Safetytech Accelerator

INSIGHTS

Investing in Emerging Technology in High-Risk Industries

A 6-Step Guide for Innovation Leaders

Contents

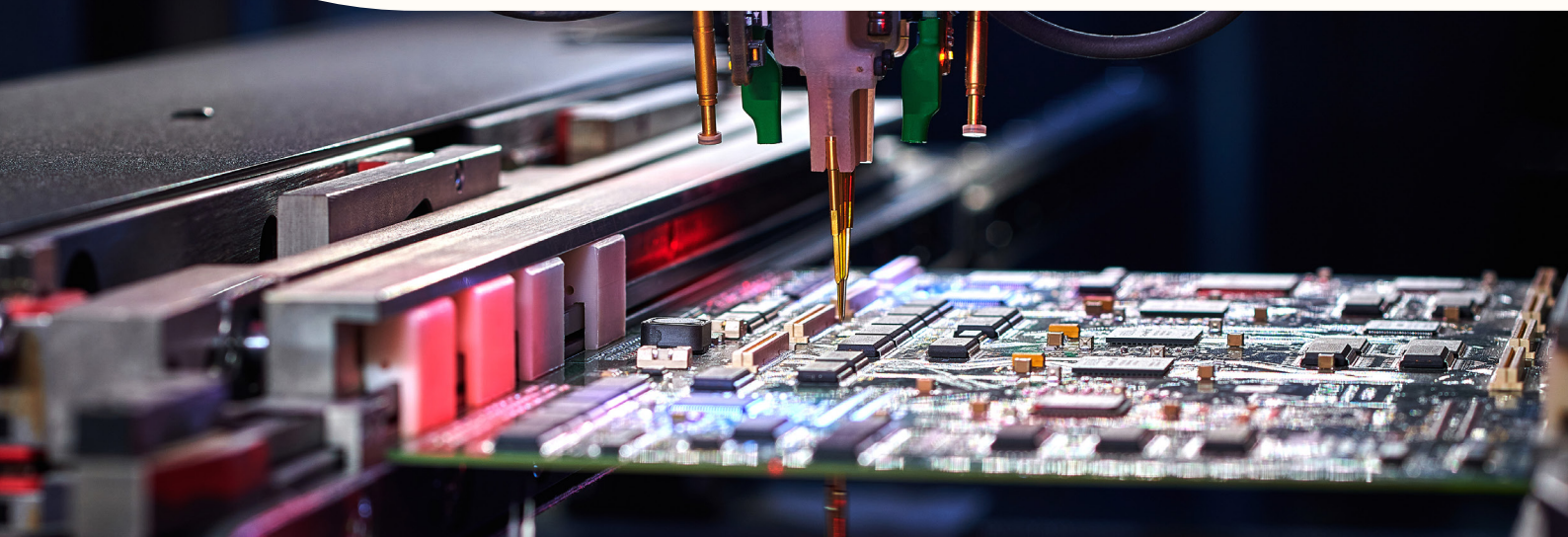
Introduction

Innovation is often portrayed as bold leaps and moonshot bets. But in reality, successful innovation in high-risk industries is built on disciplined experimentation, problem-solving, and strategic execution.

The companies that get it right aren't the ones chasing technology for technology's sake, they're the ones testing small, learning fast, and scale only what proves its worth.

This guide cuts through the noise with step-by-step advice on when to build or buy, how to pilot-test, and where calculated risk pays off. Which ideas deserve a pilot, and which belong on the shelf? It challenges comfortable assumptions about ROI, risk appetite and cross-industry learning, ensuring investment lands where it counts.

Pair measured experimentation with operational alignment and adaptability, and innovation shifts from buzzword to dependable growth engine. Begin by mapping small-scale experiments to strategic goals and scaling only what delivers clear value.



STEP 01

Build, buy, or integrate?

When considering a new technology investment, innovation leaders are faced with three options:

- **Build**
- **Buy**
- **Integrate**

From the same seed of an idea, each choice can form a radically different business case, affecting cost, ease of deployment, and differentiation. The right decision depends on a sprawl of factors and dependencies, both internal and external, that need to be weighed and measured against your project and organisational needs.

Which route best matches your goals and constraints? Weigh cost, timeline, and differentiation side-by-side, then move forward with the option that scores highest on strategic fit.

When to Buy

BUY: Purchase existing technology to solve your challenge, sometimes called 'off-the-shelf.'

Buying is often best when the following requirements are important:

- Speed to solution
- Access to proven technology
- Lower risk and effort
- Predictable costs

Buying enables rapid implementation while leveraging the expertise of established vendors. When a problem has been solved multiple times and a mature market exists, buying is often the most efficient path. Though perceived as the safest option, emerging technologies still carry risks, partnering with experienced market leaders helps mitigate these and accelerates adoption.

'When you have both time and the money, and you're fighting for market leadership from an already strong position. You're comfortable owning and maintaining a complex tech stack that's critical for your market differentiation.'

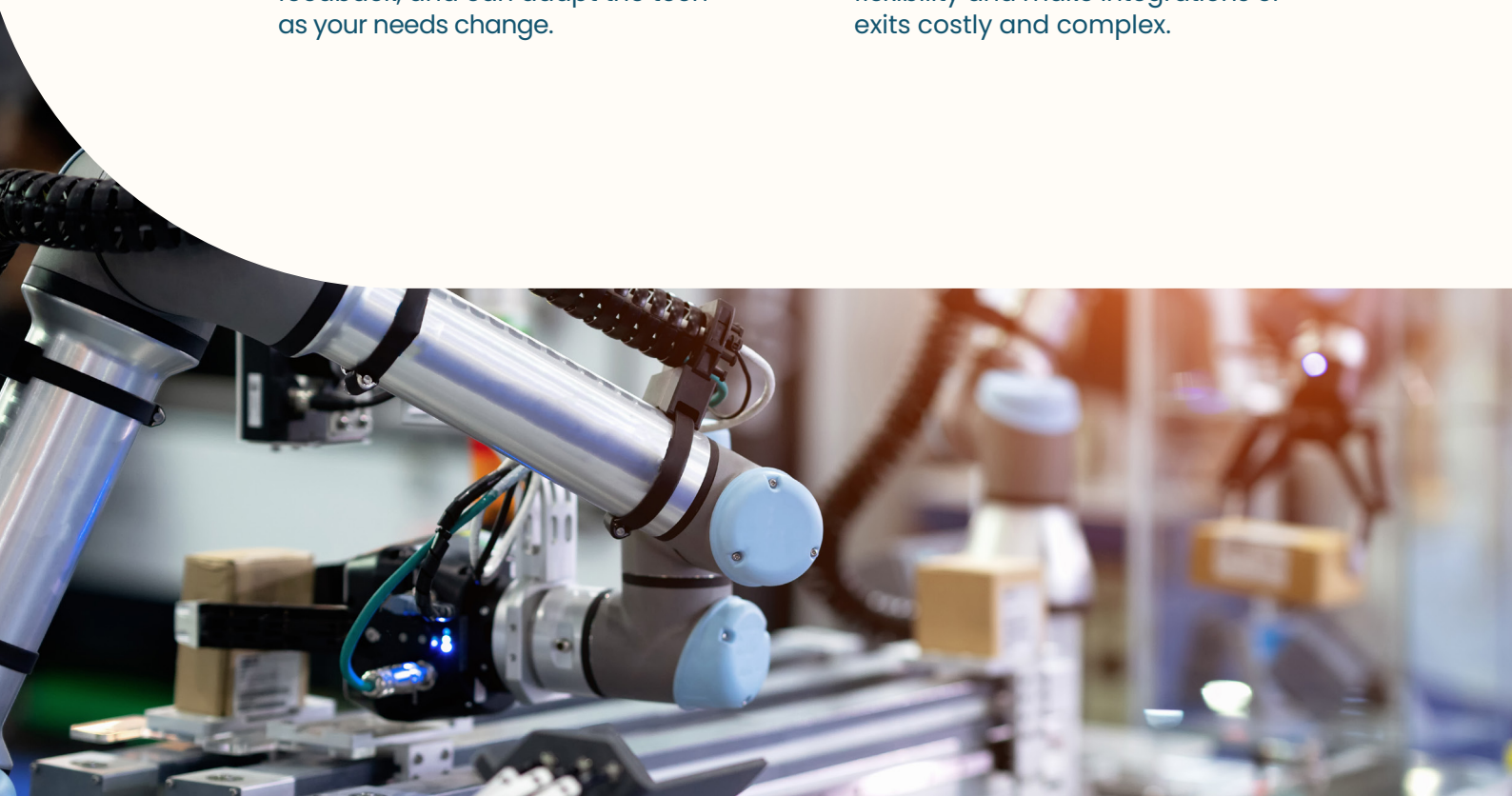
When to Buy

What to look for

- Choose vendors that combine hardware and so ware into a complete solution. Value comes from how data is captured, analysed, and used not just the components.
- Look for real-world case studies, especially in your industry. Vendors should show their tech works at scale and delivers outcomes, not just potential.
- Good partners don't disappear after the sale. Prioritise vendors who provide training, integration support, and stay involved. Commitment is key to long-term success.
- Vendors who actively evolve features, improve their offering, respond to feedback, and can adapt the tech as your needs change.

What to look avoid

- Some vendors just rebrand cheap tech without adding real value. Unless they provide genuine integration and support, they're not true partners, just middlemen.
- Expensive doesn't always mean better. Some low-cost tech performs just as well when properly integrated. Focus on proven value, not just the brand or price tag.
- Avoid solutions that can't evolve. Your needs, and the tech landscape, these change. Choose vendors who can adapt, upgrade, and grow with you over time.
- Avoid data-lock-in. Vendors that keep information in proprietary formats or restrict API access limit flexibility and make integrations or exits costly and complex.



When to Build

BUILD: Commission of research and development of a brand new in-house technology solution.

Building is the preferred choice when seeking the following:

- Competitive differentiation
- Full control over technology and deep integration
- Problems that haven't been solved before

Building allows you to tailor solutions precisely to your needs, ensuring the technology evolves with your strategy. While it's resource-intensive and complex, it offers unmatched flexibility and the chance to develop truly unique capabilities.

'When solving an immediate, time-sensitive challenge is your priority and differentiation is not an important factor. If it already exists on the market, ask yourself why you're not just procuring.'

When to Build

When to build

- When off-the-shelf solutions don't exist, a sandbox allows for rapid testing of bespoke approaches, preventing unnecessary large-scale builds.
- Building in-house provides unique capabilities that set you apart, allowing full control over tech evolution and strengthening your market position.
- Custom solutions integrate seamlessly with existing platforms, avoiding inefficiencies from disjointed systems.
- When regulatory or data-sovereignty requirements demand full ownership and on-premise security controls that off-the-shelf vendors cannot guarantee.

Risks

- Custom development is resource-intensive and requires long-term maintenance, which must be factored into the financial strategy.
- Bespoke solutions may quickly become outdated, especially if market alternatives provide similar features.
- If an off-the-shelf solution meets most needs, custom development may be unnecessary and inefficient.
- Custom solutions need regular updates, and poor planning can lead to outdated systems with high maintenance costs.

When to Integrate

INTEGRATE: Purchase existing technologies and bring them together in new ways.

Integration is a viable route if:

- You already have a mature tech stack and you want to grow it
- The solution to your challenge partly exists on the market but needs refinement
- Separate technologies exist that can solve individual challenges but when integrated, offer a cohesive solution.

If no single vendor can address your requirements through existing technology, but by combining several individual products you can realise new capabilities and provide a cohesive solution, integration can be a viable middle ground between 'build' and 'buy.'

Integration considerations

Addressing the right challenge: If a single solution does not exist, ask why. Are you really the first to tackle it, or is the problem you're looking to solve not the right one?

The middle ground: To some extent, integration carries the limitations of buying off the shelf as well as the long lead time of building it yourself. Whilst it's not as expensive, the demands on your time and internal capabilities are significant and must be factored in.

Multiple supplier risk: Integration will introduce more parties than building or buying. When you integrate multiple products into one solution, you combine the liabilities, risks, and relationship management of multiple suppliers into one. Therefore, you need complete confidence in all of the products and providers involved.

'When you need to bring together several existing solutions in a novel way, to address a larger more complex issue'

Integration in practice – Mining Industry

Call for Change

After every blast, the mine had to detect unstable rock before crews could re-enter. Two critical barriers stood in the way:

- No single vendor solution. Existing products spotted rock movement or heat anomalies, but not both, and none automated barring-down.
- High-risk inspection window. Manual checks kept workers in the collapse zone for up to two hours per blast, creating an unacceptable safety exposure.

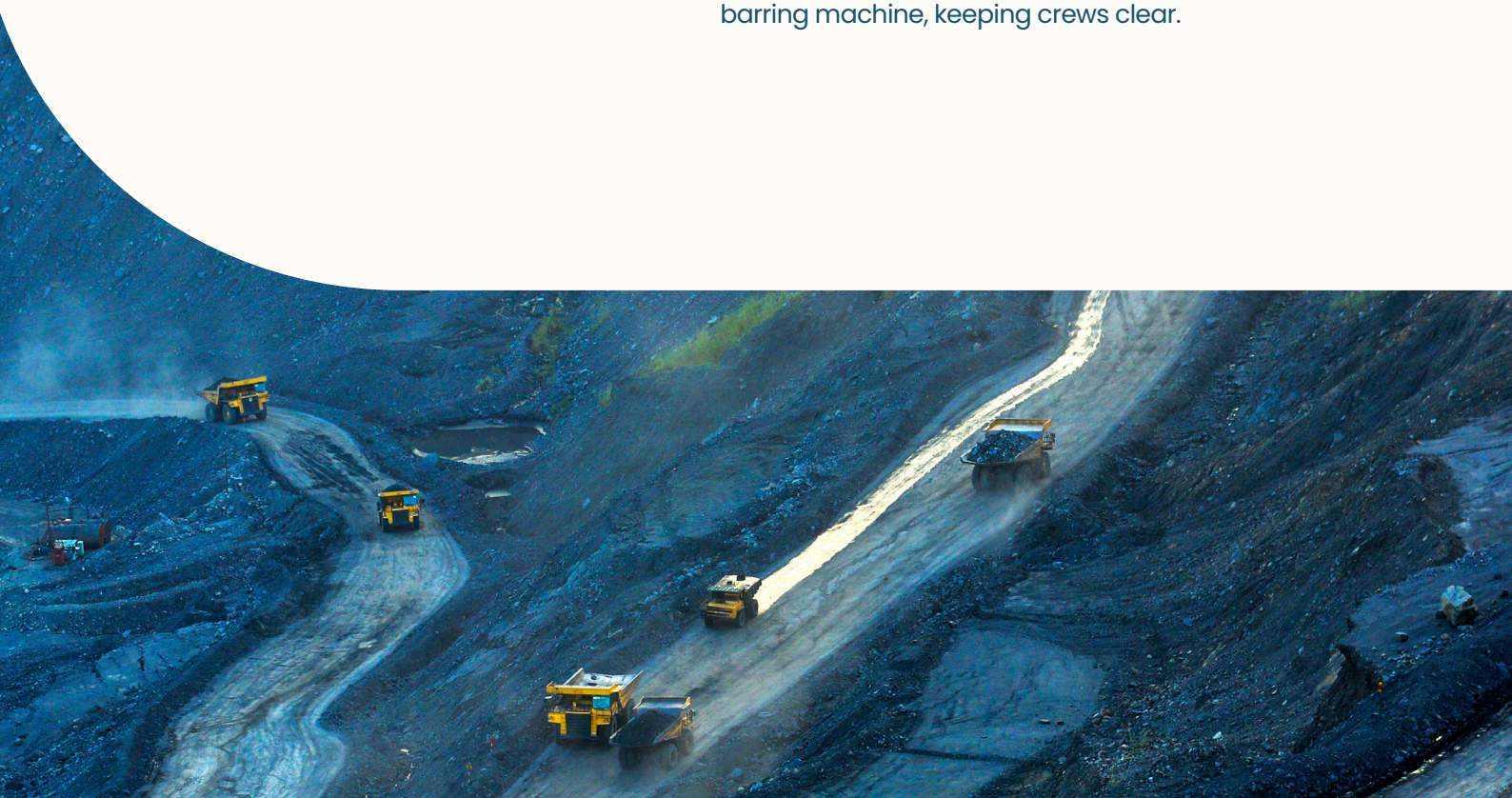
Approach

Five mature technologies, drones, LiDAR, thermal imaging, acoustic sensors and AI were orchestrated across three specialist vendors.

- Drones
- LiDAR scanning
- Thermal imaging
- Acoustic sensors
- Artificial intelligence

A Valuable Integration

Testing confirmed that an infrared-equipped drone, paired with LiDAR mapping, detects loose rock via subtle temperature shifts. Machine-vision models flag high-risk zones on a geo-located risk map. A tracked drone then taps the roof, and an AI interprets acoustic signatures to verify instability. Hazards are removed by an automated barring machine, keeping crews clear.



STEP 02

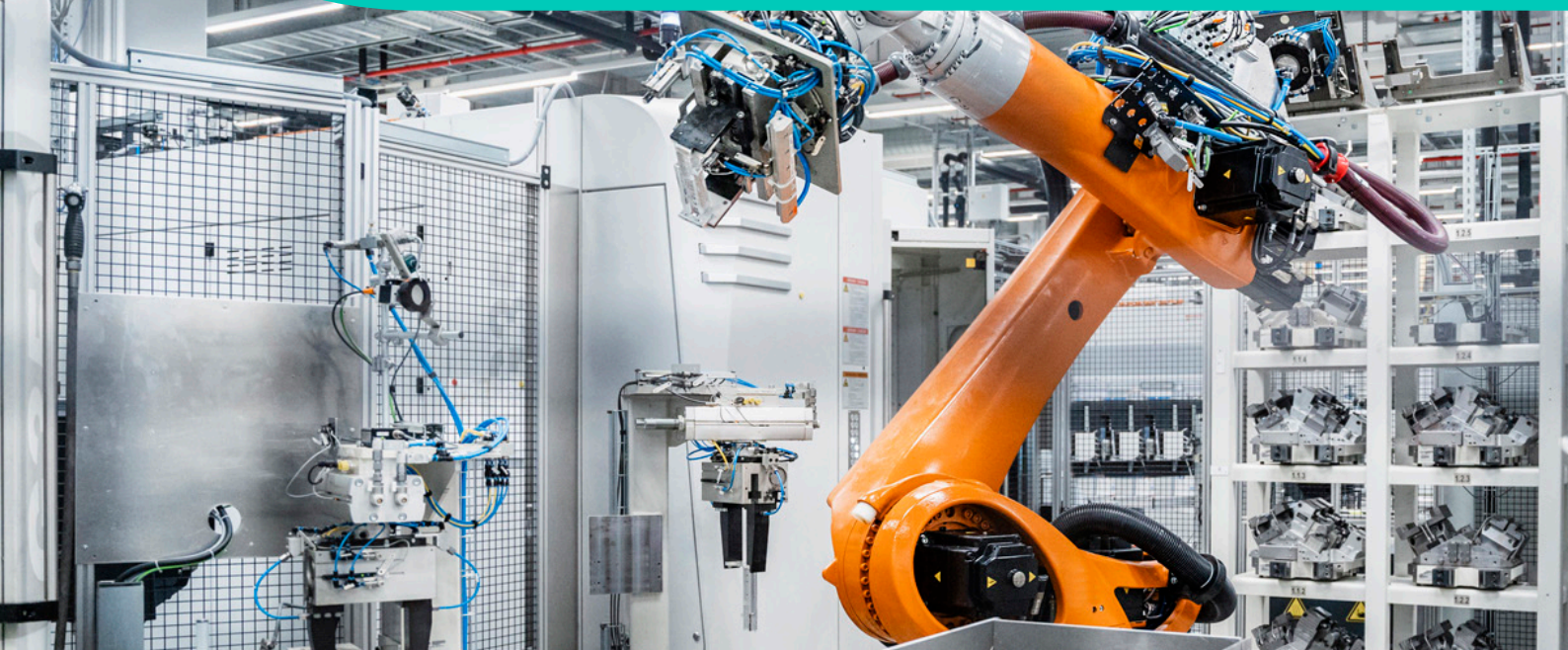
Test small, test scientific

Innovation headlines often focus on grand bets, but true success lies in small, high-quality tests, not just scale.

The focus is often on bold bets and massive investments. Yet, in reality, success is rarely about scale, it's about the quality of the testing process.

A disciplined, data-driven approach, focused on rapid, iterative experimentation, enables better decision-making. By prioritising quality over quantity, you de-risk innovation, maximise learning, and ensure only the most promising solutions receive full-scale investment.

Start with one low-cost pilot and measure learning velocity before unlocking further investment.



The Case for Starting Small

A highly scientific £10k test stands to yield much better results than a large investment, purely because it's designed to create answers to a small number of key questions.

The more questions, the higher the investment, the more unpredictable the test.

For an organisation looking to coordinate an innovation portfolio, conducting numerous small POCs at <£20,000 can be far more valuable than a few large pilots that may not deliver proportional benefits.

The challenge? This will often fly in the face of established corporate governance, finance, and procurement protocols, and also be at odds with the vendor, who will want to drive bigger sales more quickly.

To embrace the philosophy of smaller tests requires buy-in from cross-functional teams, from management through to finance, and may demand stakeholder engagement for senior individuals who don't initially understand its merits.

Fortunately for your timescales and budget, the inherent low-cost and rapid results of small-scale testing means that convincing any opposition can often be achieved quickly and economically.

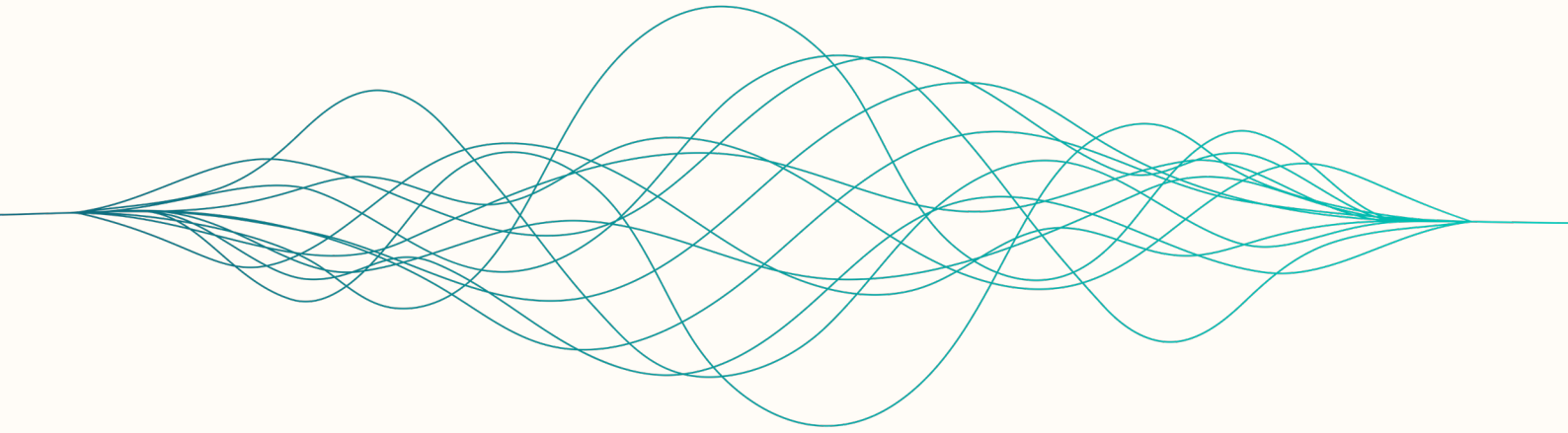
Success should be about answering critical questions you have about the demand, value and feasibility of a solution.

Small Testing Big Advantages

Risk reduction
Smaller investments minimise potential losses if a technology doesn't perform as expected.

Iterative learning
Each test provides insights that inform subsequent experiments, leading to better outcomes.

Resource optimisation
Limited funds are allocated more efficiently, on the projects with the highest potential.



Four Requirements for Successful Small-Scale Testing

01 Flexible & forgiving governance → **02** Vertical experimenting, horizontal scaling → **03** A network of early adopting champions → **04** Feedback & continuous improvement loop

01 Flexible & forgiving governance

Effective innovation requires agile governance. In particular, small, scientific testing needs incremental funding, rather than large upfront commitments. Don't stifle creativity by tying up resources in unproven solutions. Agile governance empowers experimentation (leading to more successful outcomes) and reduces risk (by funding projects based on performance milestones).

Cross-functional collaboration is also crucial. Diverse multi-departmental teams, and clear alignment on success criteria, are vital to securing the commitment and resources necessary for innovation to thrive.

02 Vertical experimenting, horizontal scaling

Prove your solution in a single, well-defined operational vertical before expanding. This approach allows for deep insights into operational issues, user acceptance, and potential blockers in one environment, ensuring that challenges are identified and addressed before scaling up to other areas or sites.

Four Requirements for Successful Small-Scale Testing

01 Flexible & forgiving governance → **02** Vertical experimenting, horizontal scaling → **03** A network of early adopting champions → **04** Feedback & continuous improvement loop

03 A network of early adopting champions

Build a small, dedicated group of core users who are engaged from day one. These early adopters act as innovation champions, shaping the solution to fit real operational needs. Their buy-in is a critical success signal, ensuring the technology is practical before wider rollout.

Your first pilot might involve just five people, not 500. Too many users too soon creates chaos: how will you collect meaningful feedback? How will you keep users engaged? What happens when frustrated users drop off from missing functionality, forcing you to win them back?

If the solution works, adoption should spread organically – five becomes ten, then thirty. If operational teams aren't recommending it to their peers, that's a red flag. A successful pilot creates demand naturally, turning early users into advocates rather than sceptics. Keep the group engaged, refine the product, and let momentum build before scaling.

04 Establish clear feedback loops & continuous improvement

The nature of repetitive small tests demands continuous feedback and iterative improvement. Introduce mechanisms like regular reviews, stakeholder workshops, and user feedback sessions. These will identify what works and what doesn't, in real-time, enabling rapid adjustments and keeping your development agile.

‘If operational teams aren’t recommending it to their peers, that’s a red Flag’

Throughout this process, keep the testing philosophy simple and consistent by focusing on three core questions – regardless of scale, sector, or application, maturity of the testing:

01 Demand
Will our people actually use this? Is there pull from operations, or are we pushing something they don’t want?

02 Value
Will the value it creates justify the total cost – not just the price tag, but the time, resources, and complexity it adds?

03 Feasibility
Is this practically feasible within our organisation – not in theory, but in reality, with the constraints we’re working under?

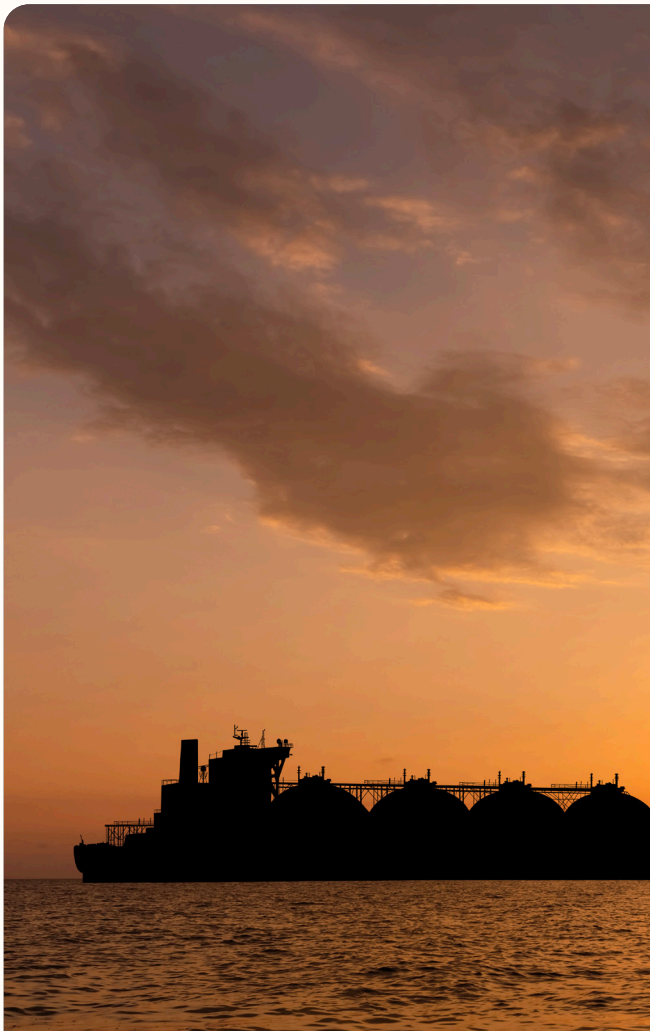
As ideas move through your innovation funnel, these questions should keep being asked, requiring increasingly rigorous evidence to justify continued support, resources, and funding.

For example, in addressing operational demand, you might initially gauge interest using a simple concept test or adcept* and gather feedback through quick interviews with key stakeholders. Early positive feedback can provide valuable insights and suggest sufficient demand.

However, as the idea progresses, more detailed user testing, evaluations, and deeper analysis will be needed to determine if there is true operational buy-in.

While the level of scrutiny intensifies, the core questions remain the same.

**Adcept is a tool used in marketing & advertising development to test creative ideas or brand positioning. The term is an amalgamation of the words ‘advertising’ and ‘concept’, indicating its role as a halfway stage between a concept idea and an advertising execution.*



Nanotechnology & AI for scent detection on ships

Exploring uncharted applications of technology requires careful planning and staged investment. When considering Nanotechnology and AI for detecting hazardous odours on ships, a novel use case, the project applied the following approach:

01 Initial Research and Evaluation

Minimal Investment: Focused time and resources on evaluating the technology's potential, reviewing existing applications, and assessing proof points. Due diligence included supplier discussions and technical reviews.

Supplier Assessment: Evaluated the supplier's capabilities, operational experience, and willingness to collaborate to ensure alignment with operational needs.

02 Operational Feasibility Study

Site Visit: The supplier visited a ship to assess environmental conditions, installation challenges, and operational factors like airflow, and environmental factors that would influence performance.

Stakeholder Engagement: An operational lead drove the project from the start, identifying use cases and continuously evaluating risks and deployability to ensure real-world feasibility.

03 Proofs of Concept

Lab Testing: The project conducted controlled experiments to verify that the sensors could detect the specific odours of interest and compared the responsiveness to existing methods e.g. smoke detectors for fire.

On-Ship Testing: Deployed sensors on a ship to observe performance in real-world conditions, assessing factors like environmental interference and data reliability.

04 Criteria Evaluation

User Adoption: Gathered feedback from crew members to assess usability and acceptance.

Value Analysis: Compared detection speed and accuracy against existing methods.

Scalability Assessment: Evaluated the practicality of installing sensors fleet-wide.

By systematically addressing key testing questions at each stage, the organisation minimised risk and made informed investment decisions. The company refined its product in line with real-world use cases, co-funding research and development with its customers. The project is now scaling up to industrial-scale piloting.

STEP 03

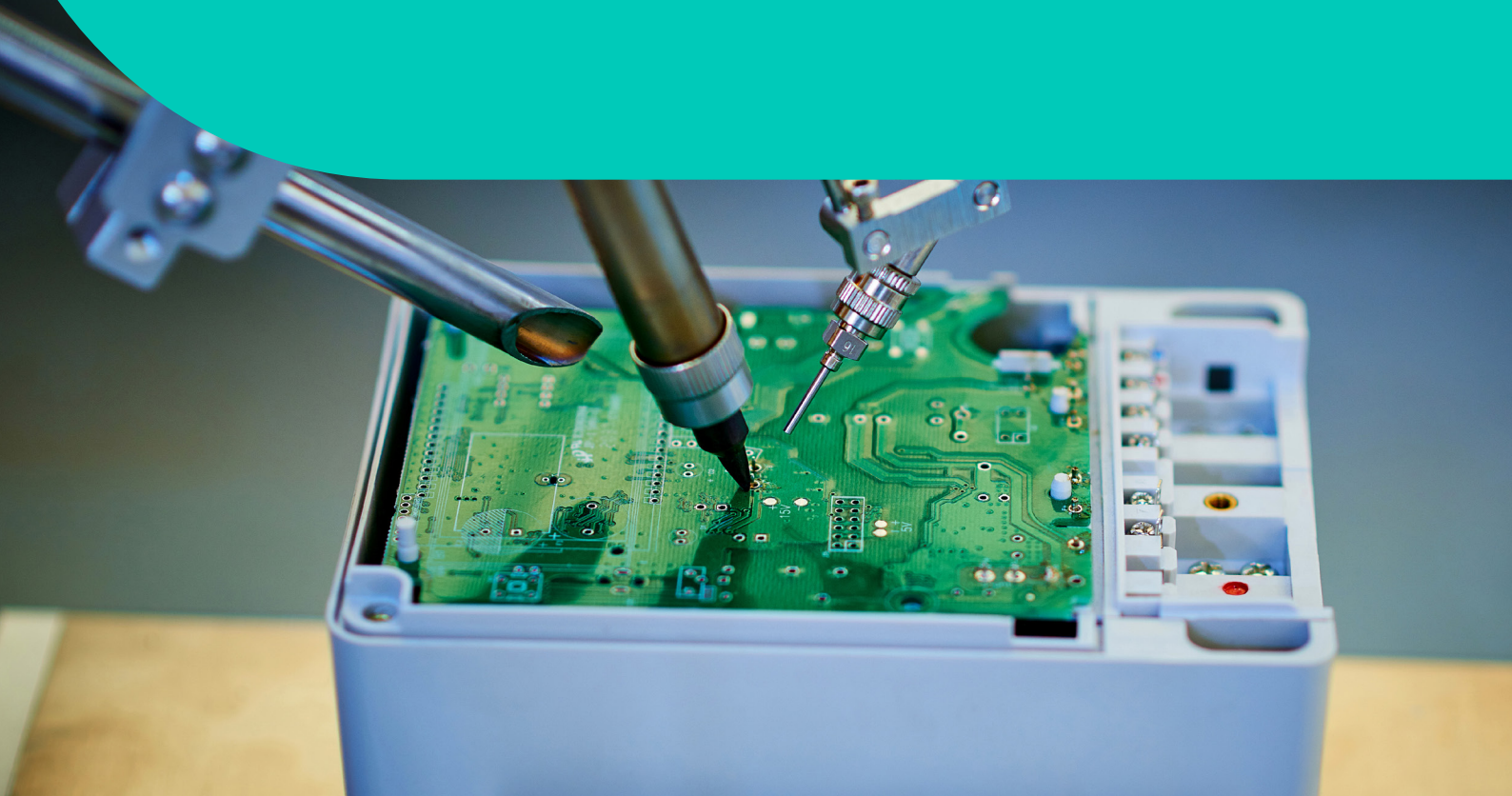
Be led by the problem, not the technology

In high-risk industries and heavy sectors, the market is flooded by vendors pushing new tech that isn't tailored to a challenge. From AI models to VR devices, these are solutions in search of a problem. Your job is to be the biggest tech sceptic, while also being its biggest advocate.

Because when technology is deployed without a clear understanding of how it relates to real operational needs, it creates a scepticism that can prevent adoption when it's truly relevant and required.

To avoid this, it is critical to understand (and communicate) the strategic value drivers that shape business outcomes, long before beginning the search for technology. If indeed technology is even the answer at all.

List your top operational pain points, convert each into a measurable value driver, and use that to screen every technology pitch before engagement.



Define something worth solving

The problem you're trying to solve must:

- Be real
- Be measurable
- Be directly tied to operations
- Have clear ownership
- Have a defined ROI

Identify where value can be unlocked

The foundation of any transformation is the strategic outcomes your organisation is looking to achieve. Start with simplified value statements.

These high-level overviews capture key business objectives, both in terms of delivering services/ products and in avoiding negative outcomes. For example, an operational organisation might prioritise minimising workforce injuries or reducing lost time, while also focusing on increasing production throughput.

Narrow your focus to a handful of critical outcomes that align with your current objectives for the project.

Map your value drivers

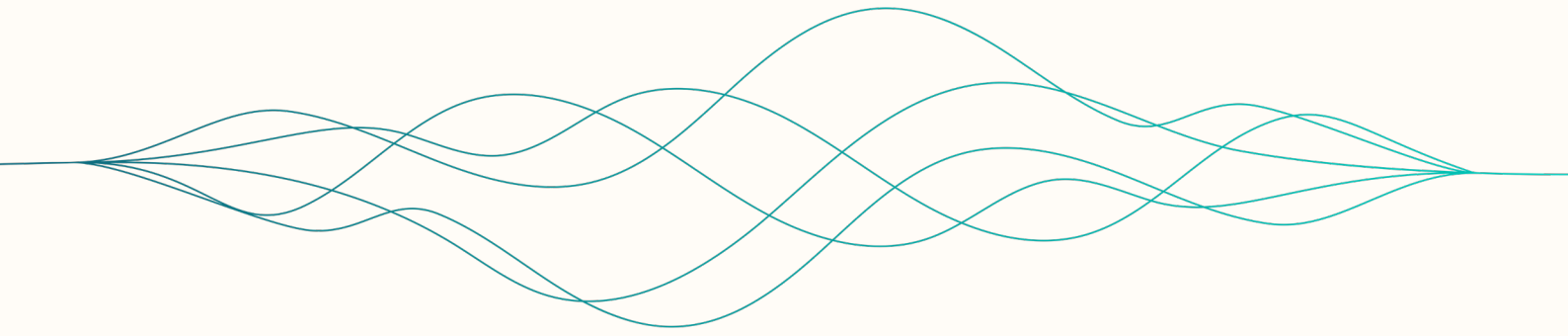
The next step is to map the factors that influence these outcomes. These value drivers could be internal (process efficiency, employee behaviour) or external (regulatory pressure, supply chain disruptions).

Understand which drivers have the biggest impact and occur often, then further refine your goals and the business outcomes you seek.

Crucially, the problem must be addressable by emerging technologies.

The best solution can often lie elsewhere e.g. through changes in process or procedure.

So, before committing to a solution, validate that your problem is both worth solving and is solvable with technology.



Define something worth solving

Determine what you can influence

Next, map out the critical decisions and inflection points where you can actively influence your value drivers. Identify where you have the greatest leverage. For example, if your challenge is crane collisions with workers, you might focus on two key intervention points:

- **Worksite Design:** Can the layout prevent a crane from ever reaching a worker in the first place?
- **Point of Impact Prevention:** Can the crane detect a worker and stop before a collision occurs?

This approach applies to almost any challenge or opportunity: identify where you can exert real influence and focus your efforts there.

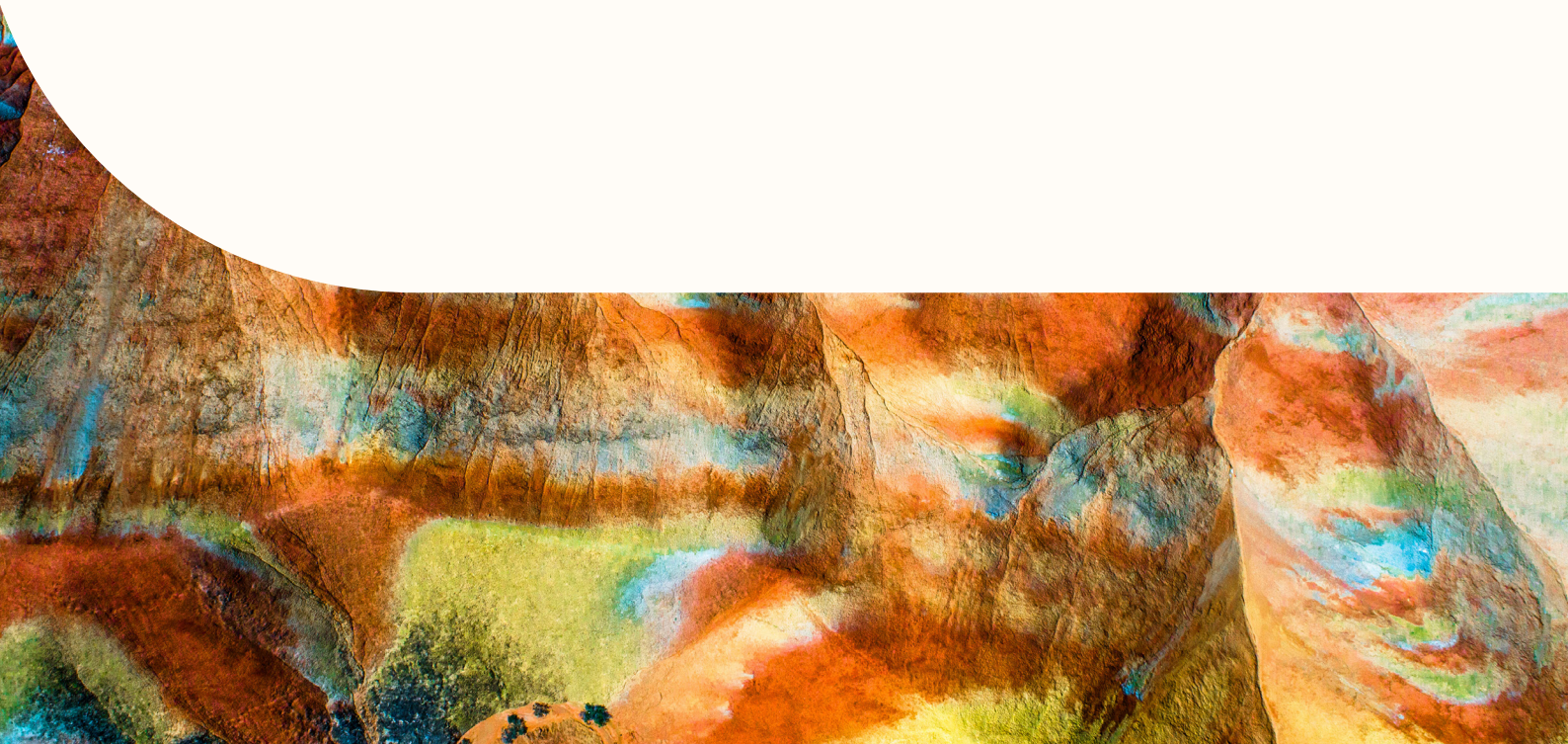
By focusing on these critical decision points, you ensure that any future intervention, whether technological or procedural, has a clear pathway to impact your desired outcome.

Work out what insights you need to deliver those decisions

The next step is to identify the specific insights and knowledge you need to support these decisions. This is critical because the right insights enable good decision-making, while a lack of actionable data can lead to missed opportunities or poorly informed choices.

Think of this as defining what 'good information' looks like in your specific context. In the crane example, the two things that need to be understood are: could a crane feasibly interact with a worker during its operational period and secondly, is a crane about to hit an operative?

For each decision point, ask yourself: what do you need to know in order to choose the best course of action?



Define something worth solving

Build a technology brief that delivers the insights you need

Now it's time to specify the technology you need. By doing this as the last step, you'll build a tailored brief based on the insights and data required to make better decisions. The technology should address the critical inflection points that drive your value outcomes; you can trace the functionality of the tech directly back to your original value statements.

This bottom-up approach works even when an organisation has already identified both the problem and the supplier, as it encourages re-thinking how tech can be deployed to maximise value.

Nuclear decommissioning site

Repair or tear down? This is a significant decision for nuclear decommissioning sites. With limited funds and the need to balance two core value drivers, cost and safety, here's the bottom-up approach to answering the question:

01 Identify value drivers

For cost: calculate the long-term and short-term: ongoing maintenance costs vs. demolition expenses.

For safety: assess and understand the structural risks of degradation.

02 Map the value drivers

The integrity of the building(s), the cost of going repairs, and the risks of potential contamination. For safety, the critical factor is structural degradation, which could pose risks to workers and the environment.

03 Identify inflection points

When does the decision need to be made and why? Delaying the decision, and therefore the action, could escalate both costs and safety risks, meaning failure to address all value drivers. Timing is essential.

04 Build a technology brief

Based on these drivers, the organisation uses a combination of predictive maintenance tools and risk management software to gather insights. Sensors monitor building conditions, while AI models analyse cost and safety scenarios. This data-driven approach ensures that decisions about repairs or demolitions are made with clear insights into both financial and safety impacts.

By following this value-driven framework, the decommissioning site can make strategic, data-backed decisions that optimise both safety and cost-effectiveness.

STEP 04

Approach ROI laterally

The way you calculate return on investment (ROI) should be defined by your objectives. Successful innovation requires flexibility and doing things differently to suit the scenario, including project-specific ROI.

If you're solving an operational challenge in existing core services, you'll apply a very different ROI lens than someone exploring new technology for the future.

And the reality of innovation ROI (something your board may not intuitively accept) is that economic assessments of value and impact often completely ignore key benefits like human performance that account for productivity and retention, as well as the concept of compounding benefits, where the impact of change is not linear but in fact exponential.

As an innovation leader, think laterally about the benefits of change with business operations, otherwise you risk losing sight of the real cost-benefit analysis that will deliver actual results.

Conducting a holistic ROI analysis

Analyse your options, including doing nothing at all.

Before investing, compare all options, including doing nothing. Sometimes the biggest risk is staying the same.

Often, the 'do nothing' option reveals hidden inefficiencies or risks that justify the need for change, highlighting how maintaining the status quo can sometimes be the riskiest option of all.

Also consider the linearity of this risk. It's rare that risk is static within an organisation, think of degrading assets, an ageing workforce, or growth of the business decreasing average experience level. These are all very common and very dynamic, and can often contribute to an exponential risk factor that could change dramatically over the coming years. Therefore, the analysis of risk that you have now may only be a snapshot, whereas a true cost-benefit analysis will factor in the risk of leaving the problem as is, and the way in which that compounds and evolves over time.

Appreciate the inherent value of systemising performance

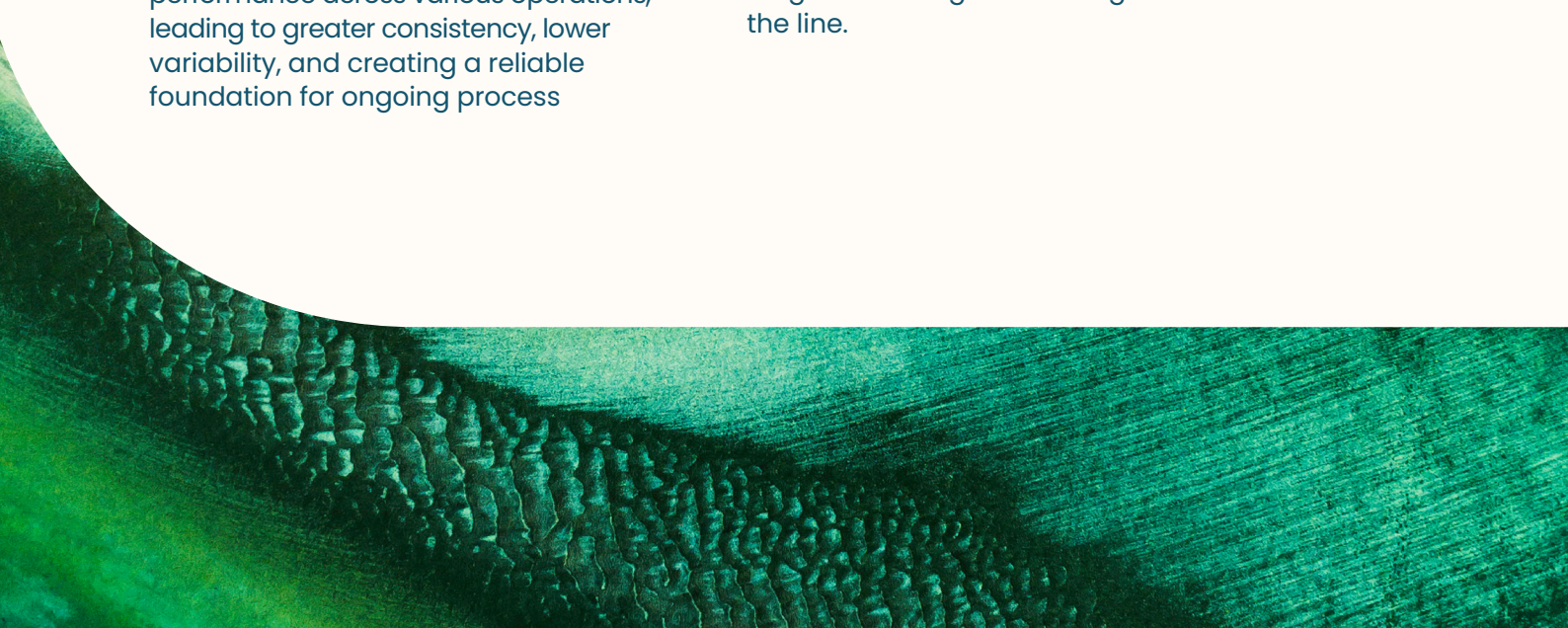
Correctly deployed tech can standardise performance across various operations, leading to greater consistency, lower variability, and creating a reliable foundation for ongoing process improvements. This 'systemising' effect often leads to better data collection, improved compliance, and a framework that allows for scalable operations.

While we encourage leaders to use technology to radically alter and transform an operational model, sometimes what's needed is actually the digitalisation of tacit knowledge from the expert in the business. This creates a far more robust and resilient performance profile, which will resist disruption like the loss of skilled staff.

Future opportunities leveraged by deploying core tech fundamentals

Investing in foundational technologies, like robust data infrastructures or platforms, can unlock future opportunities that are not immediately apparent. For instance, early adopters of the cloud couldn't have guessed the advantages it brings them today. If they did, they would have done it sooner and paid more for it.

Viewing technology investments as building blocks for future capabilities helps justify spending that may seem marginal in the short term but sets the stage for strategic advantages down the line.



Conducting a holistic ROI analysis

Trace the compounding impact of change

An ROI analysis should trace the ripple effects of a technology investment across different layers of the organisation. For example, a new logistics system might reduce transportation costs, but its real value might also be found in improved inventory management, reduced downtime, or better customer satisfaction. Improving process velocity in a given situation, or creating time within a team, can unlock radical outcomes elsewhere in the business. These impacts must be mapped and quantified to create a true impact analysis.

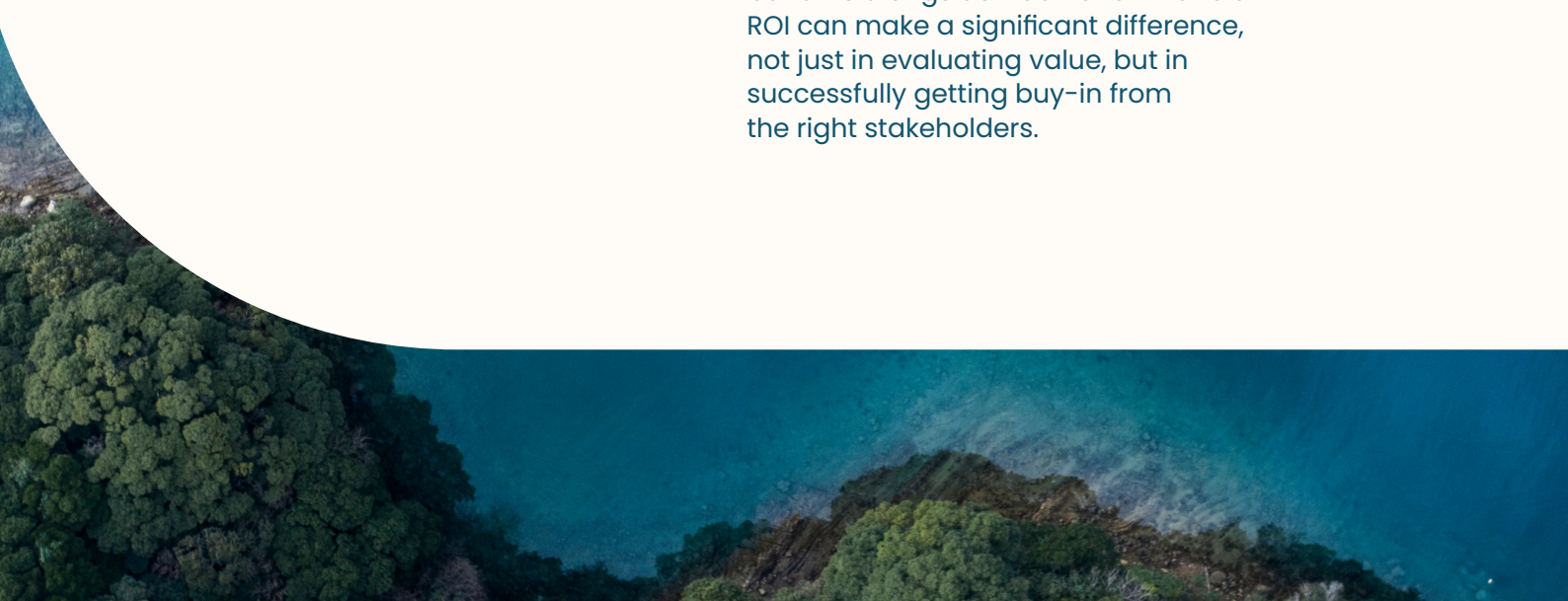
Understanding these interdependencies helps capture the full spectrum of value that technology can deliver, ensuring that you're not overlooking secondary benefits that could significantly impact the overall business case.

Human Performance and Productivity: Making the Case Beyond Safety

Traditional ROI models focus on financial metrics, but improvements in employee efficiency, morale, and safety can be just as valuable. Automation, for example, doesn't just save time, it reduces repetitive manual work, enabling staff to focus on higher-value tasks. This can lead to better retention, lower training costs, and a more engaged workforce which is critical in high-risk industries, where skilled labour is scarce and costly to replace.

However, making a business case for these benefits isn't always straightforward. Safety teams often see the value of a new technology, but decision-makers in operations or finance need proof of efficiency gains before approving the budget. In cases like **MSD prevention technology**, safety professionals understood the ergonomic and long-term workforce benefits, but securing investment required demonstrating measurable impacts on productivity and cost reduction.

Factoring in these **human-centred benefits** alongside traditional financial ROI can make a significant difference, not just in evaluating value, but in successfully getting buy-in from the right stakeholders.



STEP 05

Understand risk tolerance

Innovation requires change, so understanding your organisation's risk appetite is crucial. It's not just about how much capital to invest, but knowing your boundaries and how much uncertainty you're willing to accept to reach your goals.

Without this clarity, you may stifle innovation with unnecessarily excessive caution, or overextend and deliver very little, leaving critical problems unsolved.

Every technology project involves some level of risk, but the nature and intensity of that risk varies significantly depending on multiple factors, some of which you can control, while others are inherent to the activity you choose to undertake.

Whether you're backing a proven idea or testing bold new tech, knowing your risk appetite is key. Start by assessing your internal capability and the external environment, making sure your approach matches your capacity to manage risk and adapt.

Six questions to define your risk appetite

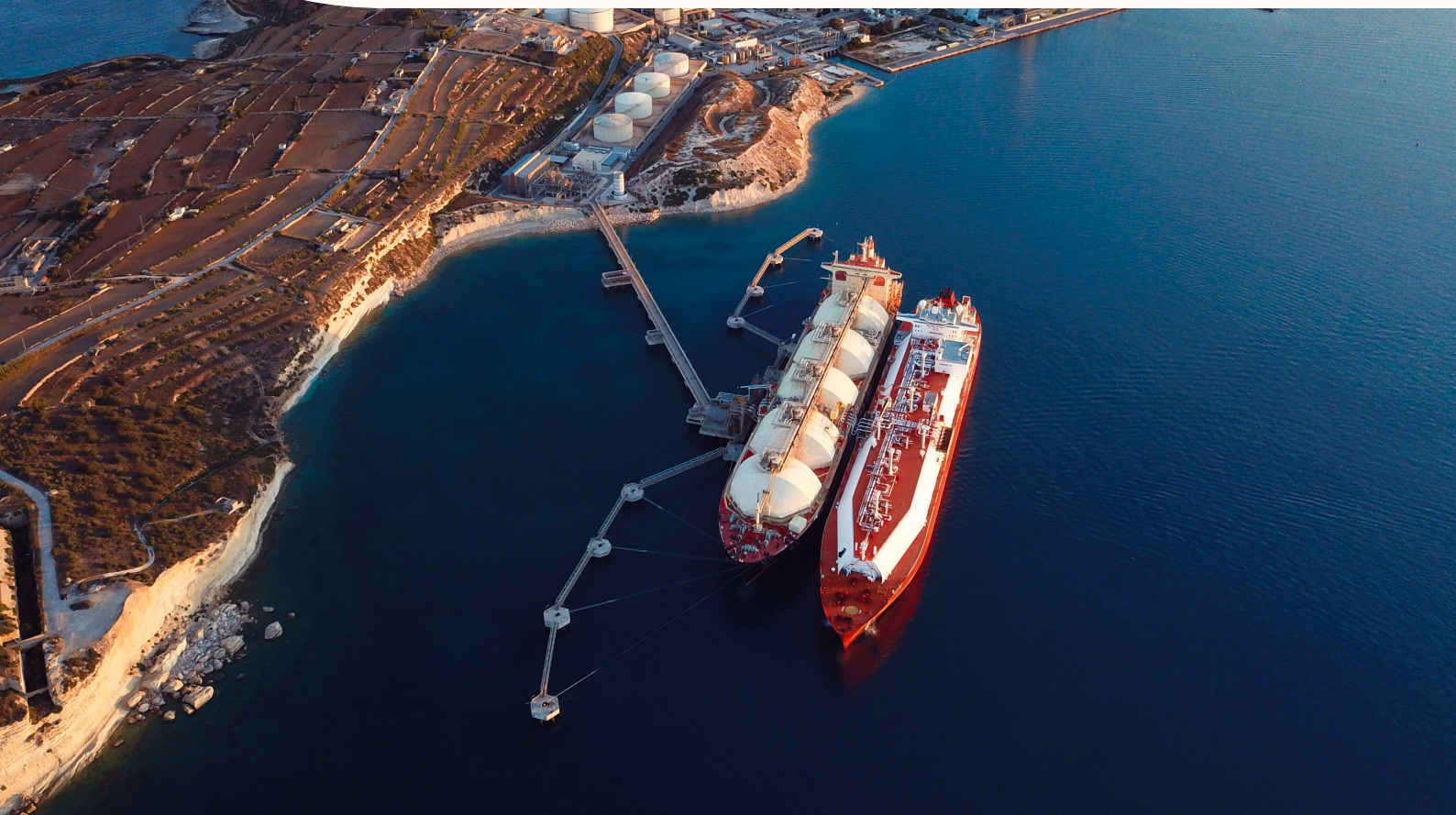
How much of your total resources will this take, and does it align with your needs?	Evaluate how much time, money, and talent the project requires compared to your overall capacity. If it demands a significant share, it must address a clear, high-priority need.
How big is the problem, and what's it worth to solve it?	The more critical the issue, the more risk and investment may be acceptable. Mission-critical problems justify greater effort, while smaller improvements should carry much lower risk.
How new and tested is the technology?	New or unproven technology brings higher uncertainty. The more mature and widely used it is, the lower the risk, so be clear on what you're committing time and money to, and how comfortable you are with trying something untested.
How closely does this align with your core operations?	If it's tightly linked to your day-to-day operations, the impact of failure is higher. If it's more exploratory, the risk to core business is lower. In both cases, the brief must align with your overall strategy.
Does this involve work your team hasn't done before?	If it requires unfamiliar skills or navigating new regulatory or technical environments, risk and complexity increase sharply. Be cautious of initiatives that stretch beyond current capability.
Do you have the internal skills to deliver this successfully?	Having the right in-house expertise is essential. If your team lacks relevant experience and will need to rely heavily on external support, the risk of overruns and setbacks rises.

Six questions to define your risk appetite

Project portfolios in high-risk industries need to be balanced around different types of risk, effort, and how closely each project relates to day-to-day operations. Are you improving core business, or testing something completely new?

Your available resources also shape this balance. A business with three projects will manage risk differently to one with 50, just as a company refining its operations will think differently to one developing entirely new products.

In all cases, being clear about how much failure you're willing to accept helps you build a portfolio that supports your strategic goals.



Smarter Regulation Sandbox (SRS)

In high-risk industries, innovation must be balanced with effective risk management. The Smarter Regulation Sandbox (SRS), a collaboration between Safetytech Accelerator and Discovering Safety (part of the UK's HSE), demonstrates how a structured, multi-stakeholder approach can enable safe, scalable innovation.

Context

Construction is one of the UK's most hazardous sectors, with 69,000 cases of work-related ill health and 45 fatalities in 2022/23. Technologies such as AI, reality capture, and automation have the potential to reduce risk and enhance compliance, but adoption remains slow, in part due to regulatory complexity and uncertainty.

Project Approach

The SRS provided a controlled, low-risk environment for testing digital solutions using machine-readable regulations. It brought together regulators, major infrastructure players (including Heathrow, Kier Group, and Ferrovial), and startups, with funding from the Government Office for Technology Transfer.

Five technology providers were selected through a due diligence process and engaged in live trials with industry and regulatory partners:

- **Navatech:** AI copilots for safety documentation
- **Plinx:** Automated site compliance
- **Evercam:** Visual progress monitoring with AI
- **Comet:** Data-driven compliance mapping
- **Pillar:** Worker fatigue tracking in real-time

Smarter Regulation Sandbox (SRS)

Lessons in Risk Tolerance

Rather than ignoring regulatory uncertainty, the SRS embraced it, using a structured, phased approach to explore risk safely. Organisations were able to:

- Define risk appetite for new technologies before scaling
- Distribute risk through regulator-industry-startup collaboration
- Protect core operations by testing in a structured, sandboxed environment.

This approach enabled experimentation without compromising safety or compliance.

Impact

The initiative laid the groundwork for the UK's Open Regulation Platform and catalysed the launch of the OSHX Lab, a new environment focused on integrating safety into performance, not just compliance.

The SRS illustrates a core principle of innovation strategy: with the right governance, risk becomes a tool for progress, not a barrier to it.

'We've definitely learnt from it and we've definitely learnt we've got some improvements to make and also we can look at how we can adopt some of this technology across our supply chain and across our own systems and have benefits to the industry.'

Caroline Organer, Liability Technical Risk Manager
AXA Insurance

STEP 06

Apply cross-industry problem solving

The best solutions often come from other industries that are ahead in innovation.

No industry exists in isolation. What drives progress in one sector can often be adapted and applied to another. And for organisations in low-margin sectors especially, the opportunity to leverage R&D from more affluent industries can provide access to cutting-edge technologies and methodologies without the heavy cost burden of developing these innovations from scratch.

Identify cross-industry technologies with proven ROI, map them to top pain points, and pilot the most promising.

Apply cross-industry problem solving

When assessing solutions for a client, we ask ourselves where this problem may have happened before in a similar context, and we actively seek vendors who have the willingness to expand into new markets.

So rather than looking for manufacturing innovation, what you're really looking for are the components of the setup that will solve your problem. Many of these components or even the whole setup may have been partially or completely replicated in another industry.

We can see this trend most prominently when there are strong regulatory, societal, environmental, or mission-based incentives to innovate, which cause a surge of investment and interest in a particular area.

Like the development of lightweight materials for aerospace which was eventually applied to automotive, or NASA's role in memory foam.

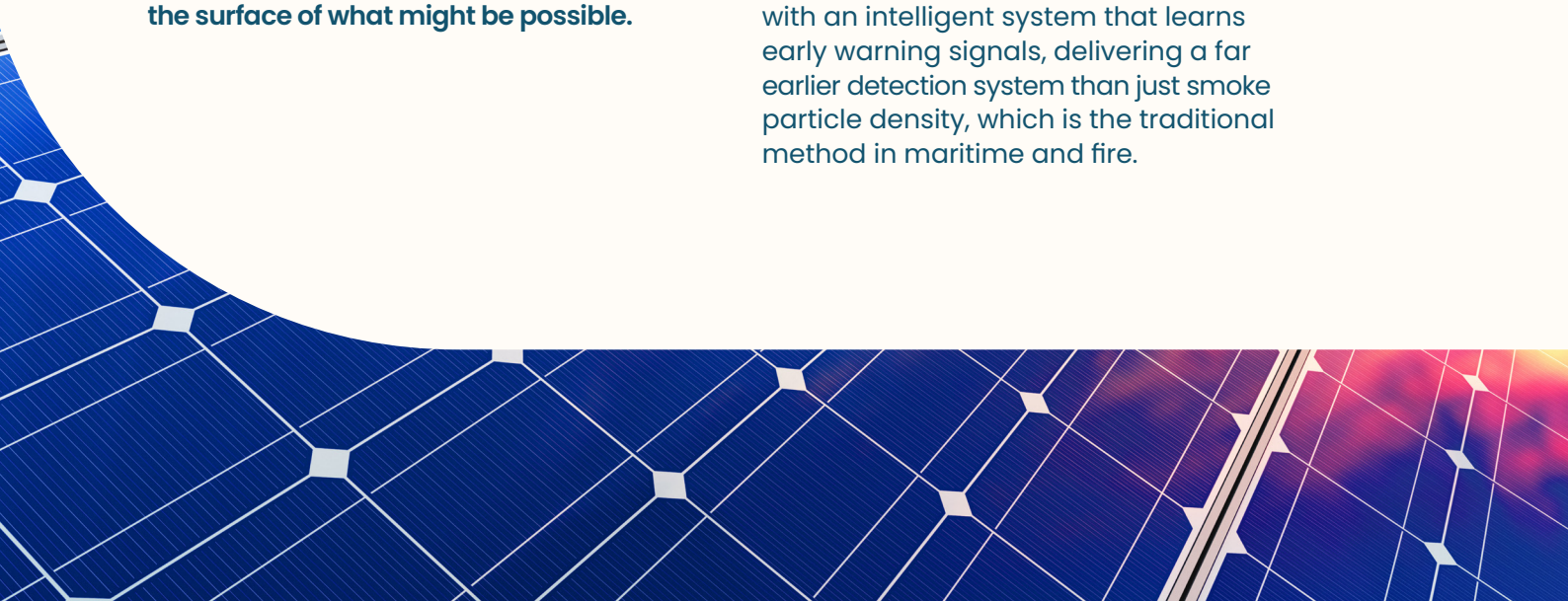
Whilst these are larger, more macro evolutions, the idea of looking laterally into other industries is an invaluable philosophy in terms of how to picture solutions.

If you work in maritime but only look for maritime innovations, you barely scratch the surface of what might be possible.

While technical systems may seem complex to the naked eye, in high-risk industries the tools and techniques for gathering and processing data are often similar.

For instance, there is no established technique to analyse loose rock formations in mines, so when tasked with finding that solution we had to think laterally. Mining companies were already using a variety of geographic information systems to map terrain, like seismic surveys which are too broad and are designed for larger areas than a rock cavity. Moving further away, you have point detection laser spectroscopy that is able to detect minute changes in frequency of solid objects in structures, but is impractical to deploy in mines. The solution was to integrate six tech-nologies from four different industries.

Another example would be where we work with container shipping companies on the challenge of early fire detection. A comparative industry which has seen a surge of innovation in the last five years is actually forest fire detection. What you're seeing is really novel multi-sensor IoT devices that are designed to pick up a much wider variety of fire indicators, e.g. gas, smoke, particulates, overlaid with an intelligent system that learns early warning signals, delivering a far earlier detection system than just smoke particle density, which is the traditional method in maritime and fire.



How Safetytech Accelerator can help

If you're looking to de-risk technology investments, accelerate adoption, and turn innovation into a competitive advantage, we're here to help. Our expertise in emerging technologies and high-risk industries enables us to support you in the following ways:

Strategic Advisory

We help organisations design innovation strategies, assess technology portfolios, and maximise return on investment through emerging technologies.

Corporate Innovation Labs

From concept to execution, we design, build, and manage bespoke innovation labs and sandboxes that fast-track disruptive technology into business operations.

Dedicated Scouting & Piloting

Pinpoints priority challenges, scans the global market for best-fit solutions and manages structured pilots that prove impact under real operating conditions.

Co-Innovation Initiatives

We facilitate collaboration between multiple organisations and industry partners to co-invest in solving complex challenges related to safety, risk management, and decarbonisation.

Get in touch
info@safetytechaccelerator.org

We have partnered with leading organisations across industries, helping them drive measurable innovation and operational improvements. Let's explore how we can do the same for you.

Safetytech Accelerator

About Safetytech Accelerator

Safetytech Accelerator is the world's first fully dedicated technology accelerator focused on advancing innovation in high-risk industries.

Our mission is to make the industrial world safer, more efficient and sustainable through the adoption of cutting-edge technologies.

Visit us at safetytechaccelerator.org

We partner with corporate and institutional clients in high-risk industries to address their most critical challenges in occupational safety, health, risk, performance, and sustainability.

By providing strategic innovation advice, supporting the identification, and piloting of new solutions, running corporate accelerators and sandboxes, collaborative initiatives, and bespoke innovation programmes, we help them solve complex problems with the world's best technologies.

Safetytech Accelerator was established by Lloyd's Register in 2018 and incorporated as a business in 2021. To date, we have partnered with over 60 industrial organisations with more than three million employees and a combined annual revenue of $2 trillion.

We have engaged over 600 technology companies and delivered over 70 emerging technology projects and deployments for clients, including Amazon, PepsiCo, Maersk, Shell, National Safety Council, Seaspan Corporation, Health and Safety Executive, and Anglo American.