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A safer, smarter future: Working remotely in energy and materials

COVID-19 is drastically changing the way energy and materials operations work. Learning from industry best practices can help remote hybrid teams adapt to the next normal.

by Greg Kudar, Lapo Mori, Johnathan Oswalt, Sebastian Reiter, and Robert Samek

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The world has undergone unprecedented change because of COVID-19, with energy and materials sectors such as oil and gas, mining, metals, and chemicals among the most heavily affected. A sharp decrease in demand has shifted market power to customers, further intensifying market competition. This, combined with supply-chain disruption, has created a severe margin squeeze for energy and materials businesses. Many companies are not only seeking solutions to improve their performance in the short term—and increase their competitive edge in shrinking markets—but also to ensure long-term sustainability in the next normal through healthy transformation.[1]

While some industries, such as software development, have been able to move seamlessly to working remotely, many energy and materials companies must retain at least some highly skilled operations and maintenance workers on-site. Still, those that adopt new tools or structures to enhance remote ways of working could improve their future operating models, attracting top talent or reducing costs. In this article, we review the challenges facing energy and materials manufacturers, suggest best practices to strengthen remote ways of working, and discuss the dimensions of a long-term transformation.

The key challenges of transitioning to remote ways of working

Energy and materials companies transitioning to remote ways of working face immediate communication challenges, many of which are compounded by inadequate technology infrastructure and reduced organizational efficiency. On the former, relying on existing digital tools alone is often an inadequate solution, as many remote sites face certain limitations, such as insufficient internet bandwidth. And on the latter, organizational chaos may be compounded by deteriorating company culture, as large teams are sometimes split up across different locations.

Finally, the very nature of working remotely presents its own challenges. Our research shows that remote workers, even in times of normalcy, often feel like they don't have the skills to be successful for extended periods of time. In fact, they worry that such arrangements make them less valuable.[2] With COVID-19, these pressures will likely be intensified. Therefore, the measures companies previously took to protect the well-being of workers and maintain operational efficiency may no longer be good enough.

Managing the day-zero emergency

As part of an initial response to COVID-19, many companies were forced to quickly introduce emergency plans to ensure site safety. Measures were put in place to adjust rotation schedules and provide personal protection equipment (PPE). After that, ongoing projects were reviewed, prioritized, and recalibrated to account for available resources. Teams and individuals eligible for remote work were then identified and necessary role changes were assigned. As a result, all non-essential employees—those not required to ensure continuous operations—were moved to working remotely and were equipped with laptops, mobile phones, and data access. In the meantime, site leaders developed simple infrastructure for newly adopted operating models and project managers defined routines to ensure the progress of teams. They also found and assigned the right talent to the right areas, fast-tracked decision making, and established crisis-response centers. Such day-zero response efforts were critical to handle the immediate effects of the pandemic, though it became clear that a more comprehensive transition to working remotely was needed.

Aligning on 'new immediate' ways of working: Eight best practices

Today, companies must equip mission-critical employees with sustainable remote working tools and align joint expectations across the

[1] See "The Next Normal," article collection, on McKinsey.com.
[2] For more on the remote-work challenges, see "COVID-19: Implications for business," April 2020, McKinsey.com.

organization, including even the most basic considerations, such as coordinating across time zones and working hours.

The following eight best practices can help reestablish remote ways of working to ensure teams feel valued and maintain effectiveness in the coming weeks—and even in the long-term.[3] These recommendations can further be divided into three buckets: those that help employees stay safe and engaged, those that promote an efficient organization, and those that empower employees with secure digital tools (Exhibit 1).

Promote safety and an inclusive, caring culture. The safety of workers—as well as their health and wellness—is always the number-one priority for energy and materials companies. It can

Exhibit 1

Eight best practices can help transition to remote ways of working.

[3] Santiago Comella-Dorda, Lavkesh Garg, Suman Thareja, and Belkis Vasquez-McCall, "Revisiting agile teams after an abrupt shift to remote," April 2020, McKinsey.com.

be difficult for some people to suddenly find themselves working from home, perhaps for the first time. Therefore, site leaders need to provide clear guidelines on how to behave under these new circumstances. This can be accomplished by proactively seeking opportunities to catch up on a personal level and conducting an anonymous biweekly survey to solicit input on people's feelings and concerns.

Learn to lead—not micromanage—from afar. Leadership has an essential role in setting the direction of work, connecting the dots, and energizing employees. To avoid any unnecessary delays, they need to delegate decision-making power by empowering team members to make decisions, no matter their physical location.

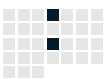
Design a simple, effective, outcome-oriented structure with clear roles. Any new approach to a job requires redefining the scope of an employee's tasks as well as their role in projects—and a leader's role should be to synchronize a team's work (Exhibit 2). The scope of ongoing projects should be redefined and the amount of time dedicated to each task should inform prioritization. For example, process engineers working from home can be reassigned as subject-matter experts, dedicating their time to conceptual problem-solving sessions, codifying their knowledge, or coaching junior team members—tasks that might otherwise not be top priorities.

However, some tasks could be impossible to carry out with remote support, thus requiring teams to delegate to on-site staff—effectively becoming their "eyes and ears." At one mine, for example,

Exhibit 2

Sites should define key recurring meetings with clear facilitator and escalation processes.

Status ○ Not yet launched ◐ Partially embedded ● Fully embedded

	Meeting	Inputs to meeting	Escalation process	Frequency, days/month
Full mill potential	● Daily check-in	• Daily workplan	If delayed or missed, report to operations manager	
	● Projects and sensor and control KPI review	• Daily workplan • KPI dashboard	Daily progress summary to operations manager	
	◐ IMO	• Azure Dev ops • Secondary KPIs dashboard	Weekly progress summary to operations manager Initiatives delayed by 2 weeks analyzed for root cause with site manager	
Optimus model	◐ Model recommendations review	• Model recommendations (accept/reject) • Process notes	Mets to report weekly performance to operations manager and escalate if performance is below 50%	
	○ Model development PSS	• Model backlog	Meet with operations manager and prioritize the backlog items for development	
Status update	◐ Sprint review	• Standardized valuation review document including all required KPIs	If value lower than projection, CI manager to review and conduct RCA with teams	

Developed practices, adopted digital tools, and new roles could become permanent solutions, resulting in more resilient, productive, and safer organizations.

data scientists continued their work developing machine-learning models remotely, while on-site metallurgists focused on their deployment. As a result, the teams were able to bypass the need for an implementation coach making recommendations to the control room and an analyst was instead able to coach the metallurgist directly.

Focus on high-quality interactions with regular meeting cadences. This is particularly relevant to on-site operations, which are oftentimes free of immediate supervision or fixed schedules, and where discussions often occur on an ad-hoc basis. It can therefore be tricky to transition workers from unsupervised work to a more hands-on approach, though it will significantly improve the effectiveness of the remote team. Not every minute of a frontline worker's day should be planned. Team leads should establish regularly scheduled meetings, whether they be on a daily or weekly basis, to ensure employees are engaged and on track (Exhibit 3). Having clear decision-making and escalation paths are essential to keep things running smoothly. Regular touchpoints with the full team, despite the physical location of individual members, are key to staying synchronized, avoiding miscommunication, and remaining focused on progress.

On top of daily check-ins, time should consistently be blocked for conceptual problem-solving. These sessions should include the full team and track progress with joint tasks that require regular inputs from both remote workers and those on-site.

Define new norms to improve meeting performance. Adhering to effective meeting practices is more important than ever. Meeting requirements should be confirmed in advance, focused on decisions and problem solving, and followed by a list of specific actions. Using spreadsheets as a meeting tracking tool can also provide an ongoing and rigorous view of adherence to effective practices (Exhibit 4), and weekly retrospectives help to identify potential inefficiencies and timely resolutions, when spotted.

Create a widely accessible single source of truth. The most important thing here is to increase transparency between everyone involved. Such transparency is particularly useful for operations that rely on day-to-day communication and notes from on-site process engineers or managers. Something as simple as a shared spreadsheet can allow for better planning by filling in gaps in knowledge from one shift to the next, detailing

Exhibit 3

All employees must define their level of involvement and ensure the right time dedication to the project.

● Required time, hours/day

Site resources	Full mill potential		Optimus model		Environmental/WTP[1]		Total required hours per week
		Responsibilities		Responsibilities		Responsibilities	
Mill management	●1	Supervise initiative progress, prioritize resources	●0.5	Provide mill expertise to be translated into model			10.5
Mill technical	●1	Needed to update SOPs,[2] inform dashboard/automation control changes	●0.5	Provide expertise on model recommendations	●1	Update SOPs,[2] inform dashboard or automation controls, provide expertise	14
Electrical and instrumentation	●1	Update installation timeframe for sensors and instruments, confirm items are functionally checked out			●1	Update installation time frame for sensors and instruments, confirm items are functionally checked out	14
Process control	●1.17 (12 per week)	Update process controls installation timeframe, confirm items are reporting to historian and available to operators			●<1	Update PLC[3] installation timeframe, confirm items are reporting to historian and available to operators	15
Initiative owners	●1 (each)	Progress initiatives deployment and change management, provide update on initiatives' timeframe and problem-solve roadblocks					7 (each)
Project team			●0.5	Update model data pipeline and provide expertise to deploy new model features			7 (each)

[1] Willingness to pay.
[2] Standard operating procedures.
[3] Programmable logic controller.

Exhibit 4

Standardized procedures for tracking meeting performance are crucial to sustain remote support.

Pre-meeting

Status criteria	Were pre-reading materials sent out in advance?	Were pre-reading materials syndicated with affected parties?	Did the meeting start on time?
Strong	>24 hours	100%	On time
Adequate	>8 hours	75–100%	<5 minutes late
Poor	<8 hours or not sent	<75%	>5 minutes late

Meeting

Was there a clear agenda, decisions, and content owners?	Was the action log reviewed for updates from last meeting?	Was a secretary appointed, and were notes taken?	Was time managed to agenda?	Was a parking lot used?
Agenda with content owners	Yes	Yes	All topics	Yes
Agenda without content owners			All decision topics	
No agenda	No		Did not cover all topics	No

Were decisions, actions, and next steps identified?	What was the level of required participant attendance?	What was the level of participant attrition (arriving late/leaving early)?	What was the level of participant engagement (high, medium, low)?
Yes	>80%	<20%	Highly engaged
	>70%	20–30%	Somewhat engaged
No	<70%	>30%	Engagement issues

Post-meeting

Was there a 1:1 follow-up on actions and next steps?
<2 business days
Within next business week
>1 week or no follow-up

ongoing actions, alerting workers to upcoming milestones or items awaiting implementation, and tracking deployment.

Adopt a full suite of digital tools for remote working, rapid assessment, observation, and analytics. Beyond technologies such as digital twins or virtual reality (VR) modules used for remote training sessions, many innovative solutions and tools can be deployed to improve day-to-day operations, allowing for remote support where it was previously not considered possible without physical presence. For example, smart glasses can be used by experts to perform remote walkthroughs in real-time video assessments in collaboration with on-site staff, GoPro cameras can be installed on critical excavators to find substantial potential of improvement to overall equipment effectiveness and enable daily performance management for the shift foreman, and drones can be used to conduct geological surveying after detonation and blasting. It makes no difference if the remote operator or person analyzing the footage is located in the mine or a thousand miles away.

Ensure secure remote working. An awareness of cybersecurity best practices is needed when using digital collaboration tools, especially for staff not used to working outside company offices.

The next normal: Reimagining energy and materials operating models

Companies need to take a step back and reflect on how these new ways of working can be sustained. What has been learned cannot be unlearned—namely, some of the developed practices, adopted digital tools, and new roles could become permanent solutions, resulting in more resilient, productive, and safer organizations.

McKinsey describes five qualities critical for business leaders to find their way to the next normal: resolve, resilience, return, reimagination, and reform. The best way for energy and materials companies to come back stronger than before is to reimagine their operating models. In fact, this sector is more likely than others to experience higher savings due to higher travel costs, as employees or contractors will no longer need to fly great distances and stay on-site for multiple days to perform simple diagnostics, for just one example. Ultimately, remote work can attract the best possible job talent, as location challenges cause many operations to struggle to attract the best candidates—for instance, data scientists located in cities may be reluctant to move to remote regions.

That said, those that hope to lead the industry's productivity increase and innovation efforts must identify the best path forward, pursue the right technological advancements, and rethink their operating models and partnerships. Possible solutions include infrastructure enhancements and capability building programs as well as creating a road map that allows decisions to be triggered based on the outcomes of different scenarios.

Beginning new ways of working

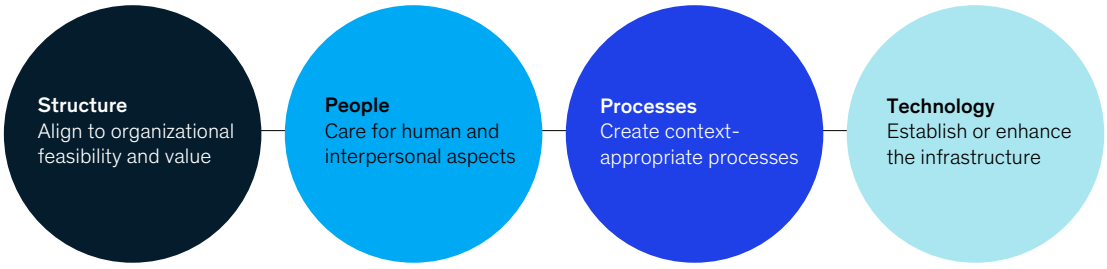
Due to differences between energy and materials companies, there is no one-size-fits-all solution. Senior executives therefore need to reimagine their company's "how we work" strategy across four dimensions: structure, people, processes, and technology (Exhibit 5).

Structure: The recent period of hybrid work may help to highlight projects or services that could be permanently switched to remote models, as well as those that could be phased out. To identify these, however, companies must question how necessary it is to return to the previous operating model. Before moving back to on-site models, a clear business case should be presented that includes every process and service transitioned to remote or temporarily discontinued due to COVID-19. The cost of doing so should be outweighed by the financial benefits (lower operating costs or additional revenues) or nonfinancial benefits (site safety or employee satisfaction).

People: Team leads should reflect on whether smaller groups with clear roles created to adjust to hybrid work model are more efficient than traditional setups. Once the pandemic is over, transitioning back to larger teams should be subject

Exhibit 5

Aligning joint expectations on structure, people, process, and technology is an essential ingredient.



to stringent testing (focusing on whether additional organizational complexity adds value). This could be a valuable opportunity to discard outdated organizational layers or roles whose redundancy may have recently been exposed. In other words, the future of work, defined by the use of more automation and technology, has always been on its way—and COVID-19 hastened its pace. This shift will call for substantial investment in workforce engagement and training in new skills, much of it delivered via digital tools.

Process: Companies should question which established processes have reduced the risk of misalignments, increased operations transparency, and improved productivity. Solutions such as regular meeting cadence or single sources of truth are useful not only for remote work but also to structure the workflow. Thus, senior leaders should think how to best integrate these solutions into company DNA—for example, by including them in training and onboarding materials.

Technology: To improve access to technology and minimize any risk involved the next time people need to stay away from operation sites, leaders should accelerate tech modernization. Successful companies will decide on wider range of employees to permanently access Wi-Fi, laptops, mobile phones, virtual private network (VPN), videoconferencing headsets, and initiate internet bandwidth infrastructure enhancement, selection of communication or project management software and establishment of cybersecurity policies to access to data. Each of the evaluated solutions must be stress-tested with local constraints and embedded within an Industry 4.0 road map.

Finally, companies must question the order in which these improvements should be implemented. Which adaptation is most important—people, process, infrastructure, or technology? With this determined, the current portfolio for infrastructure enhancement can be assessed and a time horizon for the transition can be set. The success of such a strategy, however, depends on leaders' abilities to achieve an organization-wide mindset change that promotes the next normal. Doing so will ensure that essential and nonessential employees alike will be able to approach work as safely as possible, top talent and expertise can be attracted and applied across great distances, and increasingly efficient operations require as little time on-site as possible.

It is a moment of truth for the energy and materials sector. Despite the short-term costs required by COVID-19, increased investment in technological innovation and shifting mindsets could lead to a total transformation of how work is accomplished, how teams collaborate, and how strategies are aligned. And as commodity price pressures increase and the continuation of traditional operating models is threatened, the combination of new thinking, innovation, and new ways of working will be critical to helping ensure a safer, smarter—and more profitable—future.

Greg Kudar is a senior partner in McKinsey's Calgary office, **Lapo Mori** is a partner in the Denver office, **Johnathan Oswalt** is a senior expert in the Minneapolis office, **Sebastian Reiter** is an associate partner in the Munich office, and **Robert Samek** is a senior partner in the Toronto office.

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