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Supply Chain Management Challenges in

Remote Operations

The Remote Factor

Supply chain management, even in real-world scenarios, can present varied challenges. When operations are conducted at remote locations, these challenges increase manifold. As little as three years ago, 70% of organizations experienced at least one disruption in their supply chains. According to the same report¹, 24% of these firms held their external inbound supply chain responsible for the majority (>50%) of their disruptions.

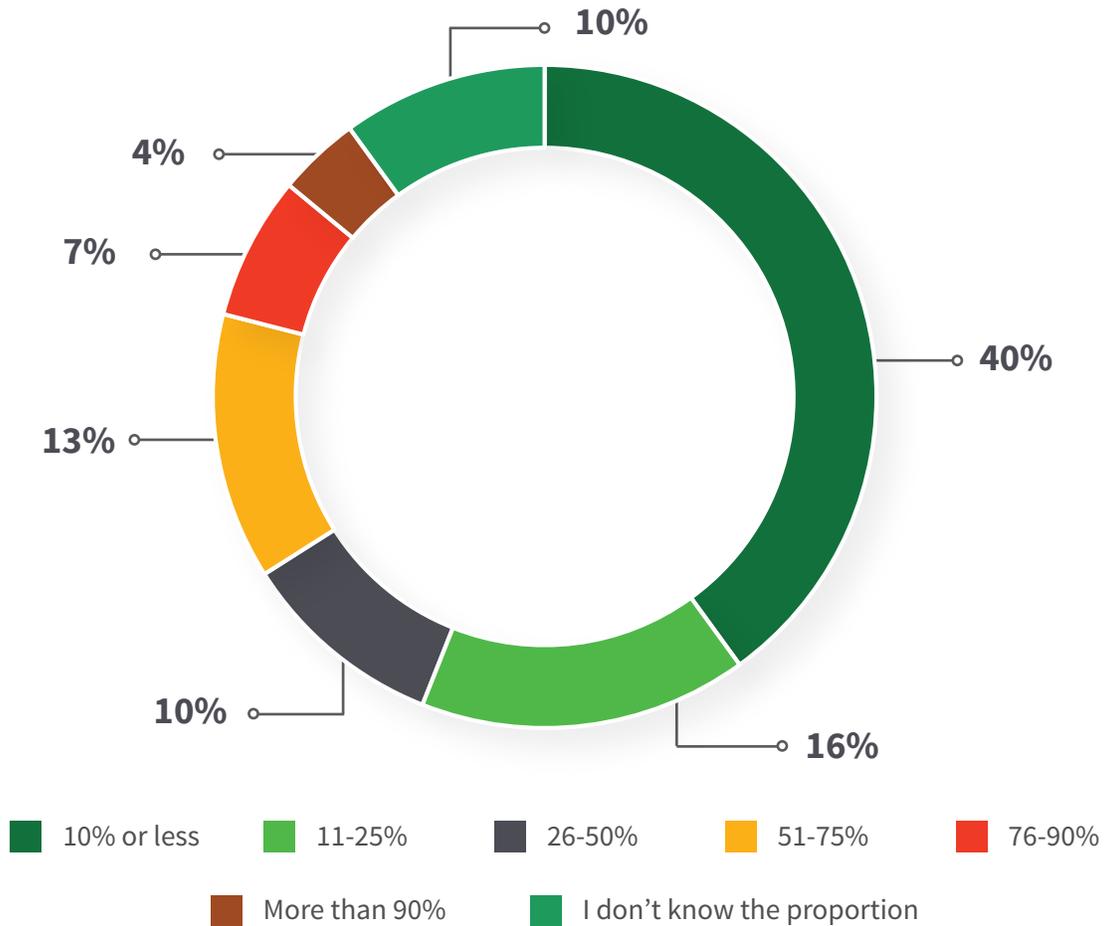


Figure 1: The proportion of supply chain disruptions caused by the external inbound supply chain.

Rapid global expansion has served as a key strategy for many commodity-based industries for a long time, with operations rapidly moving onto newer and more remote locations. Especially for industries that deal with finite resources, a key set of reasons materialized to necessitate such an enormous change in operations.

For instance, almost a decade ago - a key strategy for many mining companies was to finance operational expansion despite being in debt. While they faced short-term risks in the wake of the global financial crisis, their plan paid off in the long run. As global markets recovered from the effects of the crisis, countries worldwide witnessed an upsurge in overall operational efficiency. A direct effect was seen in infrastructural expansion, which drove up the demand for minerals such as copper, coal, and iron ore.

Rapid industrialization in parts of Asia; especially in China and India; Eastern Europe, and Latin America, has also driven the demand for these minerals. Such escalating demand has seen the industry venture into unconventional locations, such as Afghanistan, Mauritania, and Mongolia.

The rise in global demand has also compelled the oil and gas (O&G) industry, particularly upstream companies, to greatly expand their operations in remote locations such as Alaska, Brazil, West Africa, the Caspian Sea, and even the Arcticⁱⁱ. In addition, unconventional plays such as fracking shale and the oil sands in western Canada have greatly expanded, becoming major global energy sources that each have their own remote operational hurdles.

While it has been necessary and productive for the industry to extract natural resources in these hitherto unpenetrated regions, this expansion gives way to distinctive new challenges.

The Supply Chain Risks in Remote Operations

In markets as nascent as those in remote locations, supply chains bear the brunt of this shift, as they are in a continuous process of development and the pressure to maintain constant production is even higher due to increased operational costs. When operations are placed afar, each and every element in the supply chain is thrown into sharper relief. As a result, a new set of challenges materialize that threaten to endanger on- and offshore operations, and risk optimum supply chain performance, if not resolved immediately:



Staffing Challenges

The availability of natural resources are a topmost concern when it comes to setting up operations at remote locations. However, staffing can prove to be a major challenge that affects multiple areas of the supply chain. The organic nature of staffing itself can easily lead to many complications under a typical, siloed approach to supply chain management.

For instance, the remote area may not have a local workforce that is suitable to the requirements of the operation. Here, the challenge lies in finding the right combination of skillsets that will fill all roles within the operational scope before contracting them to travel long distances to perform work.

In another scenario, the location may have a workforce who can contribute in the desired manner toward the operations. However, this leads to a new set of challenges. The newly recruited staff may show promise and possess skills that are perfectly suited to the operation. More often than not, however, they may not have received comprehensive training that can enhance their skills and ensure they work within the prescribed safety protocols. It is quite a task to recruit specialists who already possess robust commercial, technical, and management skills along with an aptitude in statistical and inventory management. This proves to be an even more troublesome proposition in remote locations.

Even after skill availability and/or appropriate training, high turnover rates can be seen among the staff. While the presence of competing companies is a factor, a more telling aspect is the lack of an integrated operating strategy to safeguard the people, plant, as well as production. This can result in inadequate definitions of responsibilities and positions within the team, leading to unclear accountability and a lack of holistic motivation that can go beyond the monetary incentives and lead to employee as well as contractor churn.

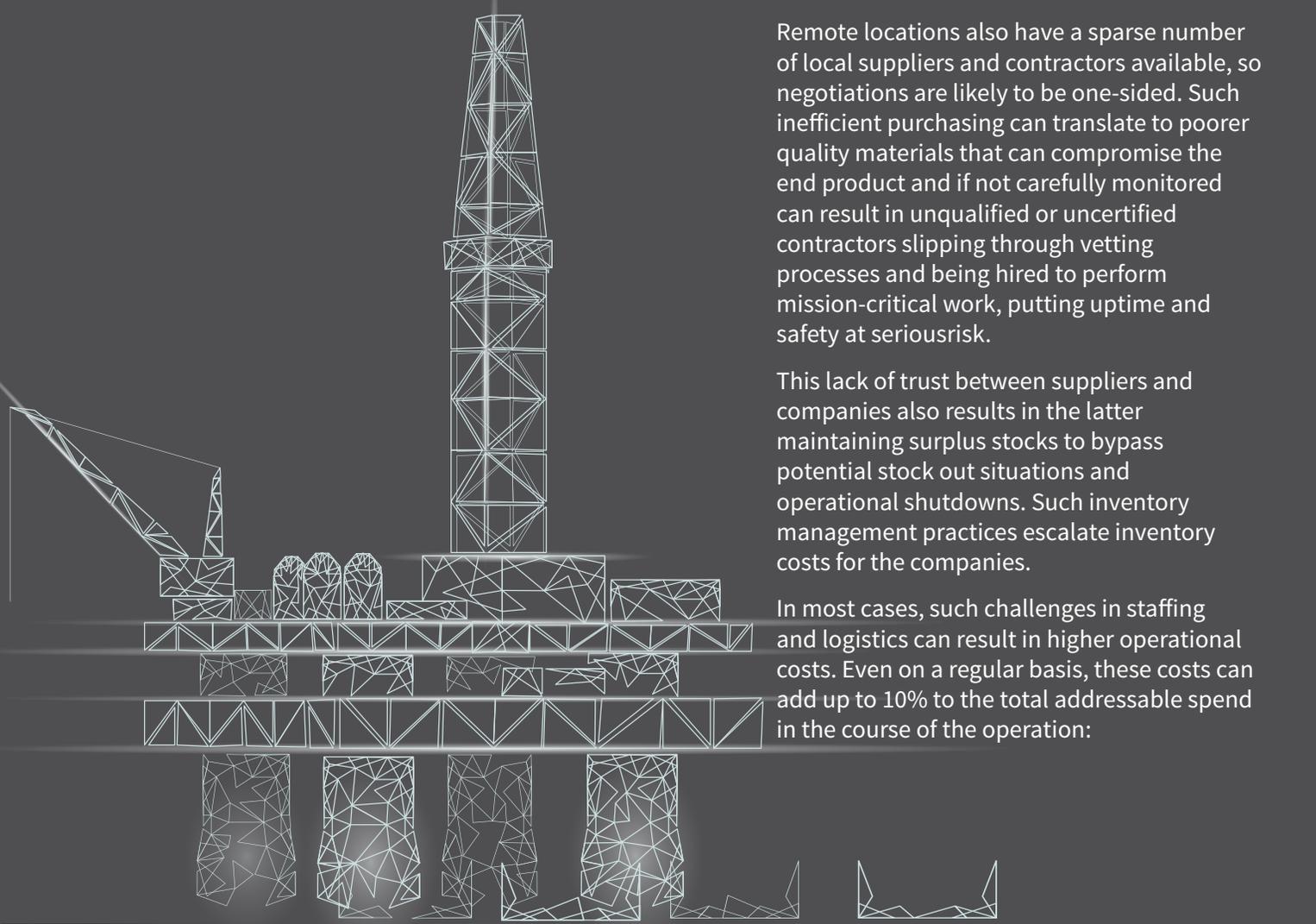
Logistical Challenges

For industries that deal with complex parts, heavy materials, and substantial machinery, the logistics involved become even more complex when remote locations are involved. The forestry and mining industries, along with upstream companies in the O&G industry, are particularly entwined with such challenges. For them, operating across remote locations require the planning of new routes and storage facilities as they do not possess an ideal infrastructural setup.

A natural consequence of remote operations is greater distances to cover for the supply chain partners. This leads to larger inventories that are in transit and greater carrying costs for the same. Because of this development, organizations need to keep larger safety stocks at the final location as well, which is difficult to maintain at all times. Without proper scheduling, transportation times can also vary, resulting in an uncertainty in how the final product is delivered.

The highly technical nature of operations at, say, oil and gas fields and construction sites, demand a high number of specialized tools and materials to be transported across long distances. This involves planning their storage and transfer which could require substantial infrastructural changes at the remote site itself.ⁱⁱⁱ

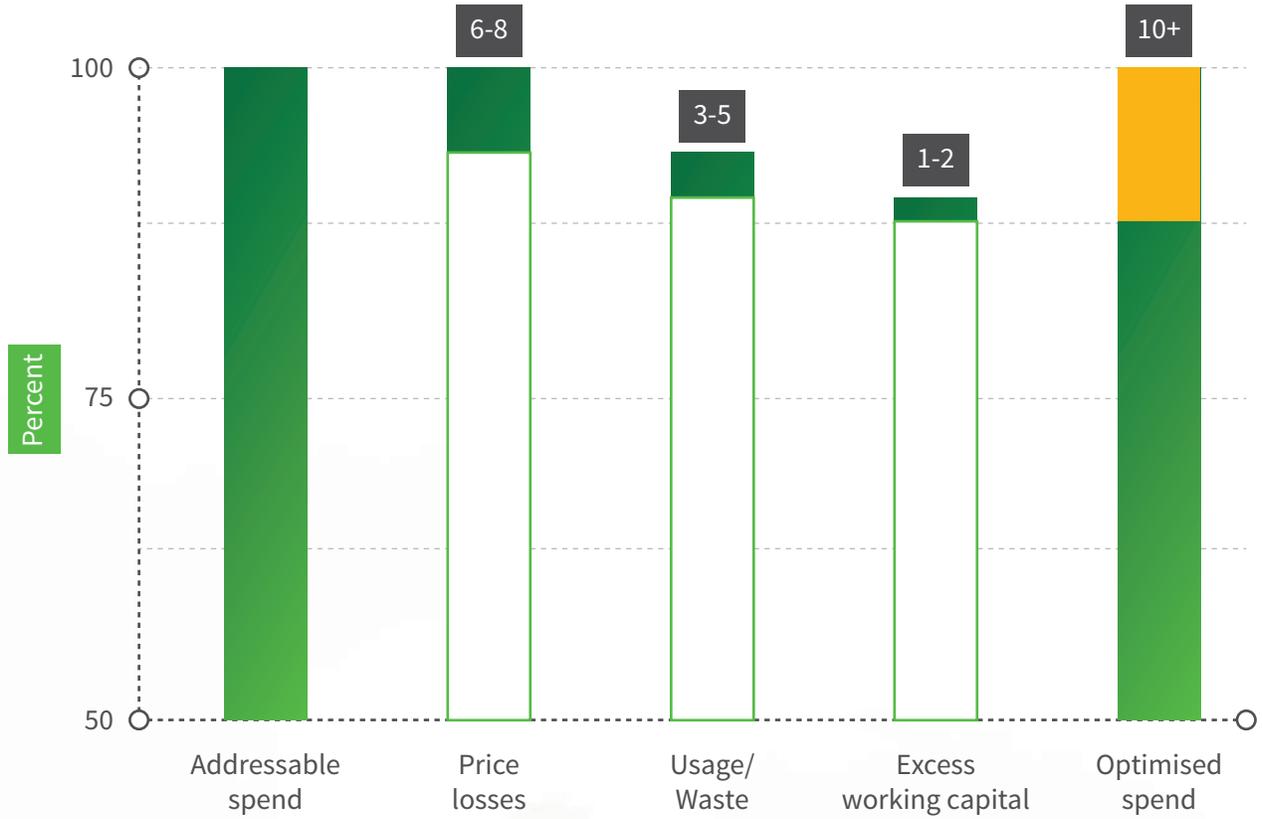
While end-to-end onsite and offsite monitoring and visibility is mandatory to meet stringent compliance requirements, lack of proper resources often make it quite demanding. Also, in the absence of technology-oriented solutions, fragmented supply chains are very much a possibility.



Remote locations also have a sparse number of local suppliers and contractors available, so negotiations are likely to be one-sided. Such inefficient purchasing can translate to poorer quality materials that can compromise the end product and if not carefully monitored can result in unqualified or uncertified contractors slipping through vetting processes and being hired to perform mission-critical work, putting uptime and safety at serious risk.

This lack of trust between suppliers and companies also results in the latter maintaining surplus stocks to bypass potential stock out situations and operational shutdowns. Such inventory management practices escalate inventory costs for the companies.

In most cases, such challenges in staffing and logistics can result in higher operational costs. Even on a regular basis, these costs can add up to 10% to the total addressable spend in the course of the operation:



On a remote site, price losses, usage/waste and excess working capital mean significant cost to entire operation. No wonder, these factors attribute for 10% of addressable spend in supply chain.

Figure 2 : An analysis of direct losses in a supply chain. ^{iv}



Safety Challenges

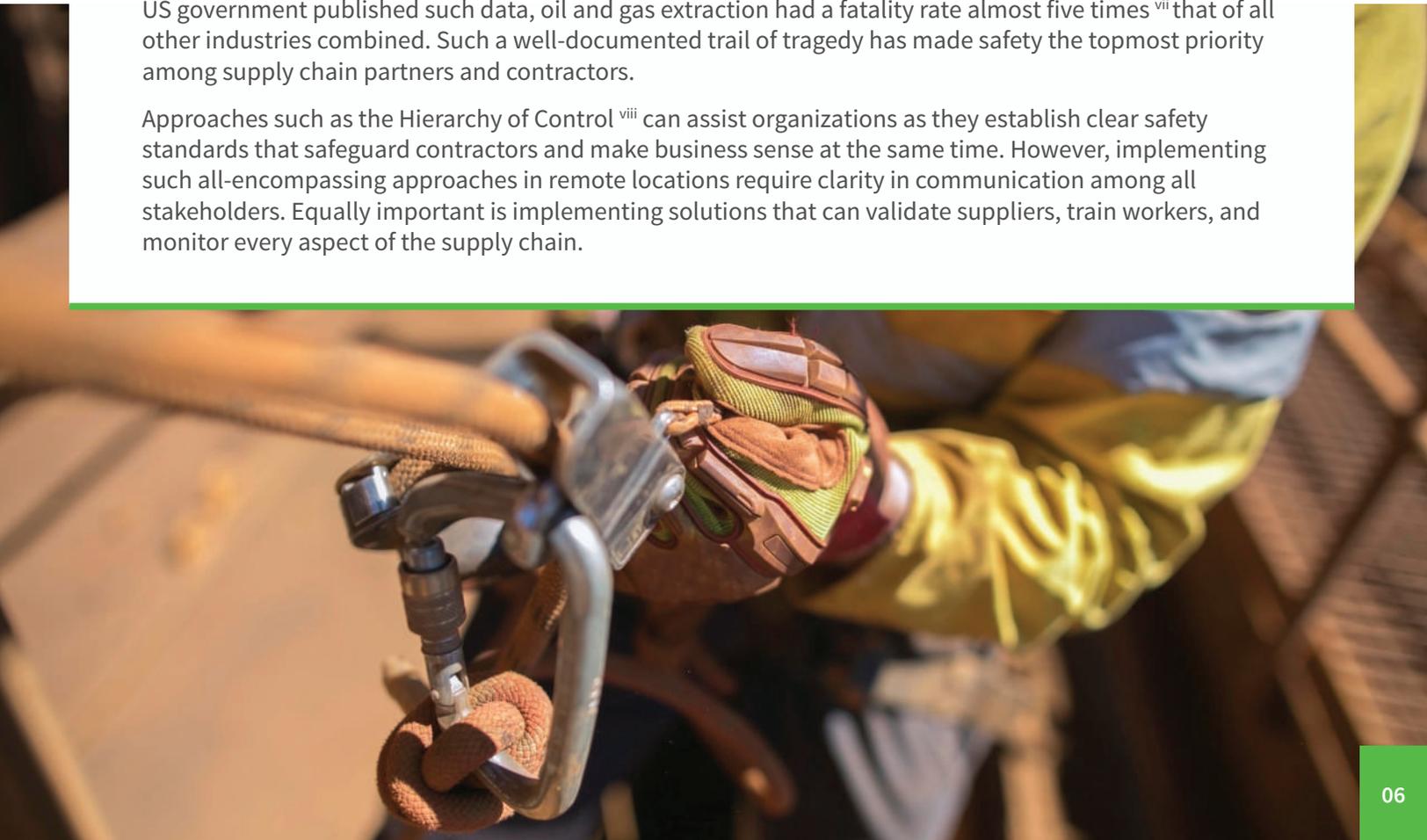
The absence of end-to-end visibility in such inaccessible conditions often endanger the lives of workers as well. In industries such as O&G and construction, the severe injury rates per 100,000 workers ranged from a staggering 133.5 to 148.9 ^v in 2015-16. In fact, the O&G industry saw a total of 1,566 worker deaths from 2008 through 2017. ^{vi}

Severe injury rates (2015-16)			
Industry	Severe injuries	Average annual employment	Rate per 100,000 workers
Support activities for oil and gas operations	349	234,403	148.9
Industrial building construction	153	114,591	133.5

Figure 3 : Severe injury rates in O&G and construction, OSHA, 2015-16.

This industry, in particular, has always witnessed a high number of fatalities. In 2014, the last year when the US government published such data, oil and gas extraction had a fatality rate almost five times ^{vii} that of all other industries combined. Such a well-documented trail of tragedy has made safety the topmost priority among supply chain partners and contractors.

Approaches such as the Hierarchy of Control ^{viii} can assist organizations as they establish clear safety standards that safeguard contractors and make business sense at the same time. However, implementing such all-encompassing approaches in remote locations require clarity in communication among all stakeholders. Equally important is implementing solutions that can validate suppliers, train workers, and monitor every aspect of the supply chain.



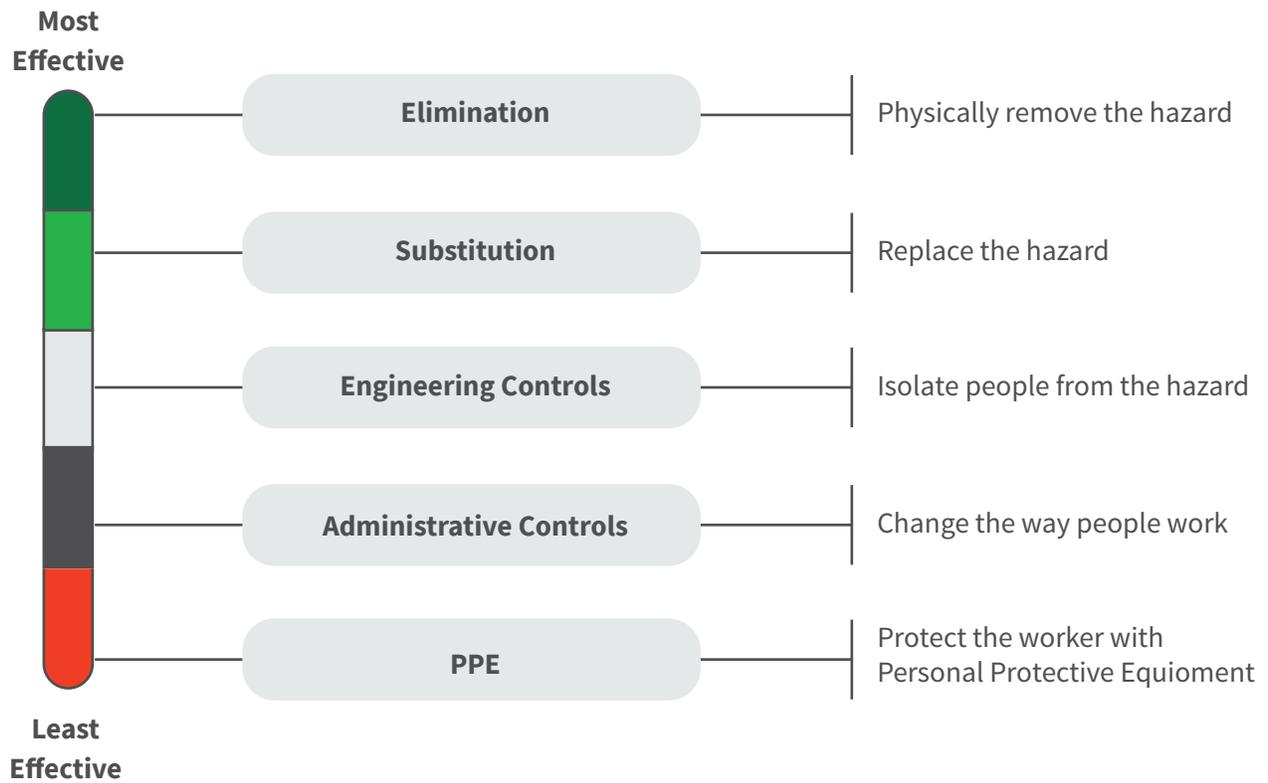


Fig. 4: Hierarchy of Controls (NIOSH)



Eliminating Challenges through Best Practices

Creating a culture that prioritizes the right inventory, people, and services at the right time can mitigate supply chain management challenges in remote locations and drastically improve supply chain performance. Organizations can follow certain best practices to implement such a culture:

A robust operating strategy can be implemented with the help of a Value Driver Tree (VDT).^{ix} A VDT can dissect the entire supply chain to show how it affects the overall business performance. This clarity can help teams recognize, and then act up on, the areas that urgently need improvement. Such a value-driven strategy can help develop impactful KPIs that deal with critical drivers of performance relevant to the team's setup and, of course, have feasible targets.

This kind of strategy also helps in defining clear roles among employees on, and even across, remote worksites. Such evaluation can render every single team member's accountability clear and well-defined with very little scope for ambiguity. With every team member responsible for a specific KPI, this strategy can also provide them with a kind of motivation that isn't just financial, but extends to recognizing their actual performance and rewarding them for it.

Qualifying all suppliers and their employees involved in a project guarantees that every one of them fulfils regulatory and compliance requirements.

While the qualification process can be complicated, especially when third-party suppliers are involved, deploying a robust supplier management system can make this crucial task effortless, effective, and exhaustive.

Clearly defined operational procedures and regular meetings go a long way toward ensuring a high level of discipline in the operational setup. However, comprehensive training and orientation programs can reinforce project requirements and usher in a higher level of workforce engagement.

The use of technology can bring in a greater level of trust between suppliers and companies. This can begin from the use of GPS in transport and extend to all-inclusive analytics and cloud-based solutions that can connect all relevant systems for end-to-end monitoring and visibility.



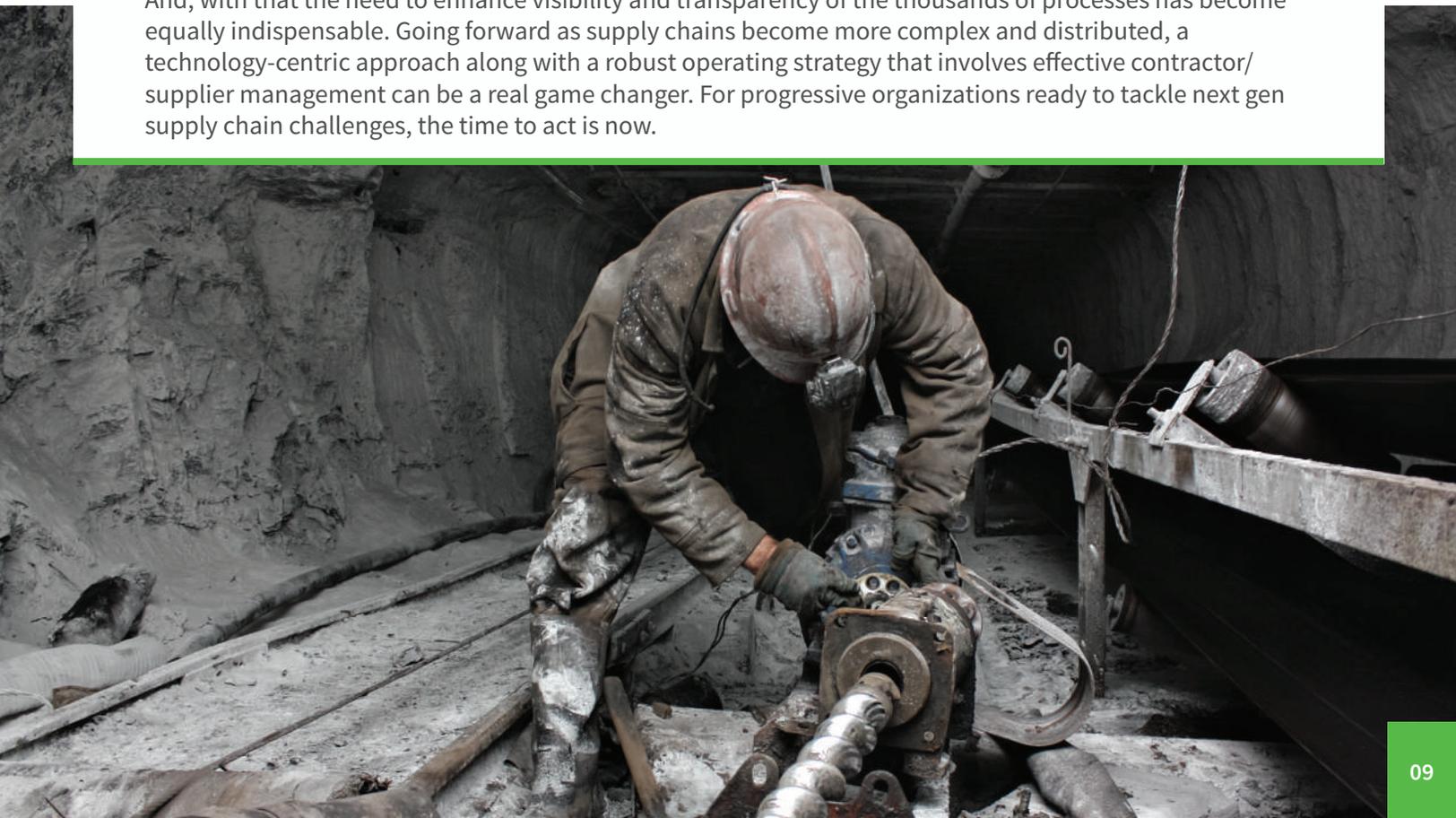
Not Remote Anymore

While Avetta's supplier prequalification services ^xstreamline the first crucial step in managing supply chain risk, its worker management solutions ^{xi}allow organizations to verify and train every employee from each supplier at the company level. They include:



The multilingual solution suite ensures your organization is ideally placed to manage risk, guarantee safe working environments, and meet procurement, compliance, health, as well as safety standards across global environments.

For major commodity-based industries, the shift to remote locations has been inevitable for a long time. And, with that the need to enhance visibility and transparency of the thousands of processes has become equally indispensable. Going forward as supply chains become more complex and distributed, a technology-centric approach along with a robust operating strategy that involves effective contractor/supplier management can be a real game changer. For progressive organizations ready to tackle next gen supply chain challenges, the time to act is now.



References

ⁱ **Source: Supply Chain Resilience Report 2016, Business Continuity Institute;**

https://www.zurich.com.sg/_/media/dbe/singapore/docs/corporate-solutions/bcisupplychainresiliencereport2016web.pdf

ⁱⁱ **Source: Challenges in Supply Chain Management in Upstream Sector of Oil and Gas Industry;**

https://www.researchgate.net/publication/315743216_Challenges_in_Supply_Chain_Management_in_Upstream_Sector_of_Oil_and_Gas_Industry

ⁱⁱⁱ **Source: Ibid.**

^{iv} **Source: A remote site supply chain that really works, PIP Speak;** <http://info.pipint.com/PIP-Speaks/Sourcing/Remote-supply-chain-PIP-Speak>

^v **Source: Oil and gas industry leads in severe injuries;** <https://www.eenews.net/stories/1060053892>

^{vi} **Source: Death in the oilfields;** <https://apps.publicintegrity.org/blowout/us-oil-worker-safety/>

^{vii} **Source: Ibid.**

^{viii} **Source: Mitigate Supply Chain Risk with the Hierarchy of Control;** <https://www.avetta.com/blog/blog/2018/12/26/mitigate-supply-chain-risk-with-the-hierarchy-of-control>

^{ix} **Source: A remote site supply chain that really works, PIP Speak;** <http://info.pipint.com/PIP-Speaks/Sourcing/Remote-supply-chain-PIP-Speak>

^x **Source: Supplier Prequalification;** <https://www.avetta.com/solutions/supplier-prequalification>

^{xi} **Source: Worker Management;** <https://www.avetta.com/solutions/worker-management>



About Avetta

Avetta connects leading global organizations with more than 85,000 qualified suppliers, contractors, and vendors across 100+ countries. We support the sustainable growth of supply chains through our trusted contractor prequalification, supplier audits, insurance monitoring, robust analytics and more. With real results in helping companies reduce TRIR, our highly configurable solutions elevate safety and sustainability in workplaces around the world—helping workers get home to their families each night.

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