
ACHIEVING
THE IMPOSSIBLE
THROUGH
COLLABORATION**

GLOBAL MINING GUIDELINES GROUP



**INSIGHTS FROM THE 2020
GMG LEADERSHIP SUMMIT**

EXECUTIVE SUMMARY

KEY LEARNINGS

REMOTE WORK IS POSSIBLE IN MANY BUSINESS SETTINGS

EFFECTIVE COMMUNICATION AMONG ALL STAFF IS MORE IMPORTANT THAN EVER

TECHNOLOGY ADVANCEMENTS ENABLE RESILIENCE AND EFFICIENCY

CRISIS ENABLES CHANGE AND INNOVATION

WE NEED TO PAY ATTENTION TO EMPLOYEE WELL-BEING

FUTURE VISION

ENABLING AND SUCCEEDING WITH REMOTE WORK

- Clear processes
- Cybersecure
- Trained workforce
- Enabled workspaces
- Work culture of trust
- Care for employee well-being and work/life balance

RETURN TO WORK AND INNOVATING FOR THE FUTURE

- True interoperability
- Sustainable technology advancement
- True zero harm
- Innovative and efficient planning
- Cybersecure for the long term
- Embedded circularity

PEOPLE, COMMUNITY AND ENVIRONMENT

- Good and equitable place to work
- Environmentally sustainable
- Strong relationships with communities
- Sustainable innovation

INDUSTRY COLLABORATION NEEDS

- Working Group on remote operations
-
- Education on remote work processes
-
- Detailed guideline on remote work
-
- Common KPIs for remote work
-
- Industry survey on experience
-
- White paper on remote cybersecurity best practices

- Sharing of best practices on return to work
-
- Guidance on enabling the circular economy (e.g. blockchain, asset management lifecycle)
-
- Educational piece on benefits of zero-entry mining
-
- Collective repository of safety incidents
-
- Interoperability business case
-
- Narrowing down of projects on interoperability specifics
-
- Advance global testbed network
-
- Guidance on new cybersecurity priorities versus traditional best practices

- Knowledge sharing on skills migration and community support
-
- Benchmarking metrics on carbon neutral mining
-
- Collection of mental health resources and tools
-
- Definition and sharing of benchmarking metrics around social license, hiring practices, and workforce and community engagement
-
- Advance GMG Sustainability Working Group
-
- Consideration given to environmental benefits within other GMG work on advanced technology

Strategic focus will require strong industry leadership

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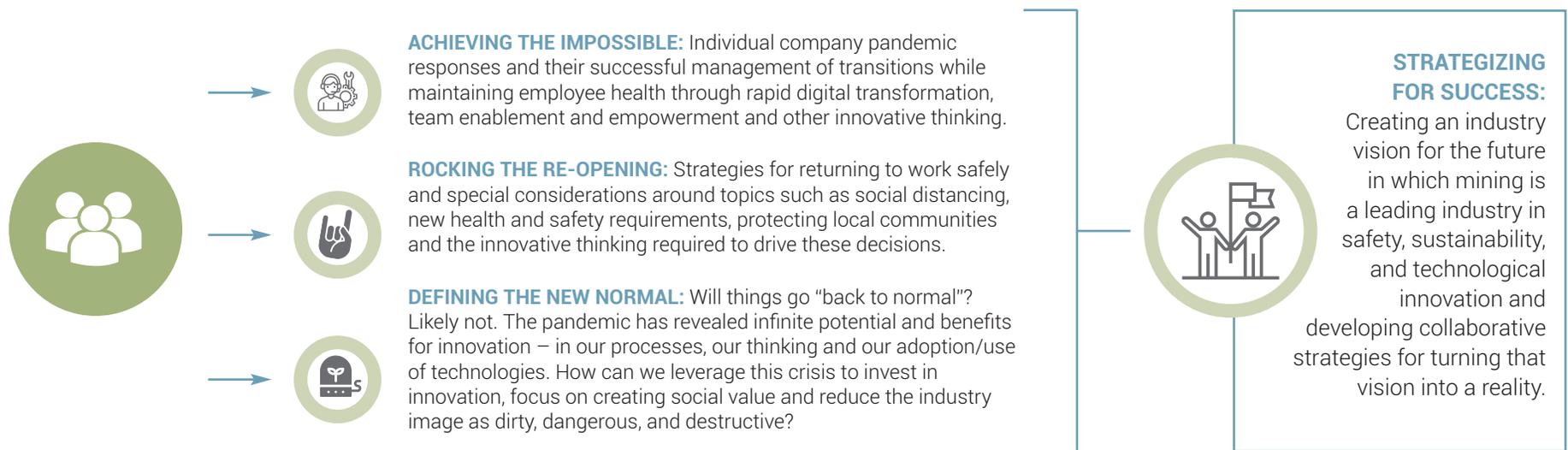
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PEOPLE, COMMUNITY AND ENVIRONMENT

INTRODUCTION

The 2020 GMG Leadership Summit brought together leaders, executives, and visionaries in the mining industry to strategize on improvements to safety, sustainability, social license, productivity, and energy, all while managing the unprecedented impact of the global pandemic. This year did not go as anyone had planned – a global crisis requires the undergoing of major operational changes in a short amount of time. However, the innovative ideas and solutions that have emerged from this situation will benefit every sector of the industry for years to come. Not only have these strategies helped with navigating remote work during lockdown, but they also have the potential to create the groundwork for a more sustainable and resilient future for mining.

KEY DISCUSSIONS



By sharing personal stories, company strategies, and focussing on achievements, success stories, and creative problem solving and solutions, industry leaders have identified key lessons learned, visions for the future, and strategies around enabling remote work, innovating for the future and focussing on people, the community and the environment. These are outlined in the following pages and are designed to help guide next steps and future collaboration priorities for the industry and for GMG.

INNOVATIVE INDUSTRY RESPONSES

In a matter of days companies had to adapt and manage having their entire personnel working remotely – the implications of which were monumental. Industry leaders came together to share innovative ways that their companies have managed this transition. These examples list some of the ways GMG member companies have achieved the impossible through enabling technological improvements, adapting the workforce to remote work, supporting employee health and wellness and changing business processes.

MAINTAINING EFFICIENCY IN BUSINESS PROCESSES AND OPERATIONS

Public health

- Brought in public health officials to advise on how to keep operating safely, which helped with interactions with the public and with unions

Business process

- Reduced overhead costs and redesigned existing contracts to continue to deliver during pandemic

Physical distancing and hygiene

- Sent hardware from person to person to enable testing while social distancing
- Implemented use of online forms and electronic signatures
- Split shifts to limit physical contact

Contingency

- Created contingency plans in case of outbreak in the area
- Used health monitoring information to inform self-quarantining

Using the time to get ahead

- Took the time while equipment was out of use to do maintenance and tasks that there may not be time for while in full production

PREPARATIONS FOR SUPPORTING THE WORKFORCE AND WORKING REMOTELY

Home office

- Installed home workstations with the same technologies and systems used in office
- Paid close attention to comfort and ergonomics when setting up home offices

Calls and meetings

- Introduced alternative methods of communication to reduce fatigue (e.g. walking calls instead of video calls)
- Implemented more frequent communication from CEO, VPs and supervisors
- Encouraged employees to turn on their video during meetings to improve social interaction

Work/life balance

- Incorporated flexible work hours, especially for parents with children at home
- Implemented 4-day work week without any decrease in productivity
- Encouraged senior leaders to dress down
- Locked in personal time to avoid digital overload and the fatigue of back-to-back meetings

WAYS TO SUPPORT EMPLOYEE HEALTH AND WELL-BEING

Listening to employees

- Used a daily feedback survey system with questions related to health and well-being
- Increased one-on-one check-ins for employees

Open communication on well-being

- Held team meetings focussing on safety issues related to working from home
- Encouraged individuals to talk about how they were coping and making connections
- Enabled an employee assistance program with mental health resources

Morale boosting

- Organized work-free events (e.g. happy hours, coffee sessions, art classes, celebrations)
- Held virtual health challenges such as step counts, healthy eating and recipe sharing

ACTIONS TAKEN REGARDING INNOVATION AND UTILIZATION OF TECHNOLOGY

Onsite health and safety

- Used phone app that asked two questions every morning about symptoms and contact

Operating remotely

- Used VR for technology implementation and critical training
- Prioritized development of remote operation centre, automation, and advanced process control

Security and support

- Provided tech support focussed on firewalls and using a VPN at home

Administration

- Brought in technology leaders from around the world to debottleneck billing systems

Virtual collaboration tools

- Used various online collaboration tools to stay organized and go paperless

INDUSTRY LEARNINGS

Knowledge sharing around individual company strategy and practices built a broad picture of what the important industry learnings are, and how to shape those learnings into goals and strategies for the future. The following key learnings address the areas that are more important than ever to pay attention to, now that so many jobs have shifted temporarily (or in some cases permanently) to remote work, as well as what unique lessons the pandemic response has taught the industry:

Effective communication among all staff is more important than ever

With in-person interactions severely limited, new techniques for maintaining and encouraging virtual communication are essential. As a result of this focus, some companies have found that the growing acceptance and use of virtual communication tools has set a strong foundation to improve communications even when working onsite.

We need to pay attention to employee well-being

While everyone is impacted by the pandemic differently, everyone has experienced aspects of their life being turned upside-down, so increased support in this area is essential.

Technology advancements enable resilience and efficiency

One thing the pandemic has highlighted is the advantages of technology use for everything from communication to contact tracing to reducing staff at mine sites through technologies such as remote operation and autonomous systems. In many cases, embracing the use of digital technologies has resulted in increased productivity and efficiency.

Remote work is possible in many business settings

The forced change to remote work has revealed an increase in the number of operational tasks that could be completed remotely, and has helped companies establish new processes to enable activities that were previously difficult to adapt. For example, the reduction of travel and commute times has opened up availability and time to have meetings with greater attendance that increase the speed of decision-making and complete important work more efficiently.

Crisis enables change and innovation

Technological changes and new business models that were originally thought to take years to complete were achieved within a few weeks. This can shape future decision-making around implementation.

Strategic focus will require strong industry leadership

The pandemic response was successful because of innovative solutions, out-of-the-box thinking, and decisive leadership. Working together and sharing experiences is what will continue to drive the industry forward to future successes.

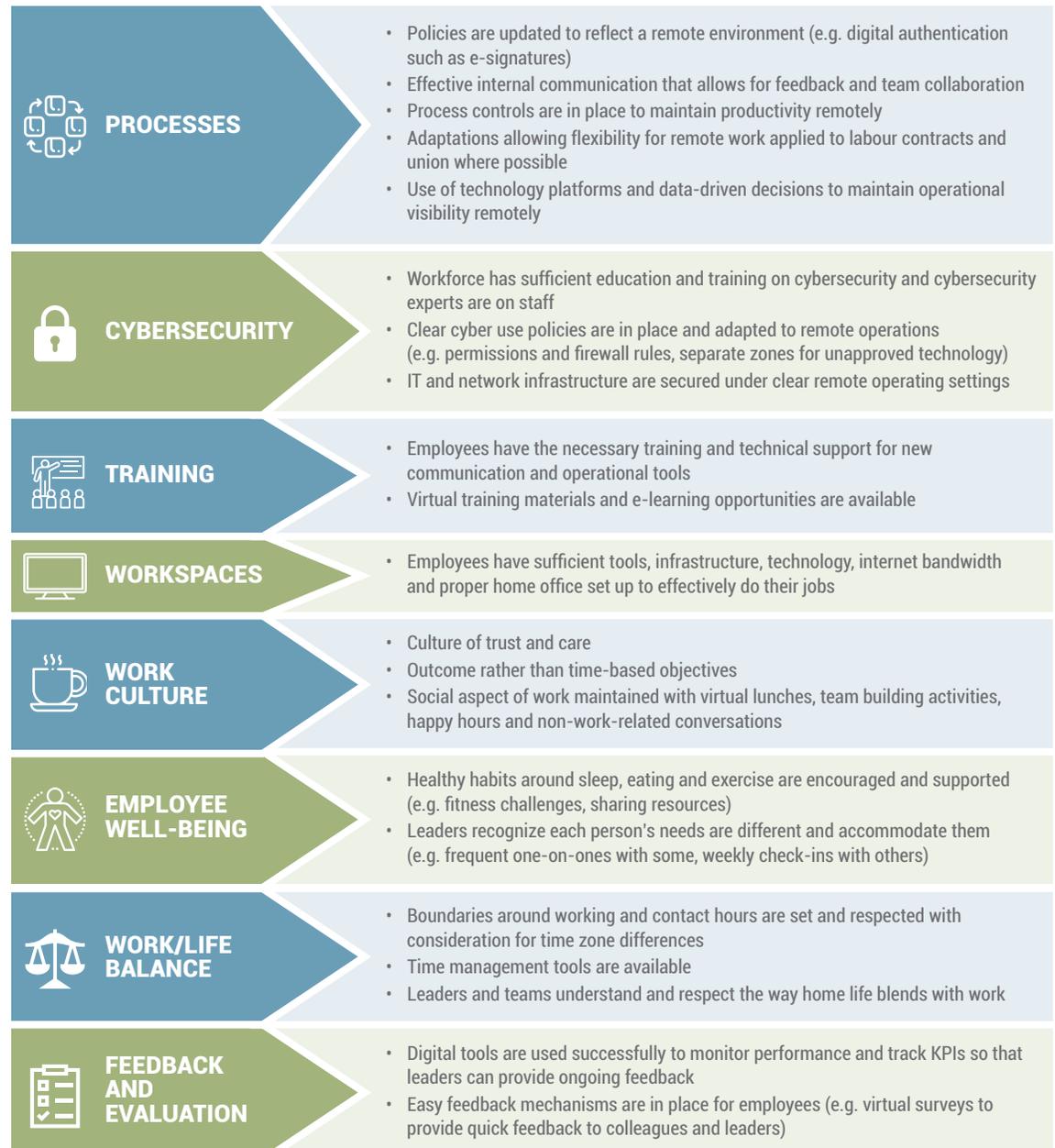
ENABLING AND SUCCEEDING WITH REMOTE WORK

With the pandemic came the necessity to shift operations to work remotely, and *fast*. Procedures needed to be implemented, strategies had to be developed, and employees required guidance on how to conduct their jobs in an entirely new environment. With no time for trial and error, companies were facing the daunting task of having one chance to develop a plan for success to carry their operations through quarantine and extended lock downs.

The industry rose to the challenge, and proved remote work to be not only possible, but also productive and successful. Despite the challenges, working remotely has presented many opportunities to optimize the way we work, as it has allowed for increased productivity, faster implementation and decision-making, and improved communications as distance is no longer a barrier. As lockdown measures lift, an opportunity is present for a cultural shift in the workforce, retaining the positive outcomes of the shift to virtual work. This means more flexible work options, allowing for companies to maximize the areas where remote work improves productivity (e.g. routine and well-defined tasks, individual work) and shift operations back to face-to-face in areas for which it is better (e.g. team-based work, performance reviews).

That being said, the challenges of this upheaval and its effects on employee well-being cannot be forgotten. While some remote practices are more efficient, the need for human interaction should be at the forefront, as well as the overall toll the pandemic has taken upon workers. Remote work may not be sustainable over the long term if the potential negative effects are not addressed. For this reason, many of the important goals emphasize employee well-being and support.

What does success look like?

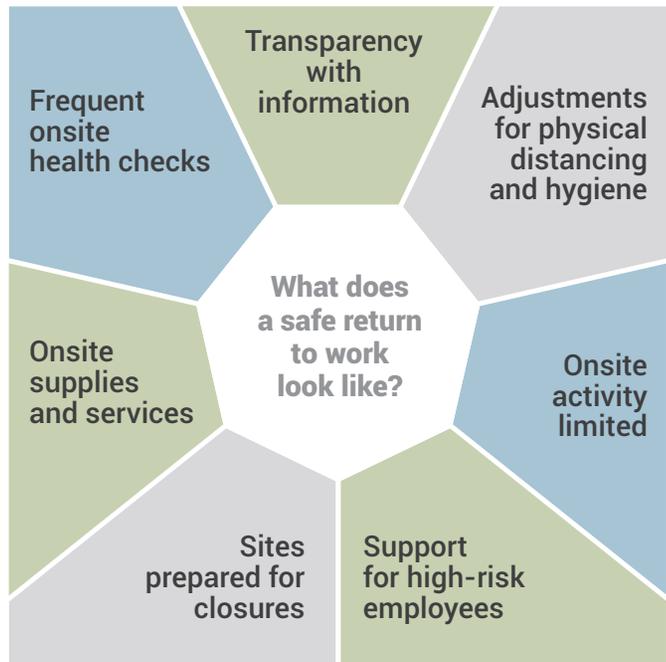


INDUSTRY COLLABORATION STRATEGY: ENABLING AND SUCCEEDING WITH REMOTE WORK

	PEOPLE		BUSINESS PROCESS	TECHNOLOGY	
Industry Goals	ENABLE EFFECTIVE INTERNAL COMMUNICATIONS	PRIORITIZE EMPLOYEE WELL-BEING	CREATE THE BUSINESS STRUCTURES TO ENABLE REMOTE WORK	CREATE THE TECHNOLOGY INFRASTRUCTURE THAT ENABLES REMOTE WORK	MAINTAIN CYBERSECURITY WHILE WORKING REMOTELY
Industry Needs	Knowledge sharing (e.g. around tools, active listening, building a culture of strong communication) Understanding of employee experience while working remotely		Education on remote work practices Knowledge sharing on what works, what doesn't work, what works better remotely and how to revise policies and procedures	Education and guidance on remote technology options (e.g. remote operations from centralized location or from home; understanding of network requirements) Awareness of cybersecurity risks when working remotely	
Collaboration Strategies	<p>Considerations for ongoing GMG work</p> <ul style="list-style-type: none"> Consider these issues in ongoing work on the proposed <i>Workforce of the Future</i> Working Group <p>Immediate actions</p> <ul style="list-style-type: none"> Coordinate and encourage knowledge sharing through GMG events and Working Groups about tools, leadership and company approaches and lessons learned Conduct industry survey on employee remote work experience 		<p>Immediate actions</p> <ul style="list-style-type: none"> Develop an educational GMG document (e.g. white paper) on remote work practices Create a checklist and issue a challenge to GMG members to review internal practices 	<p>Considerations for ongoing GMG work</p> <ul style="list-style-type: none"> Consider in ongoing efforts by the <i>GMG/MM-ISAC Cybersecurity</i> Working Group, such as the Vendor Security Management guideline Remote operations are also considered within the automation context in the <i>Implementation of Autonomous Systems</i> project and may now play more of a role <p>Immediate actions</p> <ul style="list-style-type: none"> Guidance on remote process control GMG/MM-ISAC white paper on remote cybersecurity risks and best practices for cybersecurity when working from home 	
<p>Overall GMG Next Steps and Broader Actions:</p> <ul style="list-style-type: none"> Possible creation of a <i>Remote Operations</i> Working Group to continue the discussion and serve as a knowledge sharing platform and help the industry come together to review what worked, what didn't work and where there are gaps Development of a Remote Work Guideline that will offer guidance on the topics above and assist the industry with achieving the broader shift towards remote work Collaboratively develop common KPIs and measures around remote work while working closely with member companies and other industry organizations 					

RETURN TO WORK AND INNOVATING FOR THE FUTURE

In an industry where change often happens gradually, the speed in which changes and adaptations were implemented in response to the pandemic has redefined industry perception of how quickly new technologies and processes can be successfully incorporated into operations. Additionally, the innovative ideas and creative problem solving during this time has helped the industry to be more efficient, productive, and resilient. These innovations can not only help the industry in similar situations in the future but also can help to mitigate other challenges the industry faces such as declining grades and rising operational costs. These components have the potential to re-design the future of the industry and have long-term positive effects, but only if the necessary actions are taken to manage change and make it sustainable in the long term.



This is why, as lockdown measures lift and present the opportunity for things to go back to normal, we need to make conscious decisions as to what should be preserved from pandemic responses, how to keep the workforce safe, and how the positive lessons can be extended into the future. For example, which aspects of remote work should be preserved? And which types of tasks and processes are more effective in person? This can introduce the idea of a hybrid work culture in which processes are divided into which form of working suits them best, also allowing for individual employees to figure out what works best for their unique situations.

What does successfully enabling innovation look like?



INDUSTRY COLLABORATION STRATEGY: RETURN TO WORK AND INNOVATING FOR THE FUTURE

INDUSTRY GOALS	INDUSTRY NEEDS	INDUSTRY COLLABORATION	
		ONGOING GMG WORK	ACTIONS
SAFELY TRANSITION THE WORKFORCE TO "NEW NORMAL"	<ul style="list-style-type: none"> • Knowledge of best practices for sanitation, social distancing, keeping the workforce and community safe • Regulatory alignment and understanding of diverse regulatory changes 	<ul style="list-style-type: none"> • Leverage Regulators Network to drive alignment in this area 	<ul style="list-style-type: none"> • Gather and share best practices from member companies and participants on going back to normal • Identify and support other organizations working on this
EMBED CIRCULARITY	<ul style="list-style-type: none"> • Knowledge and information sharing and opportunities for reprocessing waste, reclaiming energy and expanding the scope of the asset management lifecycle • Exploration of circularity beyond traditional boundaries (e.g. best practices in other industries) 	<ul style="list-style-type: none"> • The circular economy is a key consideration in discussions around potential new working groups on Sustainability and Blockchain 	<ul style="list-style-type: none"> • Consider how to expand the scope of the asset lifecycle management process (potentially through the GMG Asset Management Working Group) • Define standardized accounting for reporting circularity aspects • Develop guidance on blockchain applications for tracking the circular economy
ACHIEVE TRUE ZERO HARM	<ul style="list-style-type: none"> • Clear definition and awareness of the benefits of having a zero-entry mine • Alignment on who is automating each piece in the mining ecosystem 	<ul style="list-style-type: none"> • Zero-entry mining is a key consideration in discussions around the second version of the Implementation of Autonomous Systems Guideline 	<ul style="list-style-type: none"> • Develop an educational piece (e.g. white paper, info sheet) on the benefits and value of zero-entry mining for people, for the community, and for businesses • Launch new GMG Working Group or project on Live Work Elimination • Collaborate with other organizations around creating a collective repository of safety incidents • Work with educational institutions and look at what other industries have done to create a benchmark for zero harm within mining
REALIZE TRUE INTEROPERABILITY	<ul style="list-style-type: none"> • Identification of the real problems and specific opportunities to improve • Definition of economic driver for interoperability • Alignment at the process level before the technological level • Alignment around standards 	<ul style="list-style-type: none"> • Complete the Interoperability Landscape Project, which will identify different industry initiatives, including standards • Publish the Interoperability Definitions and Roadmap Guideline 	<ul style="list-style-type: none"> • Launch a GMG interoperability business case Project (including the value for OEMs) • Identify priorities and launch new GMG project(s) to tackle high-priority, specific areas
ENABLE LONG-TERM, SUSTAINABLE TECHNOLOGY ADVANCEMENT	<ul style="list-style-type: none"> • Guidance on digital transformation • Education on how data can drive decision-making • Skills migration to higher-entry positions • Standard network designs and best practices • Test mine enablement 	<ul style="list-style-type: none"> • Advancing this goal is a key consideration within ongoing projects on Autonomous Mining, AI, and the Electric Mine. • Advance the global testbed network 	<ul style="list-style-type: none"> • Identify data delivery platforms that will accelerate delivery of advancements • Relaunch the GMG Integrated Operations Working Group to work on projects related to standard network designs
MAINTAIN CYBERSECURITY IN THE LONG TERM	<ul style="list-style-type: none"> • Industry standards and best practices • Industry intelligence around business threats 	<ul style="list-style-type: none"> • Consider in GMG/MM-ISAC Cybersecurity Working Group work 	<ul style="list-style-type: none"> • White paper detailing the new priorities versus traditional best practice guidance (GMG, MM-ISAC) • GMG guideline on protecting IT/OT infrastructure • Support cybersecurity standards development

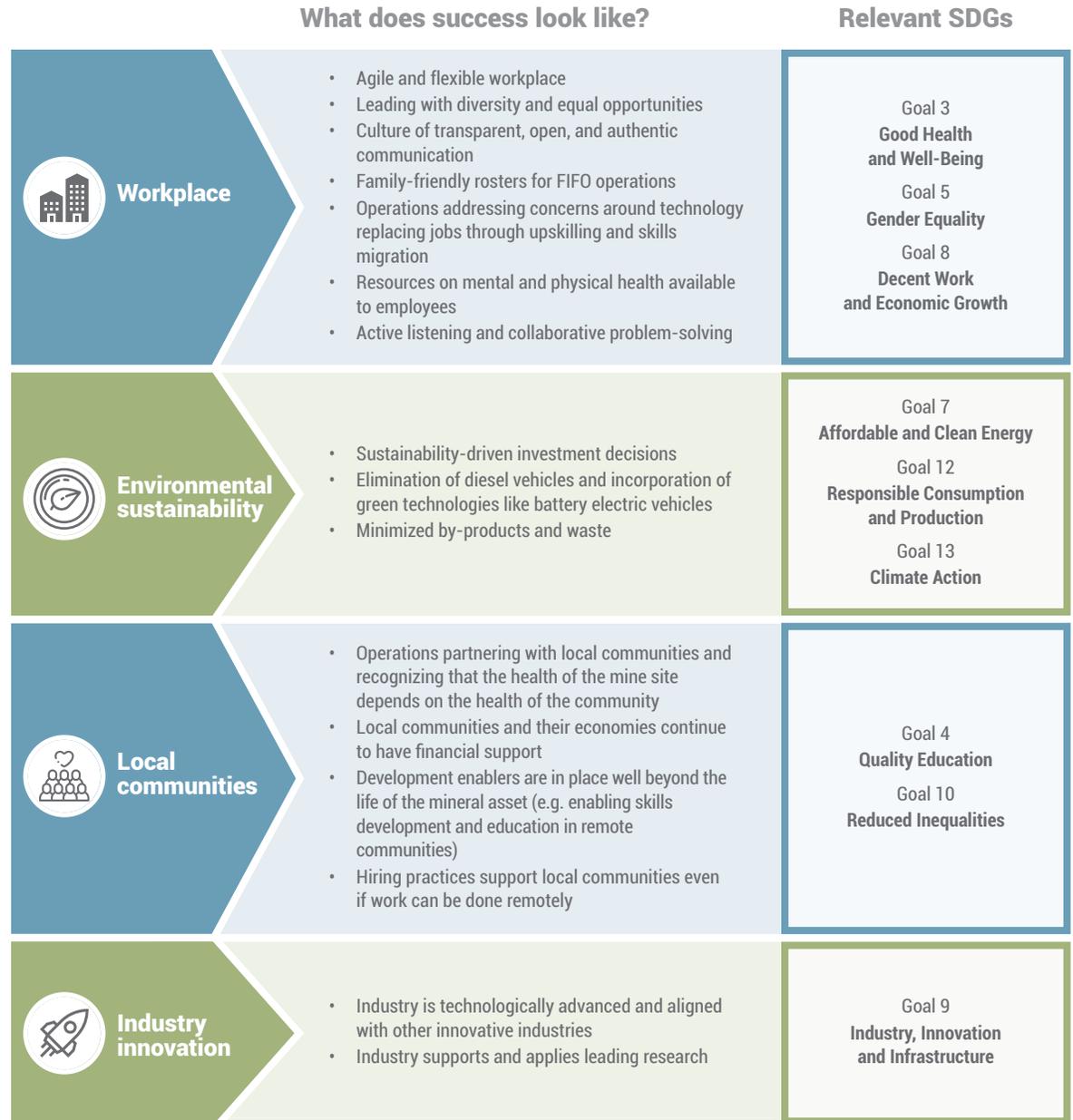
PEOPLE, COMMUNITY AND ENVIRONMENT

As a public health crisis that reaches far beyond the individual companies, this pandemic has also introduced opportunities to address the public perception of mining as “dirty, dangerous, and destructive.” Valuable perspectives have emerged about the industry’s relationships with people, communities and the environment and how we can support the UN’s Sustainable Development Goals (SDGs).

There have been positive changes around the attention to employee health and well-being, which, if continued into a post-pandemic future, will have long term benefits for the entire workforce. The increased number of employee wellness check-ins, resources and attention and prioritization that has been put on worker’s well-being are important practices to continue into the future. Not only will it foster a healthier, happier workforce, but it will also increase preparedness in the case of a second Covid-19 wave or a future pandemic.

Emphasis has also been placed onto supporting local communities. During a pandemic, when the health and safety of the workers at a mine site and that of the surrounding community depend on each other, there is an increased urgency and need to protect the local community. Actions that have been taken to do so include sharing unused PPE and supplies with the community and local healthcare institutions.

The industry has already shifted to greener operations due to the pandemic in many cases. For example, the shift to remote work has revealed the decreased need for air travel and driving to work and meetings.



INDUSTRY COLLABORATION STRATEGY: PEOPLE, COMMUNITY AND ENVIRONMENT



TIME TO TAKE ACTION

These strategies and goals will drive industry action into 2021 and beyond, and your participation is essential. Overcoming the challenges facing the mining industry is too large a task for any one person. However, by continuing to collaborate on these issues, not only will we be able to overcome them, but we can also create sustainable and long-term change that will uplift the industry as a whole. By contributing your knowledge, time, and resources, you will be an integral part of this process. Here's how you can contribute:

- Share information such as case studies, use cases, success stories, and lessons learned
- Get involved in GMG Working Groups and projects, and encourage members from your company to do the same
- Attend GMG events, and volunteer to give presentations, knowledge shares, and safety shares
- Be a part of the communication line to increase sharing of information between organizations
- If you are involved with other organizations, look for collaboration opportunities
- Spread the word about GMG within the mining community

Let's build a safer, healthier, and more sustainable future, and let's do it together.

Stay in touch...



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Global Mining Guidelines Group - GMG



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