

"Your Greatest Asset Isn't in the Ground"

MINING FOR VALUE

A Blueprint to Eliminate Chaos, Scale
Production, and Unlock Latent Capacity

Alexander Franklin

Praise for *Mining for Value*

Mining for Value is a compelling and deeply insightful look into the systemic failures that plague the mining industry and, by extension, many other large organisations today.

It argues that the core issue isn't a lack of technology or investment, it's a pervasive set of behaviours and cultural dysfunctions. The book's strength lies in its meticulous breakdown of the behavioural traps that perpetuate this inefficiency. The book's emphasis on behaviour extends to its proposed solutions, moving beyond simple fixes to champion the development of long-term capacity building.

By fostering a commitment culture and empowering leadership rather than just implementing new processes or technology, the book provides a practical, human-centric roadmap for building a more resilient and effective organisation.

Mining For Value is a must-read for anyone in a leadership role, offering a clear-eyed view of how to turn a failing system around by addressing the people within it.'

BRETT ARMSTRONG, People and Performance Specialist,
Leader Capability

'All too often, businesses are looking for quick fixes.

As Alex argues, be aware of quick fixes; focus on the fundamentals and adopt a systemic view by applying the Operational Performance Framework to identify if your Operational Capability realistically matches your strategic ambition.

Having worked with First Principal Consulting (FPC) and observed the evolution of the organisation and its strategy to deliver increased operational performance, I found this book wonderfully encapsulates FPC's ethos.

As Alex quite rightly points out, the mining industry is caught in a productivity paradox. Despite massive investment in equipment and projects, production is inconsistent, and targets are routinely missed. As Alex contends, this failure is not due to geology or

machines, but due to blind spots such as weak Operational Capability, which is the invisible engine that converts strategy (people, systems, culture and leadership) into real results.

I found this book succinctly leads you down a path of discovery to better identify the blind spots.'

ROBERT SERISIER, Senior Advisor | Business Transformation
Leader | Operational Excellence & CI&I Expert | 25+ Years in
Global Mining & Heavy Industry

'The concept of Operational Capability as the invisible engine of a business really stuck with me. The Mint Mobile case study was compelling and reminded me how critical repeatability and systems are in creating shareholder value. I appreciated that the book was short, clear, and straight to the point.'

TYLER GEDLAMAN, Capital Markets Professional

'This book is an enjoyable read with a strong message that resonated with me after forty years in the mining industry and having initiated several improvement programs at a variety of sites. I found it insightful, easy to read, and, importantly, it has some excellent examples of real-world situations from outside the industry and solutions that expand the discussion, grab your attention, and really make you reflect on the messages within the text. I would recommend the book to anyone serious about the subject.'

NEIL MEADOWS, Former President, Koniombo Nickel

'My opinion on what makes good reading is whether it prompts me to reflect on my experiences and to think in depth on the points being raised. I certainly got this from reading this book. Mining by its nature is a capital-intensive business, and to be able to access capital, the mining industry needs to become better at delivering value on a more consistent level.'

MARK BOON, Executive Manager, MAB Mining Services

'This book nails something that has been hiding in plain sight for years: Operational Capability as the real asset. It resonated deeply with me after seeing how many teams get stuck in the firefighting loop. The capability curve, iceberg of ignorance, and operational debt are compelling ideas that will become industry reference points. It's insightful, timely, and written in a way that speaks to both executives and emerging leaders.'

SCOTT NORTH, Founder and Managing Director, Kamoā Capital

'Alex's commitment to mastering leadership through self-development and disciplined practice is second to none. If more people in management positions embraced even half of what this book delivers, the industry would be in a far better place.'

DAVID HOLLINGSWORTH, Founder, Mine Mage

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FOREWORD

ALEX AND I met on LinkedIn; we found each other in the noise because we both actually care about where this industry is heading, not just where the gold price is heading.

I've been in mining a long time. Over fifteen years now and what genuinely frustrates me is how often I see the same conversation play out. Something isn't working. Production is down, costs are up, the quarter has gone sideways again. And the response is always some version of well, that's just how it is. This is mining. This is how it's always been done.

I've never bought that. Not once.

Because the truth is, most of the problems I've seen on sites over the years weren't geological. They weren't market-driven, They were people problems, system problems. The kind of problems that don't show up cleanly on a balance sheet but quietly eat away at everything that does.

Alex has written a book about exactly that. And I think it needed to be written.

I've been in enough boardrooms to say this with some confidence that the iceberg of ignorance really stands out for me. The idea that executives are operating on maybe four percent of the real picture. I didn't find that hard to

believe. I found it hard to admit how often I'd seen it first-hand. Decisions getting made at the top based on a version of events that the people underground would barely recognise. Not because anyone is being dishonest but because bad news travels slowly upward and good news travels fast. That's human nature but in a capital intensive industry it's an incredibly expensive quirk.

The operational debt framing is something I'll be using in conversations for years. Every deferred maintenance call, every planning shortcut, every time someone runs a crew into the ground to hit a number—that's debt. It compounds. And eventually it doesn't just slow you down, it stops you.

What I responded to in this book, and why I said yes when Alex asked me to write this, is that he's not asking for some wholesale reinvention of how mining works. He's asking for honesty. Measure what matters. Close the gap between what leadership thinks is happening and what is actually happening. Back the people who want to do things differently instead of defaulting to this is how it's always been done.

That shouldn't be a radical position but in this industry it still somehow is.

If you're anywhere in the mineral resources world—operating, investing, advising, raising capital—read this. Not because it's comfortable but because it isn't.

Scott North is Co-Founder, Kamo Capital.

INTRODUCTION

CHAOS TO CONFIDENCE

A SHIT SHOW' ... This is how superintendents typically respond when we ask about their site.

It's unsurprising. They are buried in the day-to-day, trapped in a state of constant firefighting in order to hit their targets and budget. With no time to find the root cause of issues or get ahead of them, operational resilience, clarity, productivity, innovation and performance all suffer.

Site leadership's goal is always the same: safe, consistent and predictable production. Yet the site's performance is always turbulent as they always find themselves pulled in two directions: trying to hit growth targets while overcoming the operational drag of the site's long history and existing inertia.

The Execution Gap

This is the expensive and destructive void between capital ambition (the 'boardroom') and the operational reality facing site leaders.

The ‘boardroom’ lives in a world of potential. They deal in net present value, discount cash flows, JORC models and strategy. They assume execution will follow intent. That is, after all, what site teams are employed to do.

Site lives in a world of operational friction. They deal with functional silos where teams chase their own KPIs, often at the expense of the bigger picture. Their days are spent dealing with unrealistic schedules, breakdowns, unexpected geology and weather.

Accenture found that between 2020 and 2024, 61 per cent of quarterly mining production targets were missed globally. This wiped out \$64 billion in forecast revenue over that period.¹ These are companies setting their own targets and failing to hit them. This is the cost of the **Execution Gap**.

A Note on Terminology: The ‘Boardroom’

Throughout this book, when I refer to the ‘boardroom’, I am referring to the final decision makers of a mining organisation that are ultimately accountable for its direction. This may include: the C-Suite, the board of directors, significant shareholders or a private equity fund.

The Productivity Paradox

Sites are working harder for diminishing returns.

Despite the significant technology advancements in the past twenty years, McKinsey found that mine productivity is 25 per cent lower than it was in 2005, even when accounting for depth and grade.²

This is the productivity paradox. We are spending more to get less with high commodity prices obscuring this reality.

For most sites, this paradox shows up as the invisible friction of daily operations:

- Bureaucracy and broken processes that cause more problems than they solve.
- Untrustworthy data that creates disagreement instead of decisions.
- An ineffective management operating system unable to prioritise tasks.
- Technology that fights the end user and invites workarounds.
- Ineffective meetings that consume time without adding value.

It is no wonder that the daily chaos crowds out strategic projects.

The Cost of Chaos

When a site tries to execute without the requisite level of capability, they don't create efficiency; they create an *operational debt*.

Every time you rob Peter to pay Paul, or rely on a workaround or heroics, you are taking out a high-interest loan against the mine's future reliability.

Like financial debt, operational debt compounds. Eventually, the bill comes due in the form of missed guidance, safety, a toxic culture, shutdown or reputational damage.

The Only Lever You Control

In mining, geology creates the potential, and the market sets the price. The boardroom controls the strategy; the site team control the execution.

This book is about the execution lever. It is about building Operational Capability, reliably turning capital ambition into operational reality. This is the invisible engine that determines if an organisation can consistently hit its targets, while minimising operational disruption.

Operational Capability includes:

- **The Culture:** Where people know what to do, how to do it and why it matters. This is how people act when nobody is watching.
- **The System:** Where results are predictable and rarely reliant on individual heroics or workarounds.
- **The Outcome:** Where the operation functions like a finely tuned machine rather than a collection of silos.

Operational Capability is a measure of how well these tangible and intangible factors work together. This has made it hard to quantify and easy to overlook.

When we complete an assessment, the site leadership team normally responds, 'I knew it was bad, but I didn't realise it was that bad.'

You cannot manage what
you cannot measure.

To overcome the gap, we must move beyond gut feel and start treating Operational Capability as the measurable,

data-driven asset that it is. To do that, we must create a reference model of what good looks like.

The Integrator

As an operational leader, your biggest challenge isn't what's in the ground, it's the boardroom. You can't start to build the invisible engine that drives your site if you cannot explain its value.

This book is your manual for becoming an **Operational Integrator**. The person responsible for translating strategy into results. Just as a systems integrator connects software to business processes, you must connect the boardroom to the blast site.

The Blueprint

A high degree of Operational Capability doesn't happen organically, it is engineered. This book is your blueprint:

Part 1: The Execution Gap explains the disconnects, external pressures and systemic gaps you must overcome.

Part 2: The Invisible Engine explores Operational Capability; what it is, how it's assessed and why it is critical.

Part 3: Building Operational Capability explains how to identify execution gaps and bridge them once and for all.

Part 4: Creating Operational Alpha demonstrates how to execute the transformation; the benefits of getting it right and costs of getting it wrong.

Strategy is potential, execution is performance, profit is where they intersect.

PART 1

THE EXECUTION GAP

IF A FLY gets stuck inside a room, it will keep banging up against a closed window. Full of intention, perseverance, driven by a desired outcome, it sees the goal and throws everything it has at getting there, battering itself against the glass. But hard work, intention and perseverance in the wrong direction is a path to burnout.

The fly's effort is pointless, not because its intention is wrong, or it's not working hard enough, but because its entire approach is flawed. It is trapped in a state of reactivity. It sees the immediate obstacle and reacts with force, rather than looking around to find the open door or window.

In mining, we are the fly.

We see the production target (the goal). We see the daily variance (the window). And we react. We push the fleet harder, we defer maintenance, we pressure the crews. We confuse activity with progress.

We are unable to perceive the invisible barrier keeping us stuck. We assume the chaos, the silos between departments, and the constant push to hit guidance are just 'the way things are'.

I share this story because it was a lesson I learned the hard way.

You Can't Read the Label from Inside the Jar

At one point in my career, I looked successful on paper. I was climbing the ladder in engineering and project delivery. But the reality was I was miserable. I was working inside a high-friction system that required constant heroics just to maintain the status quo. I tried to solve the problem by working harder and spending my nights and spare time studying for a career transition; burning the candle at both ends to force a breakthrough.

The drop in performance and burnout were both predictable. I came to realise hard work is necessary, but you cannot outwork a broken system. Success comes from a combination of effort AND systemic leverage.

The Gap

In the high-stakes world of mining, we see this exact pattern play out every day. We normalise the chaos, accept that data is unreliable, that departments don't talk to each other and that the plan is unattainable.

This is the **Execution Gap**.

It is the distance between the boardroom's strategic plan and what the site is actually capable of implementing.

When this gap widens, we try to fill it with technology, workarounds, heroics, and often sheer hope in the face of desperation. But just as I couldn't bridge my own gap by working harder, you cannot bridge an operational gap with positive thinking.

To close this gap, we need to stop self-diagnosing operational performance based on gut feel and start stress-testing our invisible engine.

We need to move from being reactive operators to execution architects.

The more we cling to the belief that we can squeeze more efficiency out of the existing assets without building the requisite capability, the more we risk becoming the fly; exhausted on the windowsill while the open door is just a few metres away.

As we examine the forces widening this gap in the next section, ask yourself: *Am I trying to solve a structural problem with personal effort?*

The Squeeze

Operating a mine site has become exponentially harder.

In the past, higher margins and fewer regulatory demands meant that site leaders could more easily bridge the gap between strategy and execution. Today, that gap is being widened by two powerful, opposing forces.

From above, the boardroom wants higher output and lower costs. They are under immense pressure to provide a long-term winning strategy in a volatile and fast-shifting global environment.

From below, the internal capability of the site is eroding, and with more on their plate, leadership's time and attention are being spread thinner.

The External Vice

Geopolitical Uncertainty

In 2025, with the election of Donald Trump and the ongoing war in Ukraine, the era of stable, globalised supply chains has officially ended. A rising tide of resource nationalism, tariffs, trade disputes and geopolitical tension means that securing supply is now a primary strategic concern for nations and corporations alike. This isn't just about an energy transition;

it's a fundamental reshaping of the global resource map to ensure a stable supply of precious metals, energy and critical minerals deemed strategically important for economic and national security.

The World Gold Council reports that, 'Gold is an important component of central bank reserves because of its safety, liquidity and return characteristics, the three key investment objectives for central banks. As such, they are significant holders of gold, accounting for around a fifth of all the gold that has been mined throughout history.'³

The website Discovery Alert, along with other news outlets that track and report on gold transactions, reported that in the last few years, 'Central banks worldwide have dramatically shifted their approach to gold, transforming from net sellers to aggressive buyers in recent years. This strategic pivot represents one of the most significant changes in international monetary management this century, with profound implications for the global financial system.'

Why is this a geopolitical issue? The US dollar is the global reserve currency. 'The primary driver behind this gold-buying spree is a strategic diversification away from traditional fiat currency holdings, particularly US dollar-denominated assets. After decades of relying heavily on the dollar as the world's primary reserve currency, many nations are actively reducing their exposure.'⁴

The World Gold Council recently reported that while the buying of gold slowed in July 2025, demand remains firm.⁵ Bloomberg reports that US gold reserves, the largest stockpile in the world, have surpassed \$1 trillion in value after gold's record rally.⁶

All of these factors only increase demand for many raw materials at a time when supply is already constrained by what sites can produce. Ultimately, if we can't grow it, we

have to mine it, and reserves are not uniformly distributed across the globe.

The Economic Pendulum

McKinsey & Co. estimates that critical minerals miners alone will require a \$5 trillion capital investment by 2035 to meet expected demand.⁷

This creates a powerful incentive to invest and grow, but if demand evaporates, as it did with lithium in the early 2020s, it could create an unstable equilibrium. This market volatility forces leaders into a difficult balancing act. The pressure to invest heavily to meet future demand clashes with the risk of being caught on the wrong side of a potential price collapse.

Add to this the depleting economics of mining. In the physical sense, this means running out of commodities to extract. Economic depletion occurs when a commodity becomes too expensive to extract and use profitably. The true threat is not that we will completely run out of a commodity in a physical sense, but rather that the economic viability of extraction will diminish over time.

Economic depletion occurs gradually as mining operations progress from easily accessible, high-grade deposits to more challenging, lower-grade resources. A position many established miners find themselves in today.

This progression inevitably increases production costs, requiring higher market prices to maintain profitability. When production costs exceed what the market is willing to pay, economic depletion effectively ends mining operations, even when physical resources remain in the ground.

The final economic element to consider is that when commodity prices rise, so do costs. Everyone is competing for the same pool of materials, experience and labour in a high-demand environment.

The Technological Arms Race

It's unclear what mines of the future will look like, but the lessons from history are clear. Those who can embrace innovation enjoy the benefits of the new technology and are typically able to buy competitors who couldn't keep up for cents on the dollar—that is, if there is anything worth saving.

The often-quoted example is when Blockbuster misunderstood the disruption that streaming services would create in their industry. It's well documented that Netflix offered to sell itself to Blockbuster for \$50 million. At the time, Blockbuster's CEO, John Antioco, believed in bricks and mortar. Today, Blockbuster is a relic of a bygone era, while Netflix is one of the largest publicly traded companies in the world.

Industrial Revolutions

The pace of industrial change is only accelerating. It took 120 years to go from the First Industrial Revolution to the Second. It took less than a decade to go from the Fourth to the Fifth. The pressure to adopt new technologies, from artificial intelligence (AI) and automation to new processing techniques, is immense.

When it comes to innovation and technology, the industry's adoption track record is poor. Ernst & Young found that 74 per cent of mining and metals executives say integrating new technology is a key challenge, compared to 37 per cent for all sectors.⁸ Miners are adding complexity to an already stretched ecosystem.

Part of the cause is that mining has typically favoured operational resilience at the expense of innovation and technology adoption. This deepens the existing tension; companies know they must innovate and adapt to survive, but each failed implementation deepens the cynicism on site and makes the next attempt even harder.

Go to any site, and you'll find every team and sometimes every engineer working off their own dataset. Rarely do we see a trusted, single source of truth, despite the volume of data generated daily on most sites.

With the emergence of the latest Industrial Revolution, labelled the Agentic Era, the need for organisations to be capable, agile and innovative without compromising operational resilience (known as adaptive capacity) has never been higher.

The supply side of this arms race also influences geopolitical and economic factors. AI data centres require significantly more raw materials, like copper, power and water to support their operations. Data is the new oil, and its security is paramount as computing power and data security are fast becoming national resources themselves.

The Curse of Unprecedented Times

'May you live in unprecedented times,' isn't a blessing; it's an ancient curse. So far this decade, the mining industry has felt this at full force. We have seen a global pandemic, historic supply chain disruptions, soaring inflation, cyberattacks, data breaches, compliance/regulatory changes, sovereign risk and wild commodity price fluctuations. These are not isolated 'black swan' events; they are the new normal. Each disruption adds another layer of complexity and uncertainty, making the need for reliability more critical than ever. This comes from resilient, adaptable and innovative operations.

These external pressures—geopolitical, economic and technological—amplify the execution gap, making the need to bridge it not just a competitive advantage, but a matter of survival. Mining companies that cannot successfully navigate these external forces will be doomed to the margins of history, like Blockbuster.

The Internal Erosion

The external pressures of a volatile world are amplified by a series of internal, human-centric challenges that have been quietly eroding the industry's foundations for years. A generational shift has created a workforce that has had a shorter on-ramp to experience, with less mentoring along the way.

The Brain Drain

With a systemic loss of institutional knowledge, mining is becoming a lost art, and it's only going to get worse, compounding the execution gap.

It's widely acknowledged that the higher grades of the past hid a lot of sins, so there was no burning platform for operational improvement. Better margins meant that operations didn't have to run as lean, so there were people in the organisation who would unofficially mentor and train others. If you had a question, you could 'go and ask Fred'.

Today's leaner organisations mean less on-the-job training; an obvious challenge for future generations.

A lack of investment in operational improvements in the past, combined with the lower grades and deeper mines of today, contributes to falling productivity and thinner margins. Thinner margins mean leaner organisations, so unless we can get in front of it, this will only become a reinforcing downward spiral.

Where has the current organisational wisdom gone? The simple answer is out the door.

First, it was the dot com crash, followed by the global financial crisis, the delayed impact on mining and, more recently, the Covid-19 pandemic. Each economic and commodity downturn has cleared out talent and the 'congealed wisdom' we used to find in mature mining operations.

While we still have the fundamental knowledge to land on the moon or build a steam engine, the specific manufacturing infrastructure, original components and undocumented 'tribal knowledge' have been retired or lost over time. In the same sense, we are also losing the art of running mine sites safely, effectively and efficiently. Many sites are trying to reinvent the common sense that used to be common practice.

Every round of layoffs has seen middle management disproportionately affected. 'Fred' has most likely retired and taken his experience with him. This knowledge that used to be taught on sites has not been passed on, leading to a shorter on-ramp for today's site leaders.

I spoke with Brie Anderssen, a Recruitment Manager for NES Fircroft, while researching this book to confirm the recruitment challenges affecting the industry. She said those who are still on site are spread thin and struggling to get business as usual done, let alone mentor more junior team members. The lack of availability of good people to coach and mentor is consistently brought up when speaking to current GMs. The desire to have the right support network around emerging leaders to support and coach was a common theme. If Fred still has a job, then he has little to no capacity to answer questions or assist younger team members. Fred is too busy doing his day job and meeting targets, so the up-and-comers reinvent the wheel. The costs of continually doing this add up, not just financially but in productivity, morale, disengagement, churn and operational risk.

I went to university during a mining boom and graduated into a downturn. My first graduate program took on a large cohort of graduates for a large processing plant project they'd recently won. Around the time we started, that project was put on hold by the client. We were fortunate that

the company kept us on for several months, allowing us to execute the pre-feasibility study internally. We learnt a lot, but I distinctly remember during that time how quickly the office became a ghost town. After delivering the study, we were told that not only was there no project for us, but also not enough engineers were left to supervise us.

We cut the fat, but we also lost a lot of muscle. When Fred left, he took the site's institutional knowledge with him. Now, small problems that used to be identified early and disappear quietly can become major production failures.

The Experience Gap

In terms of industry skills, industry recruitment experts are sounding the alarm on adverse industry trends and changes. They are already warning that there will be even more disruptive mining skill shortages as soon as 2030.

Deloitte's 2023 Global Mining Survey projected a shortage of 2.7 million skilled mining workers globally by 2030.⁹ Younger professionals are getting put into superintendent roles with only two to three years of experience, when historically they'd have ten to fifteen years of experience.

Ambitious and hardworking, today's GMs recognise that they got to their current role with less mentorship compared to earlier generations, along with the need to stay up to date with all the new technological advancements that are pushing the industry to new heights at an accelerated speed:

With the increased volatility of commodity demands stemming from an exponential growth of alternative energy sources and innovations, leaders today are taking on an increasing number of responsibilities, leaving little time for mentoring and coaching. This unconscious shift in focus from strategic priorities to daily operational tasks hinders

the development of emerging leaders. This isn't just a subjective observation.

With many professionals in the four- to eight-year experience level making a transition to renewable energy projects, the mining industry is losing a crucial part of the development chain.

This is all before even considering the industry's perception problem, which has seen a decline in those studying mining-related degrees or coming into the industry through other channels.

BRIE ANDERSSSEN

Recruitment Manager, NES Fircroft

As of 2020, the number of mining engineering graduates was approximated at seventy-five across Australia, equalling a decline of approximately 75 per cent from 300 graduates in 2015.¹⁰

'This steep decline has raised concerns across the industry, especially given the growing demand for mining professionals to support the energy transition and infrastructure development', Brie says.

No Path Forwards

We've heard from many current leaders that there's limited succession planning, training or quality mentoring available to them to grow into an executive role. Without a clear pathway up, several have expressed they are likely to leave their current company, with some thinking about leveraging their skills in a different industry altogether.

Brie shared with me that 'Emerging mining leaders tell us that with the need to achieve maximum results under increased pressure, professional development gets put on

the back burner. Everyone gets sucked into the vortex of the day-to-day business!’

It is not just that they are younger; the job is harder. With the increased volatility of commodity demands, leaders today are taking on an increasing number of responsibilities.

‘With the world under such strain politically, combined with the complex innovations taking place, the ability to influence and push through ideas that seem foreign to the leaders of yesterday is getting harder and harder,’ Brie confirmed.

Today’s emerging leaders are inheriting sites that require more work to bring them into the next age of digitally enhanced mining practices with less investment to do so. With that pressure, less time is spent providing quality training, and more time is spent ticking off check boxes than getting on with the job.

The Cost of Guessing

Emerging leaders are flying blind. They aren’t getting exposure to things that go wrong as they come through the ranks. Most of them have never seen what a well-run mine site looks and feels like. When they do get to those senior positions, there’s a lack of good people (Fred’s) to coach them.

We see this risk manifest most clearly in mine planning. It’s not uncommon to see junior engineers put into planning roles without a process in place and with very little training. You wouldn’t let a junior engineer spend millions of dollars without going through a capital expenditure (CAPEX) governance process, yet we let them play with planning rates as they see fit.

If that’s not problematic enough, plans are created in isolation, with the planners typically too busy to go underground to check the actual status. Even if the mining department tried to follow the plans, they are too far removed from reality.

They are doing their best, but they are guessing. And in mining, guessing is expensive.

The Political Game

This lack of experience leads to a specific type of failure. We have raised a generation of leaders who are technically competent but politically naïve. They can navigate a site, but not a boardroom.

In October 2023, my company interviewed a handful of former clients who had transitioned from superintendents to GMs, as well as a C-suite executive.

The former executive told us that 80 per cent of capital requests they received didn't meet muster. When questioned, the emerging leaders submitting these requests didn't know if their proposal was value accretive or value destructive. They couldn't explain the cost-benefit analysis; they lacked context for decisions, as a business analyst now often prepares that part in isolation. Emerging leaders haven't been set up for success in their roles; instead, they are expected to know how to do things.

The Cost of Naivety

I spoke with a manager who was unsuccessful in their application for an internal corporate role. The feedback was clear. It wasn't their technical skills or capability; they lacked the soft skills to play the political game. They didn't know how to market and sell their ideas to their superiors. They wondered, 'How can somebody in their late thirties in a senior leadership position get into a room with a seasoned executive and play their game if they have never been taught the rules?'

It's not just senior leaders feeling frustrated; even experienced executives have confided their inability to play the political game, leading to severe imposter syndrome.

The Translation Failure

One GM observed that people get promoted to a specific management or leadership level because of their technical ability but lack leadership skills. They estimated a further 5–10 per cent utilisation effectiveness if they had better leadership skills.

Because leaders cannot translate operational need into a compelling business case, the boardroom says no, and the site continues to struggle.

Stuck in the Middle

You can't just work harder. You need to change the conversation. You need to understand the different influences so that you can clearly articulate why the current approach is breaking the machine.

Potential and Performance

The disconnect between the site and the boardroom can feel like a language barrier. To bridge the execution gap, you need to be able to see through both lenses.

The boardroom does not see the daily friction. They are not caught in the day-to-day chaos. They see two things: potential and performance.

Potential is the revenue opportunity defined in the strategic plan. Performance is the production and cost.

In order to translate between the two, we need to understand what separates a company that merely performs, mostly meeting expectations, from one that achieves its potential.

Decades ago, Jim Collins and his research team embarked on a landmark study, analysing 1,435 companies, to answer that question. The results are immortalised in his book *Good to Great: Why Some Companies Make the Leap and Others Don't*.

It has become a canonical business text, precisely because it replaced mythology with facts.

The Doom Loop

When performance fails to live up to the potential, it's because capability has been overlooked. Addicted to lagging indicators, executives and leaders feel they need to be seen taking action, mistaking reactive for proactive. This instigates the search for silver bullets. As you'll see, this approach only contributes to the decline in Operational Capability, creating a destructive cycle: the Doom Loop.

In *Good to Great*, Collins described the Doom Loop as a cycle where companies lurch from one grand program to another, trying to manufacture a breakthrough.

Chasing tangible solutions, the heavy flywheel of operational performance gets pushed in one direction. After seeing no immediate result, it's stopped, and another solution is implemented, throwing the site's energy in a new direction. It's no wonder so many sites have such change fatigue and resistance to improvement projects.

The Flywheel

Collins and his team discovered that the process of becoming great is more akin to relentlessly pushing this giant, heavy flywheel of operational performance consistently in one direction. The first few turns are incredibly difficult and show almost no result. But with consistent, disciplined direction, turn upon turn, the flywheel builds momentum. Eventually, it reaches a breakthrough point where its own weight works in its favour, spinning faster and faster with seemingly unstoppable force. There is no single 'big push' that gets it going.

The companies that made this leap did so without a tangible fix. There was no single miracle moment, celebrity CEO

or revolutionary silver-bullet technology. The transformation was almost always a quiet, internal process.

Reliability is a Compounding Asset

Your job as the integrator is to explain to them that operational reliability is an outcome of the flywheel. It takes patient, invisible effort to build the systems, train the teams and fix the data. In the first few quarters, this work might not result in a massive jump in production; it might even look flat.

But this flat period is not stagnation; it is the accumulation of potential energy. It is the only way to break out of the Doom Loop.

Miners need to recognise the necessity and power of the invisible engine if they want to make the leap and transform from good to great.

The Quiet Transformation

In Collins' book, the journey begins not with a new strategy, but with a new type of leader. He calls them 'Level 5 Leaders', and they are not the charismatic, larger-than-life figures we often associate with success. Instead, they are a paradoxical blend of deep personal humility and an intense, unwavering professional will. They were, in the author's words, more 'plough horse than show horse'.

These leaders are frequently invisible precisely because their ambition was channelled into the company, not their own celebrity. They are focused on building an engine of success that will outlast them. Although Collins' definition of a great business is a lofty one, some brave companies have dared to strive for greatness.

Delayed Recognition

How do you survive the flat period without getting fired, or without losing the trust of the boardroom or the market?

The companies that made the leap all shared a peculiar psychological duality that Collins named the ‘Stockdale Paradox’, after Admiral Jim Stockdale, a prisoner of war (POW) in Vietnam. Stockdale noted that the POWs who survived maintained an unwavering faith that they would prevail in the end, while simultaneously confronting the most brutal, unvarnished facts of their current reality.

You too, must hold these two contradictory thoughts in your head at the same time:

- 1 **Unwavering Faith:** You must retain confidence that you will prevail in the end (that the strategic ambition is achievable).
- 2 **The brutal facts:** You must simultaneously confront the most brutal facts of your current reality (that the current Operational Capability is insufficient).

A good-to-great company won’t sugarcoat a bad quarter or a difficult geological reality. But this very honesty, this refusal to engage in wishful thinking, is what allows them to make the series of good decisions that lead to greatness. The transformation is frequently invisible to outsiders while it is happening. This is why the boardroom must understand the importance of the task at hand.

Operational leaders will fail if they pick one side.

- The optimist focuses on what the boardroom wants to hear. When they miss, trust in their ability to deliver is eroded.
- The pessimist focuses only on the brutal facts. They are often seen as not the right fit for the role.

The integrator does both, validating the boardroom’s ambition while using data to confront the reality—our operational debt is jeopardising the potential.

A Result, not a Cause

The moment production inflects and starts to consistently and sustainably grow is not the start of the transformation. It is the result of it. It is the final, lagging indicator of quiet, disciplined work consistently turning the flywheel. Of the eleven companies identified by Collins and his team that made the leap, those on the inside could rarely pinpoint the exact moment of transition. It was simply the culmination of thousands of small, disciplined actions. The breakthrough is merely the point where the accumulated momentum becomes undeniable.

Leading Indicators of a Flywheel

If you can stop the Doom Loop and buy yourself the time to push the flywheel, what exactly are you building?

You are building the discipline that makes executing and achieving strategic ambition inevitable.

- 1 **Disciplined People:** Does the company follow a ‘First Who... Then What’ philosophy? It’s about building a commitment culture. It means having the courage to ensure people act like owners and removing those who refuse to align with the values.
- 2 **Disciplined Thought:** This isn’t just ‘smart ideas’. It is about data integrity and strategic alignment. It is the refusal to accept ‘gut feel’ or ‘anecdotes’ as a basis for decision-making.
- 3 **Disciplined Action:** This isn’t just ‘hard work’. It is about lean processes and systemic adherence. It is the culture where ‘the way we work’ is followed even when no one is watching.

Strip the Overburden

To reach the orebody, you must remove the overburden.

The same is true for strategy. Before you can build the invisible engine, you must strip away the mental waste that is currently blocking your path.

Cognitive traps are not simple mistakes. They are deep-seated biases in thinking that create the very chaos, inconsistency and underperformance you grapple with daily. They explain the situation a superintendent found themselves in when a board approved a nine-figure CAPEX project while starving the very systems the superintendent needed to run it. It explains why we often see brilliant GMS hitting quarterly targets while quickly and quietly suffocating the site.

Until you learn to recognise these traps in your own thinking and in the culture of your organisation, any investment of time or capital will be compromised. The converse is also true: recognising and overcoming these traps, breaking out of the Doom Loop and fixing systemic issues creates huge operational leverage.

Here are the layers of overburden you need to strip away before the real value can be unlocked.

The Iceberg of Ignorance

There's a fundamental reason why current thinking is flawed: the information being used to make decisions is dangerously incomplete.

Leadership and management teams gather in off-site offices and boardrooms, believing they have a clear view of the operation through their spreadsheets, dashboards and reports. It's like trying to navigate using a low-resolution map from three months ago.

This is a phenomenon first identified in a landmark 1989 study by consultant Sidney Yoshida, who coined the term

the ‘iceberg of ignorance’. His research revealed an information gap of up to 96 per cent in most hierarchical organisations.

- **Top executives** are aware of only **4 per cent** of an organisation’s frontline problems.
- **Middle managers** know about **9 per cent**.
- **Supervisors** see **74 per cent**.
- **Frontline workers** (the operators, maintainers, and technicians) have **100 per cent** visibility—they live with the issues every single shift.

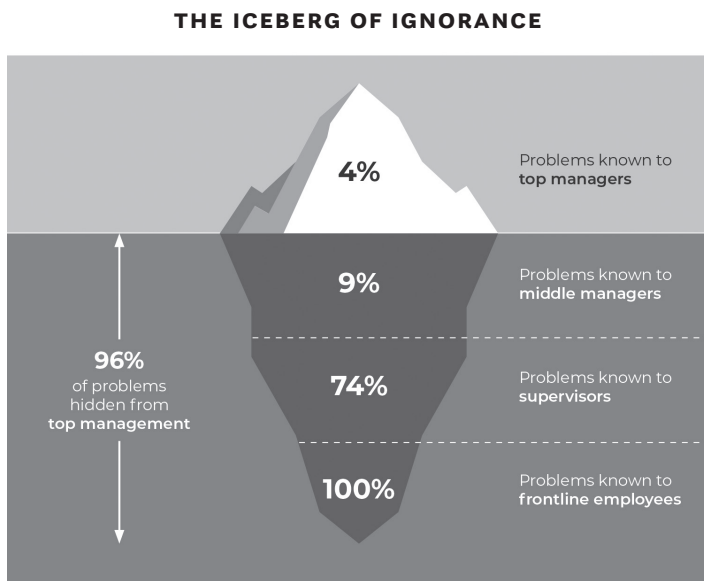


FIGURE. The iceberg of ignorance pictured above was adapted from Sidney Yoshida’s 1989 concept.

Ninety-six per cent of the issues, the small frustrations, the process workarounds, the near misses, the ‘we’ve always

done it this way' inefficiencies, remain hidden below the surface from the ultimate decision makers. They are the massive, submerged part of the iceberg. Invisible until it's too late.

I worked for a company that literally rolled out the red carpet whenever the CEO visited from head office. Engineering drawings were put away, flowers were ordered and additional cleaning was completed. Essentially, the entire office stopped delivering engineering projects while the CEO walked through the office and shook everyone's hand. A speech would be made about how bright the future looked, and then they were gone, along with the flowers, carpet and disruption to our day jobs. This is why decisions often feel reactive. Leaders are making critical, capital-intensive decisions based on a dangerously sanitised and incomplete version of the truth. People are unable to report bad news up the chain, so leaders are left driving the business by looking in the rearview mirror, reacting to lagging indicators like missed quarterly targets long after the opportunity for proactive intervention has passed.

Your job as the integrator is to **invert the iceberg**. You must find a way to make the invisible visible with data to show the board the 96 per cent of friction they cannot see.

Driving Through the Rearview Mirror

The iceberg of ignorance illustrates why the further away from the front line you are, the further away from the truth you get. This is partly because speaking truth to power is never easy. People generally put off reporting bad news because they fear the consequences, colloquially known as 'ass covering'.

Eventually, though, the truth comes out. It may be the production report that indicates another missed quarterly target. By then, it's too late. You can't steer a car by looking through the rearview mirror. Yes, you need to know where

you've been but, more importantly, you need forward-looking, predictive or, at the very least, leading information. Most mines focus on the lagging indicators or measure the wrong leading indicators, if any.

If your systems mostly focus on historical information—reports of what has already happened—your ability to predict the future will be limited to scrutinising trends and projecting them forwards.

On the other hand, if your team starts measuring the health of your systems and processes, they will be able to deal with any deviations before they become problems and impact the bottom line.

The reality is that most sites we've seen tend to ignore predictive indicators of success and are unable to accurately track the leading indicators, so they are forced to rely heavily on lagging indicators.

The Seduction of the Tangible

The human brain is wired to prioritise what it can see, touch and count. Under pressure, we default to the tangible. A new haul truck is real. A geological survey can be printed. A financial model is quantifiable. People, culture and systems, by contrast, feel abstract, messy and hard to quantify. This bias causes us to dramatically overvalue tangible assets while dangerously undervaluing the intangible systems that create value.

It is easier to defend an expensive asset that can be depreciated compared with a less expensive intangible operational improvement project.

For the leaders, this manifests as a constant plea for *more things*. More trucks, more people, more capital. It's a logical response; when your world is on fire, you look for a bigger fire hose.

But this focus on tangible resources prevents leaders from diagnosing the root cause: the broken system itself.

The Problem with Silver Bullets

To understand the problem with silver bullets, we must embrace a fundamental law of systems articulated by Dr Russell Ackoff:

If a system is taken apart, it loses its essential properties ... a system isn't the sum of the behaviour of its parts, it's the product of their interactions ... This means that if you improve the parts, the performance of the whole will not be improved, in fact, it often harms it.¹¹

In his address, Dr Ackoff goes on to provide a theoretical example about doing a study of every car on the market to identify which has the best engine, steering, tyres, and so on. Combining these parts to make the ultimate car won't work because the parts won't fit: 'The performance of a system depends on how the parts fit, not the actions taken separately.'

Theory of Constraints tells us that a system can only produce as much as its primary bottleneck. A site is a system based on the interdependence, cooperation and coordination of its elements. And yet, we still focus, optimise and reward functional success over the overall health of the system.

Thanks to the division of labour into functional departments, teams are incentivised to optimise their own silo, typically to the detriment of the processes upstream or downstream. KPIs are easier to measure within a silo, so we reward behaviours that, from a whole-system perspective, are often destructive or create bottlenecks.

As Eli Goldratt demonstrated in his seminal book on Theory of Constraints, *The Goal*, 'The closer you are to a balanced capacity chain, the closer you are to bankruptcy.' A perfectly optimised system with no buffers is incredibly fragile. Yet we continue to chase this illusion, leading to a predictable parade of failed fixes.

There are four categories of silver bullets that we commonly see. Only by understanding why these panaceas don't work are we able to appreciate the invisible engine and its effect on performance.

Failed Fixes

You have likely seen, or even led, these silver-bullet solutions. Each one promises transformation but delivers only complexity.

- **The Technology Bullet:** You invest in a new software (e.g. dashboards) or hardware solution (e.g. tablets). It's powerful, sophisticated and generates beautiful outputs, but the data going into it is unreliable because your underlying processes are broken. IT hasn't approved it. The operators haven't been properly trained on it or given time to adopt it, so they resent it as another piece of corporate interference. It's not been made part of how we work around here, so newcomers to the site just ignore it. Six months later, it's become an expensive program that you don't use, and nothing has fundamentally changed. At best, you've just added a layer of digital complexity over your existing operational dysfunction.
- **The Asset Bullet:** You get the CAPEX approved for an expansion (e.g. a new, larger processing plant). On paper, it increases your nameplate capacity by 30 per cent. But the same broken planning systems, the same undisciplined operational habits, and the same reactive maintenance culture from the old plant simply migrate to the new one. You soon discover you've just built a more expensive, less productive version of the same bottleneck. While the total throughput may have increased, the inefficiencies have scaled faster.

- **The Methodology Bullet:** You bring in consultants to roll out a new management philosophy: Lean, Agile, Six Sigma. Perhaps they focus on reducing one of the eight types of waste. They run workshops, create value stream maps and introduce new vocabulary. Your team nods along, but without addressing the deeper issues of leadership, accountability and culture. It's just jargon bolted onto your existing, broken system. The worst part is that they own the change, so as soon as they leave, so do the results and the organisation reverts to its old ways.
- **The Inspiration Bullet:** You read a leadership and management book like Simon Sinek's *Start with Why* or see Brené Brown's *A Call to Courage*. Leaders go to training, but this is isolated from their day job, so when they come back, they aren't held to account to practise what they've learned. Nothing changes because, as one executive put it, it's a once-off, like a sheep-dip, with no ongoing inoculation (mentoring).

Next time you are assessing a solution, think of the acronym TAMi to check if you've found another Technological, Asset, Methodology or Inspirational silver bullet.

The Visual Performance Centres (VPC) Fallacy

Toyota was a pioneer in operational excellence in the 1970s. Half a century later, we still assume that it is the best possible solution. While many concepts have stood the test of time, the execution must keep up with the times.

Take VPCs, for example. These persist as the format of daily production meetings due to two enduring fallacies, yet they rarely deliver the promised results.

The first fallacy is the persistent belief that quick meetings are good meetings. In many cases, this is true if they

are fast because they follow the five Ps of effective and efficient meetings. A short meeting is only a good meeting if it achieves the required outcome. If the meeting fails to achieve its purpose, it is a waste of time, regardless of its speed.

The second fallacy is the belief that handwriting things is more effective than digital data for all tasks. The pen is indeed mightier than the keyboard when it comes to things like creativity and recall. Unfortunately, creativity is the opposite of what you want when it comes to data accuracy or accountability, especially in a daily stand-up meeting.

The key reasons why, as a rule, most VPCs are holding site teams back, despite consultants singing their praises, are:

- They are not updated.
- Data comes with excuses wrapped in a narrative by the person providing it.
- The numbers are just plain wrong.
- They generally use static targets, which are often completely irrelevant. For example, we have seen target numbers plucked straight from the annual production budget that was developed over twelve months ago and are a pure work of fiction.
- They don't take the latest information into account.

To become the exception and run a highly productive and effective daily stand-up meeting, we recommend:

- Using technology that is more contemporary, such as Power BI or another software.
- Ensuring plans are dynamic.
- Using daily targets in stand-up meetings, which include all relevant intel to date.

- Including best practice visual reporting with:
 - A target of the same time horizon as the result and highlighted variance.
 - An explanation, by exception, describing why the target was missed or smashed. This is not to beat anyone up (although there is an accountability aspect to it as well), but to identify opportunities to improve.

If computers and screens were as cheap and abundant in the 1970s as they are today, or phones/tablets existed, Toyota would likely have used that technology instead.

The Marshmallow Test

Why is the incremental, silver-bullet approach so common when the evidence shows that holistic, transformational change is what delivers results measured in orders of magnitude?

It comes down to a simple human truth, famously demonstrated in the Stanford marshmallow experiment—we are wired for immediate gratification.

In the experiment, children were put in a room with a marshmallow. They were told that if they didn't eat the marshmallow, they would be rewarded with more later, what we now call *delayed gratification*. Initial results suggested that the ability to delay gratification in childhood was linked to positive life outcomes.

A small, quick win today feels better than a larger win tomorrow. That's why shifting to a truly transformational approach is hard. It takes longer to get started because it requires alignment across the entire organisation. It requires a sponsor at the right level with the courage to issue a mandate and stick with it for longer than a quarter. It requires patience and an unwavering vision of the future.

This is the marshmallow test for your organisation. Can you create a powerful vision of the future that helps to resist

the temptation of the quick, incremental fix in favour of the more difficult but far more rewarding work of building a competent system?

The Addiction to the Short-Term Fix

This is more than just responding to pressure; it is a powerful behavioural addiction. Hitting a quarterly target delivers a tangible win. It provides relief, a burst of recognition and a neurochemical reward that feels good. This creates a powerful feedback loop. The organisation becomes addicted to the feeling of short-term success, even when the actions required to achieve it destroy long-term value.

This is the Doom Loop of operational debt.

The Operational Debt Cycle

This addiction forces leaders into a vicious cycle of borrowing from the future. To hit this quarter's numbers, you defer critical maintenance (**technical debt**), burn out your A team (**human debt**), and compromise processes (**systemic debt**) or sterilise access to certain mining faces to access easy, quick and higher-grade ones (**logistical debt**). Once the easy mining faces are exploited, access to the one that was originally and logically scheduled is often impossible.

Like a high-interest loan, this debt compounds quietly, until it eventually triggers a catastrophic failure: a major safety incident, a critical plant failure, consecutive missed quarters, an org chart shake-up or a mass exodus of talent.

The Meritocracy Blind Spot

We believe we operate in a meritocracy where the most technically competent person should be promoted. This blinds us to the truth: an individual's suitability to the desired culture is infinitely more important than their technical skill. We fall into the trap of rewarding the wrong behaviours.

This often shows up in the use of deep expertise to dominate, bypass collaboration and create a culture of fear.

Poisoning The Well

Every organisation knows this leader. The hammer that thinks every problem is a nail. Sure, they address the big, visible issue, but leave a trail of smaller, less visible problems in their wake. By promoting this individual, you are making the most powerful statement about what you truly value: short-term results at any cost.

An industry peer told us about finally getting on site in a remote part of the world after a long mobilisation period. The site was in poor operational condition, and very early on in the project, the project sponsor, and one of the most senior people on site, said to the consultant, 'Don't ever use the c-word again.' They were talking about culture.

I worked on a project where team members scheduled their emails, rather than sending them right away, so the project director would think people were working at all hours and on weekends. You can imagine how this slowed everything down as correspondence and requests for information/files/access now took days, not hours.

These are the people who flourish and stay at everyone else's expense. The remoteness of sites can make personnel churn very expensive, and yet we continue to ignore the source of the problem.

The True Cost of the Blind Spot

The cost isn't just poor morale. It's the systematic dismantling of feedback loops. When people are afraid to speak up, you have institutionalised the iceberg of ignorance. The challenges your frontline deals with every day will never reach you until they are too big to ignore. Your best, most collaborative people will leave. Your capacity for innovation

will evaporate. And you will have created a culture that is fundamentally incapable of the trust and psychological safety required for high performance.

The Fallacy of Passive Improvement

The fallacy of passive improvement is an unconscious belief that systems, if left alone, will either remain stable or naturally improve over time. This is a fundamental violation of the second law of thermodynamics. Entropy dictates that without a constant, deliberate input of focused energy, any system, be it a process, a team or a culture, will naturally degrade into a more chaotic and disordered state.

This fallacy explains why most change initiatives fail. A project is launched with a burst of energy, but there is no plan for the continuous, methodical effort required to sustain it. There is no formal ownership. The project becomes a temporary intervention, after which things will return to normal. But in the face of entropy, there is no stable normal. There is only improvement or decay.

Writing this part of the book over the festive period, I can't help but see the similarities to New Year's resolutions. There's excitement and an overcommitment in December, a big intervention in January, but there is no thought about making it sustainable, so by February, it's been abandoned. The gyms are empty and diets are forgotten—at least until the following January.

The Change Fatigue Spiral

When an initiative is allowed to decay, it does more than just fail; it inoculates the organisation against future attempts at improvement. Take the New Year's resolution example. This typically leads to a belief that 'I've tried it, and it didn't work for me'.

Failed change or initiatives feed cynicism and validate the belief that ‘this too shall pass; all I have to do is wait it out’ or ‘that won’t work here’. Each failed attempt makes the next one exponentially harder, requiring a far greater input of energy to overcome the accumulated scepticism. This is the very definition of change fatigue. Eventually, you start to believe that these approaches just don’t work for you, so you go searching for the next silver bullet.

CHAPTER SUMMARY

The uncomfortable truth in mining is that despite record investment and effort, the mining industry is stuck. Productivity is down, targets are missed, and leaders are burning out or leaving for other industries. This is not a failure of individual effort. It is a systemic failure caused by the execution gap: the void between the boardroom’s ambition and the site’s Operational Capability to deliver it.

In Part 1, we diagnosed the forces widening this gap:

- **The Squeeze:** the external pressures are increasing strategic ambition, while internal pressures are eroding operational maturity, making it harder for sites to deliver.
- **The Disconnect:** Boards see potential, while sites experience high operational drag. This disconnect leads to the Doom Loop, a reactive cycle of lurching from one silver bullet to another.
- **The Overburden:** We identified the cognitive traps, like the iceberg of ignorance and the seduction of the tangible, that blind us to the root causes of underperformance.

You cannot buy your way out of a capability problem with new trucks, new software or new posters on the wall. Every time you try, you simply incur more operational debt.

As an operational leader, you must break the cycle. Stop being a reactive operator and become an operational integrator. It is you who must advocate and build the bridge between strategy and execution.

Having cleared the overburden and exposed the traps, you're probably wondering what exactly makes up the invisible engine?

In **Part 2: The Invisible Engine**, we will deconstruct Operational Capability. We will move beyond the vague definitions of the past and define the concrete elements required to assess and communicate the value of a resilient, high-performance operation.

KEY TAKEAWAYS FOR OPERATIONAL LEADERS

- **You cannot outwork a broken system.** If you are relying on heroics and workarounds to hit your targets, you are not managing an operation; you are managing a crisis.
- **Selling 'risk'.** Increasing operating expenses is hard to justify as cost is closely reported. You must instead translate operational friction into operational risk.
- **Beware the silver bullet.** Technology and assets are force multipliers, but they multiply what you already have. If you add digital complexity to a broken process, you scale the chaos, not the solution.
- **Be the translator.** Your job is not just moving dirt; it is moving information. You must invert the iceberg of

ignorance, so the boardroom can understand the true reality of the operation.

BOARDROOM TALKING POINTS

- **Potential is not performance.** Operational Capability is the engine that validates strategic ambition. If you starve the engine, you starve the plan.
- **Reliability > Speed.** Pushing for a quarterly production spike often destroys the long-term reliability of the asset. The goal is to build a flywheel.
- **The greatest asset isn't in the ground.** Culture, leadership and processes are not nice-to-haves. They are the invisible infrastructure that determines your ROI.

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