ADOPTING SAFETY INNOVATIONS THAT DELIVER REAL RESULTS

Practical Approaches for Evaluating and Implementing Safety Solutions

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15 APR 2026

A Familiar Story…

- An organization invests in a promising safety technology
- The technology performs well during demonstrations
- The pilot begins with excitement
- Six months later:
  - *the tool is rarely used*
  - *supervisors stop requesting reports*
  - *workers are unsure why it was introduced*
  - *leadership questions the value of the investment*

The technology did not fail. The **implementation** did.

What is Innovation?

Innovation =

Finding new ways to deliver value

“**Practical** implementation of ideas that result in added **value**

“The process of creating and implementing new **ideas**, **methods**, or **products** that add **value** or **solve problems** in a **novel** way.

Innovation =

Finding new ways to deliver value

“The application of **creativity** to develop solutions that improve **efficiency**, **effectiveness**, or **competitive advantage**.

“Introducing new **products**, **services**, **processes**, or **business models** that generate **economic value** and **customer benefit**.

“Implementation of a **new** or **significantly improved product** (**good** or **service**), or **process**, a new **marketing method**, or a **new organizational method** in business practices.

Innovation ≠ Technology

Idea

Invention

Creativity

Trend

Efficiency

Innovation =

Finding new ways to deliver value

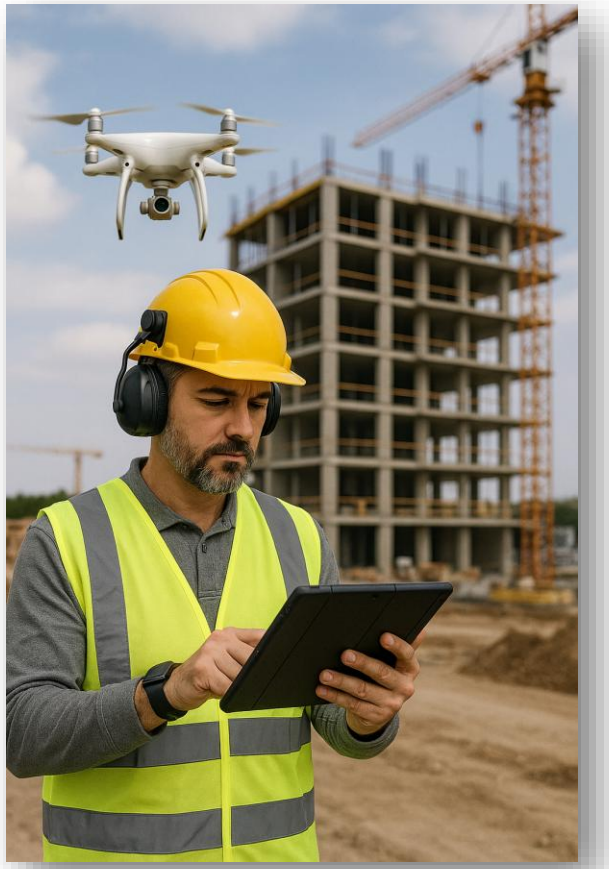
value

Innovation…

- needs to be **problem-focused**, not solution-focused
- is an **iterative** process not a linear one
- has to prove out in **the field**
- adoption is not just about the technology—it's about **people**, **process**, and **fit**

Outcome is what matters

Have you tried a safety innovation that did not stick?



New Safety Innovation

App • Tool • Technology • Process

Adoption Failed

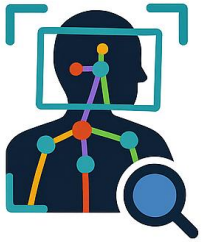
Low usage • No impact

The Safety Innovation Landscape

- Workplace safety technologies are evolving rapidly
- Organizations must decide which innovations are not worth pursuing and which ones will actually improve safety performance

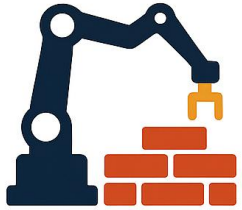
Artificial Intelligence

Digital Platforms



Computer Vision

Exoskeletons



Robotics and Automation

Drones

AR and VR

Proximity Detection Systems

Why Safety Innovations Fail

Technology searching for a problem

Poor alignment with operational workflows

Limited worker acceptance

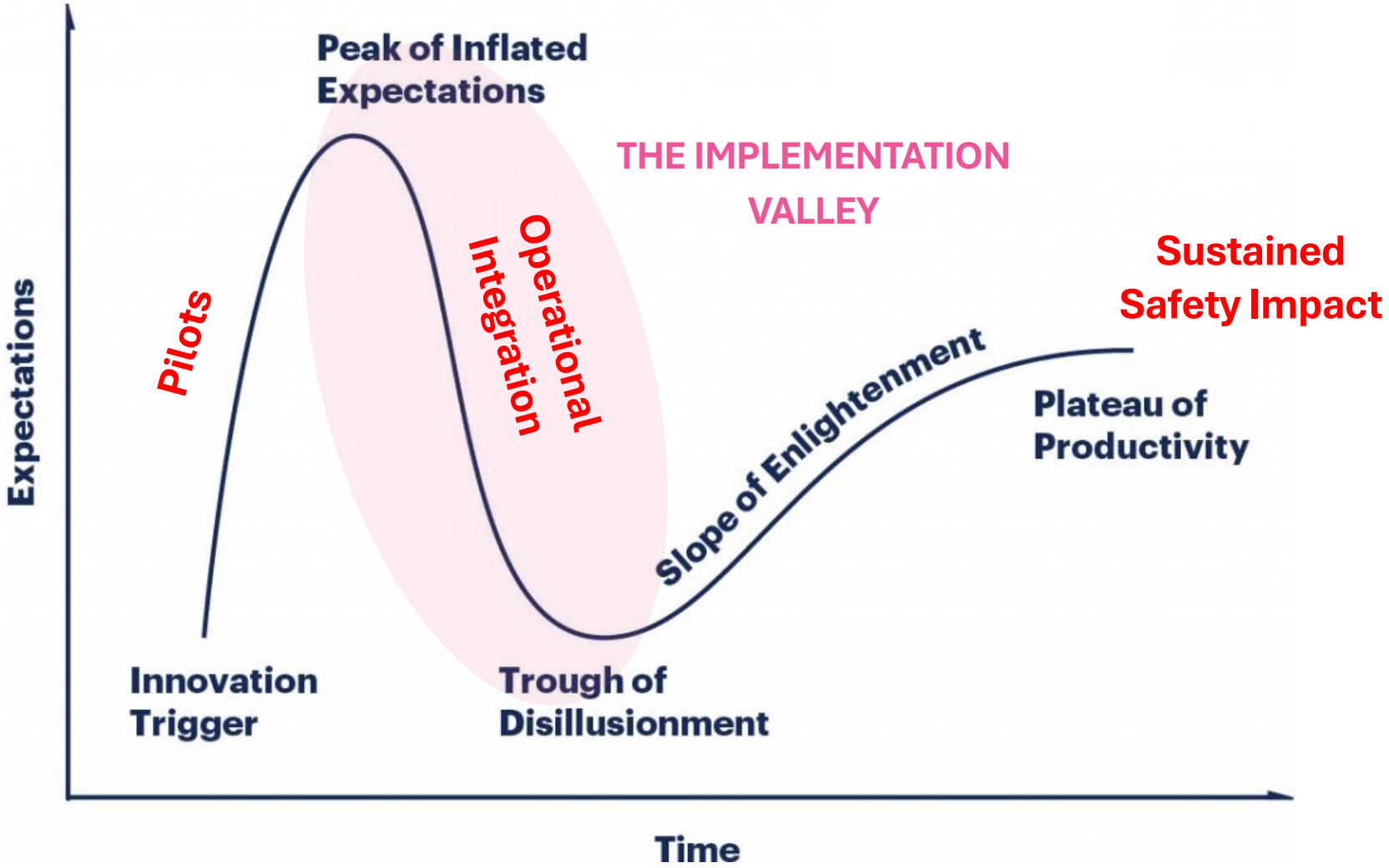
Lack of leadership support

Pilots without clear evaluation metrics

No plan for scaling successful solutions

Innovation requires more than good technology,
it requires good decision making and structured implementation.

The Safety Innovation Hype Cycle



Rethinking Safety Innovation

OLD APPROACH

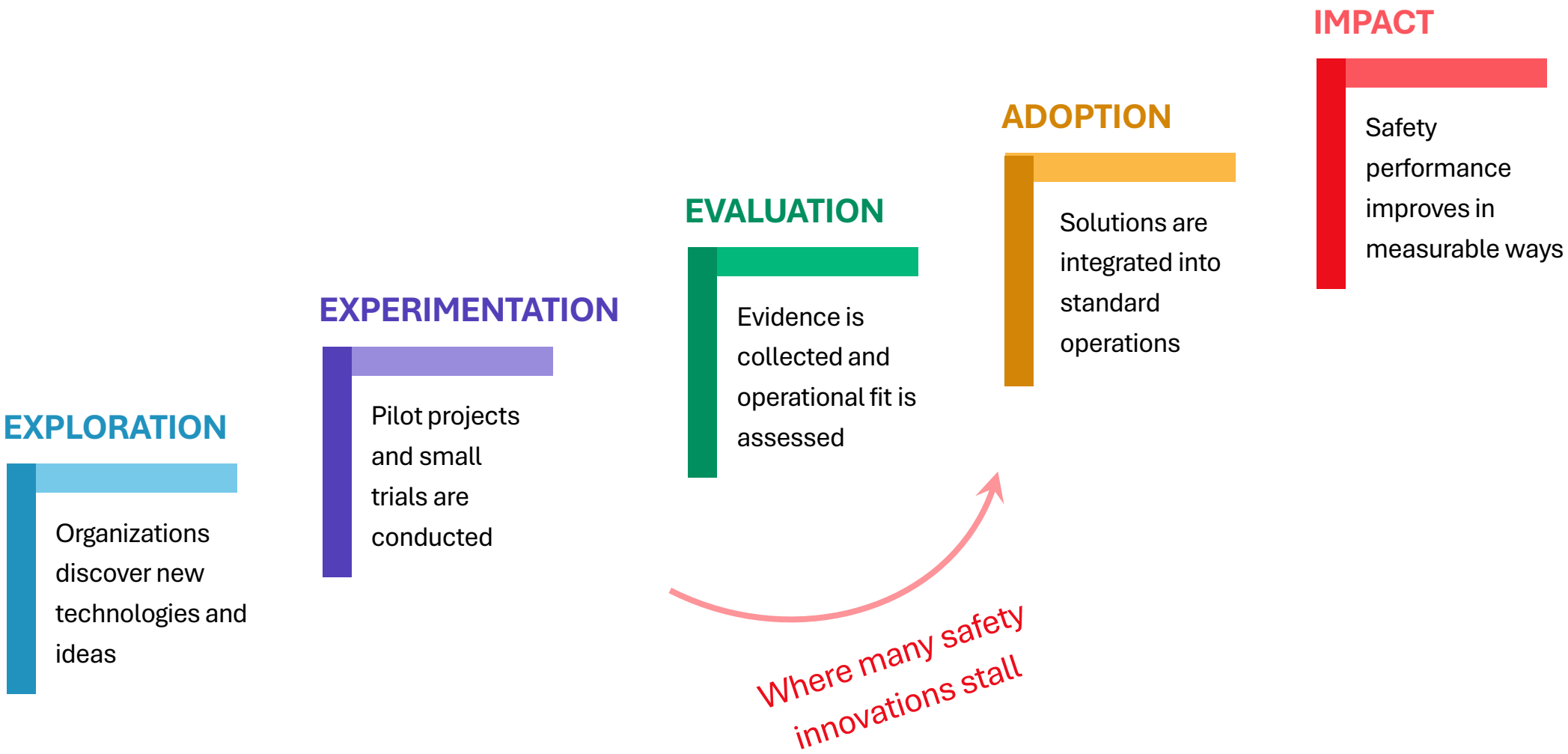
What safety technology should we adopt?

Shift in thinking

BETTER QUESTIONS

- **What safety problem are we trying to solve?**
- **What evidence supports this solution?**
- **Is our organization ready to implement it?**
- How will we measure results?

The Safety Innovation Maturity Curve



A Practical Framework for Safety Innovation

1

Define the safety problem

2

Evaluate the innovation

3

Assess organizational readiness

4

Design a structured pilot

5

Evaluate results and decide

6

Scale and integrate into operations

Stage 1: Define the Safety Problem

Start with risk, not technology

Key questions:

- What incidents or injuries are occurring?
- Which tasks create the highest exposure?
- What data supports this assessment?

Stage 2: Evaluate the Innovation

Effectiveness, **fit** and **value** are key

Important evaluation criteria include:

- Effectiveness
- Evidence supporting the solution
- Ease of use
- Operational fit
- Cost and expected value

Stage 3: Assess Organizational Readiness

Technology success often depends on **readiness**

Key considerations:

- Leadership commitment
- Worker trust and acceptance
- Training requirements
- Integration with existing systems

Stage 4: Design a structured pilot

Define success metrics **before launching the pilot**

To enable effective evaluation,

- Define effective and realistic metrics
- Collect baseline data
- Focus on producing evidence

Stage 5: Evaluate and Decide

Review **key results** to decide next steps

Key questions:

- Did the innovation reduce risk?
- Did it fit operational workflows?
- Was it accepted by workers?
- Did it create unintended issues?

Decision options

- STOP
- REFINE & RETEST
- MOVE TO SCALE

Stage 6: Scale and Integrate

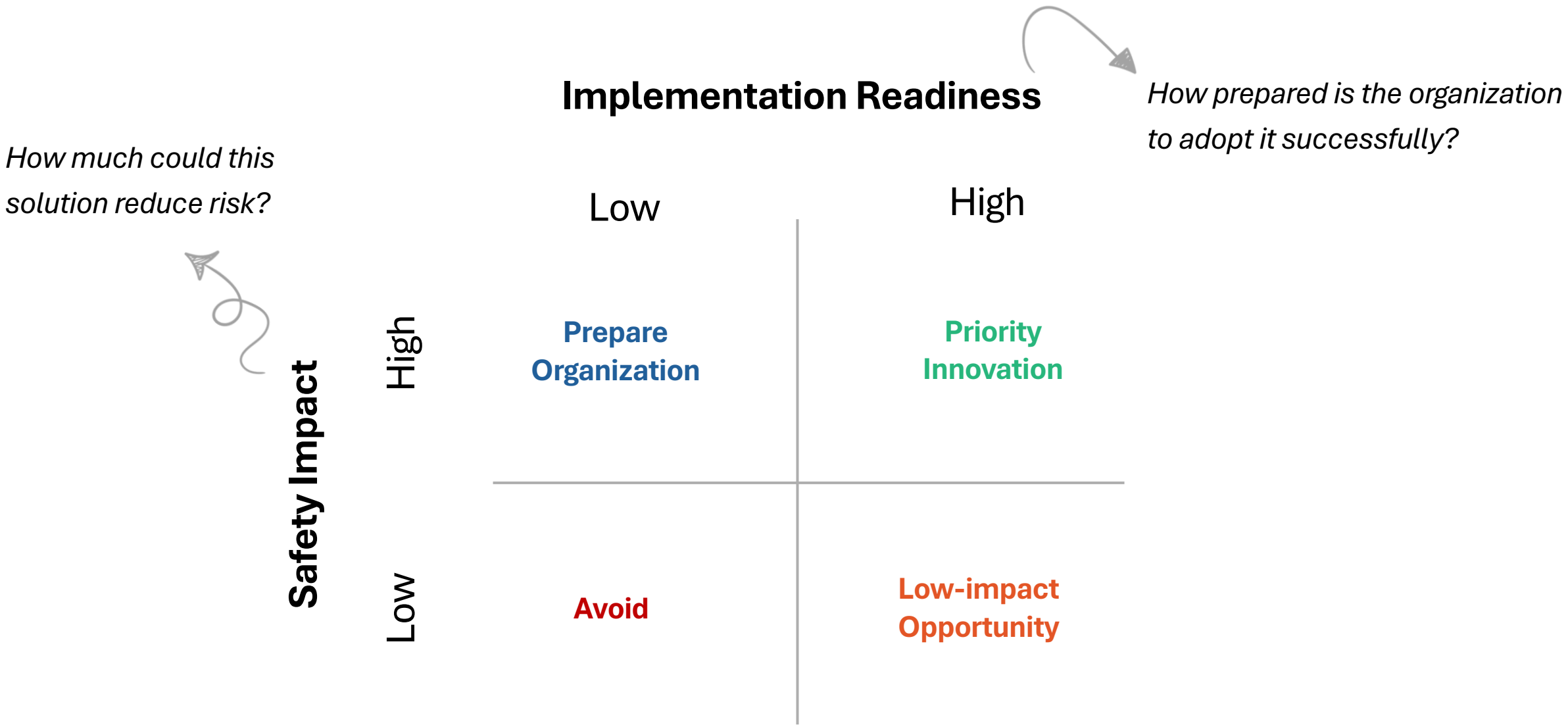
Transition from **pilot** to **operations**

If results are positive:

- embed into workflows
- update procedures and training
- assign ownership
- scale across sites
- monitor performance over time

OUTPUT ⇨ **Operational adoption**

Safety Innovation Decision Matrix



Safety Innovation Readiness Checklist

Answer Yes or No to each question. Add the number of Yes responses to assess overall adoption readiness.

Question	Yes	No	Comments
Is there a clearly defined safety problem this innovation addresses?			
Does the innovation directly solve or reduce that problem?			
Has it been used successfully in similar work environments or industries with evidence available?			
Is the innovation compatible with our current tasks, workflows, or equipment?			
Do we have the time and resources to test or pilot it?			
Are training and support materials available and easy to understand?			
Can frontline workers use it with minimal disruption or resistance?			
Have workers and supervisors been involved in the evaluation or planning?			
Are there clear success criteria for evaluating a pilot or trial?			
Is there clear support and commitment from leadership?			
Are costs manageable or justifiable given the potential benefits?			
Do we have a plan to monitor results and capture lessons learned including both safety and productivity outcomes?			
Is there a clear path to scale up or sustain the innovation if the pilot succeeds?			

Scoring Guidance:

11–13 High Readiness — Strong candidate for pilot or implementation

8–10 Medium Readiness — Proceed with clear plans for support and evaluation

5–7 Low Readiness — Consider addressing key gaps before proceeding

0–4 Not Ready — Revisit alignment, planning, or organizational buy-in

Technology Readiness Evaluation

Dimension	Description	Guiding Questions
1. Technical Maturity	The degree to which the core functionality of the technology is complete, stable, validated, and supported by performance evidence relevant to construction.	- Has the technology demonstrated reliable functionality? - What evidence exists beyond internal demos? - Are performance limits and failure conditions documented?
2. Operational Reliability	The ability of the technology to perform consistently under real jobsite conditions.	- Has it been tested on real sites? - Are known failure modes understood? - Does the solution function in dust, vibration, noise, weather, uneven lighting, and intermittent connectivity?
3. Integration Requirements and Workflow Fit	The extent to which the technology fits into existing workflows, systems, and operational practices.	- What changes in day-to-day work are required? - Does the solution require new hardware, new steps, or new roles? - Can the solution integrate with existing systems where necessary, or operate standalone without creating duplicate work?
4. Solution Provider and Team Capability	The provider's experience, readiness, capacity, and ability to support training, deployment, and troubleshooting.	- Does the provider have construction deployment experience? - Is training material clear and field appropriate? - Are support response times and escalation paths defined? - Can the provider support Alberta field pilots and scale support if the pilot succeeds?
5. Regulatory Compliance	The degree to which the technology meets safety and regulatory requirements.	- Does the technology introduce hazards or change hazard exposure? - Are risk controls defined, including worker training and safe use procedures? - Are relevant regulatory requirements known and addressed?
6. Cost and Resource Requirements	The financial and operational effort required to adopt and maintain the technology.	- What is the full cost of ownership, not only purchase price? - What maintenance, calibration, or consumables are needed? - Is the cost profile feasible for long-term adoption?
7. Data Governance and Privacy Readiness	The strength of data protection, security, privacy, and storage practices associated with the technology.	- Is personal or sensitive data collected? - Who owns the data and derived outputs? - How is data stored, secured, retained, and deleted? - Are privacy expectations, consents, and access controls defined?
8. Scalability and Deployment Complexity	The feasibility of deploying the technology across more sites, crews, and projects.	- What happens when scale increases by 10x? - Does onboarding scale without heavy vendor involvement? - Are logistics manageable across - multiple sites and subcontractors? - Are there constraints that make scaling impractical even if the pilot works?

Organizational Readiness Evaluation

Dimension	Description	Evaluation Questions	Rating (1 to 5)
1. Leadership and Strategic Alignment	Commitment and alignment between leadership and the pilot objectives.	- Does the pilot align with business priorities and site objectives? - Is leadership willing to allocate time and accept short-term disruption for learning? - Is there a clear sponsor and decision maker?	
2. Workforce Readiness and Skills	The readiness of workers and supervisors to learn and use the technology.	- Are supervisors and workers willing and able to use the solution? Is training feasible within site schedules? - Are usability and human factors understood, including language needs and trade-specific constraints?	
3. Digital and Data Infrastructure	Availability of required devices, data systems, and connectivity.	- Are devices available and permitted on-site? - Is connectivity sufficient, or can the technology operate offline? - Can the organization collect, store, and access pilot data responsibly?	
4. Operational Capacity and Resourcing	Availability of staff time, logistics, and resources for pilot execution.	- Is time available for onboarding, troubleshooting, and data capture? - Are budgets or internal resources available for the pilot? - Are site logistics and coordination capacity adequate?	
5. Process and Workflow Fit	Alignment between the technology and operational processes.	- Does the solution fit existing operational workflows? - Can existing safety and quality systems support the change? - Are process changes needed, and are they realistic during active construction?	
6. Culture, Change Management, and Risk Tolerance	The organisation's openness to innovation and experimentation.	- Is controlled experimentation accepted? - Are communication channels clear for feedback and issue resolution? - Is the organization willing to adjust the approach as learning emerges?	
7. Procurement and Contracting Readiness	The ability of procurement and legal functions to support the technology.	- Can procurement and legal support the pilot arrangement quickly? - Are liability, insurance, and warranty issues manageable? - Are vendor and data terms acceptable to clients and prime contractors?	
8. Innovation Governance and Accountability	Clarity of roles and responsibilities throughout the innovation process.	- Is it clear who owns the pilot day-to-day, who evaluates results, and who has authority to proceed or stop? - Is a site-based champion identified, with time allocated, and authority to coordinate the pilot? - Is there an internal pathway for approving new tools post pilot?	

What Successful Organizations Do Differently

- ✓ Start with clearly defined safety problems
- ✓ Engage workers early
- ✓ Align innovation with business goals
- ✓ Evaluate innovations and technologies systematically
- ✓ Run structured pilots with measurable metrics
- ✓ They measure results before scaling
- ✓ Integrate solutions into existing operations

The Cost of Getting Safety Innovation Wrong

Failed Adoption

- × Wasted investment
- × Lost organizational trust
- × Innovation fatigue
- × Missed safety improvement opportunities

Successful Adoption

- ✓ Better visibility into risk
- ✓ Improved safety culture
- ✓ Stronger operational decision making
- ✓ Reduced injuries

Build, Buy, Partner?

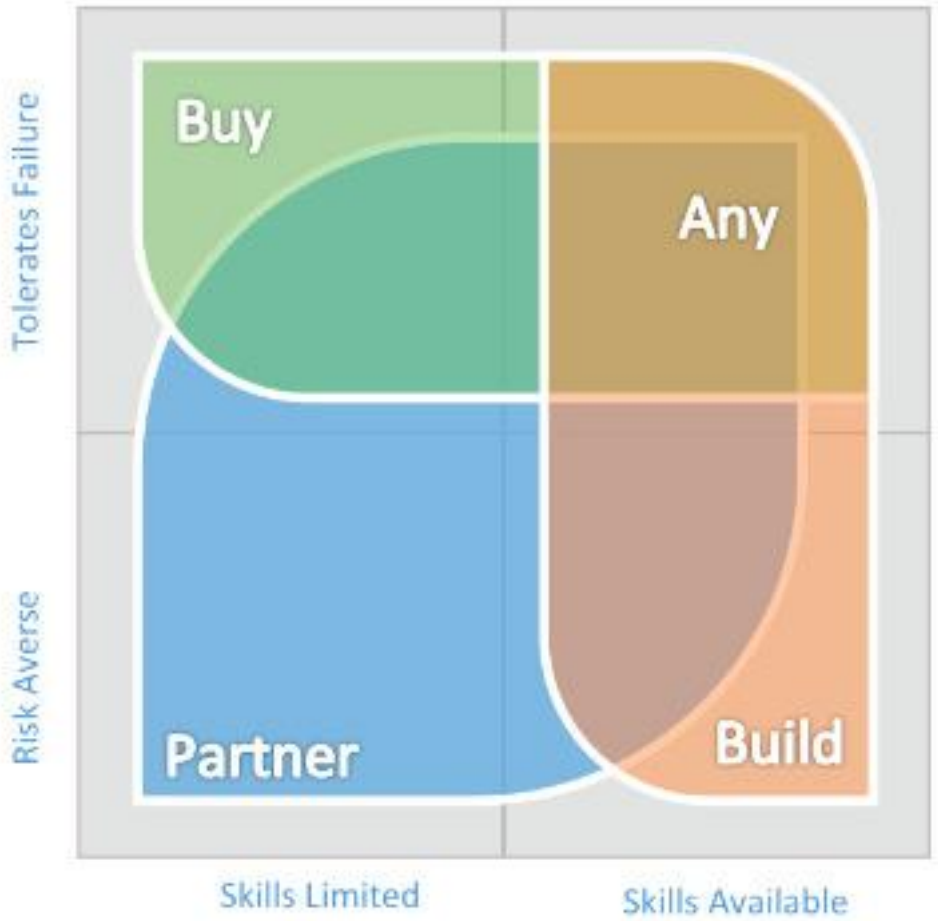
1 **BUY** Quick solution. Less control. Fit exists? Integration possible? Budget and time to customize? Data ownership?

2 **BUILD** Best fit solution. IP is owned. High cost. Needs technical talent. More control. Potentially more long-term value. Timeline works?

3 **PARTNER** In-between solution. Complementary skills & technologies. Management of IP. Roles? Timeline?

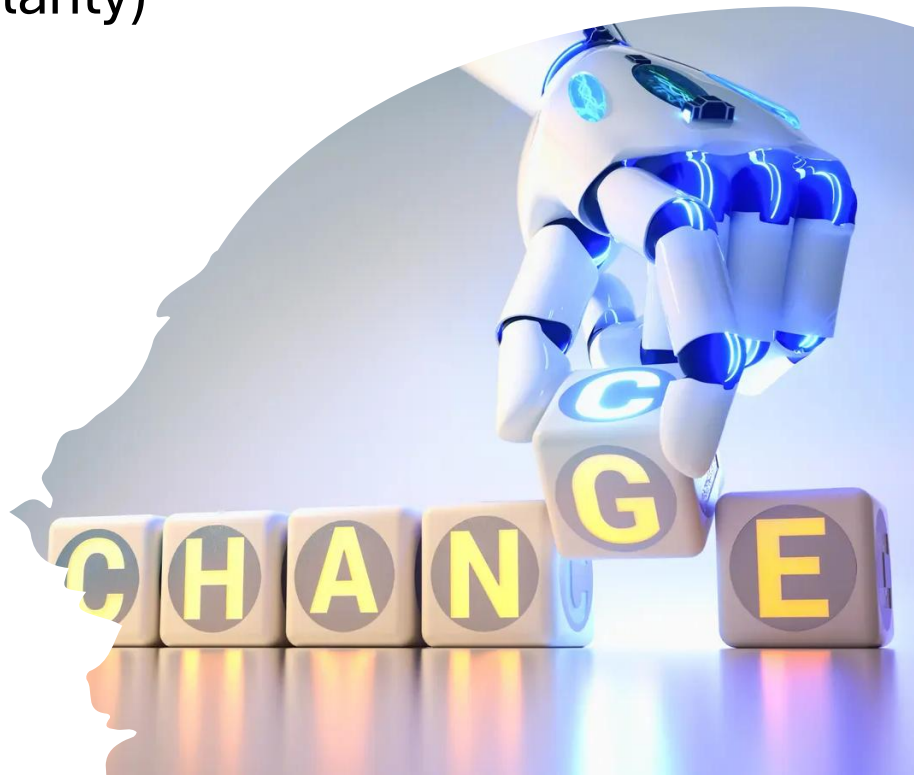
Build, Buy, Partner?

1. Identify Your Needs
2. Research Options
3. Evaluate Costs and Benefits
4. Seek Input
5. Make a Provisional Decision

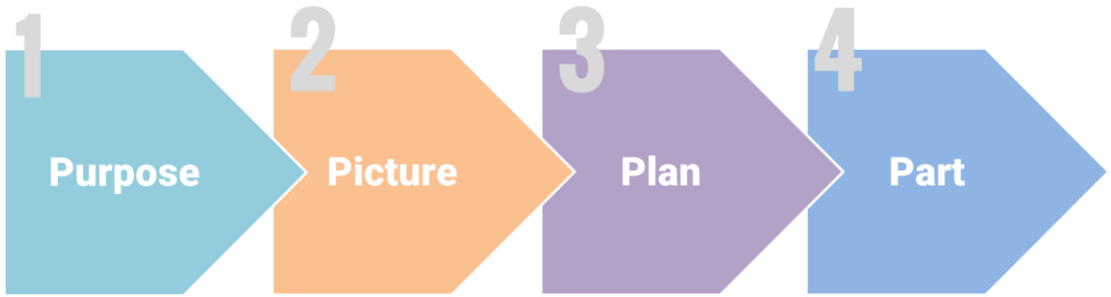


Change Management for Innovation

- › Successful organizations treat technology rollout like any other major change
- › You are asking your team to trust a new technology, i.e., asking them to enter the unknown and take a risk
- ✓ Understand reasons for resistance (fear, habit, lack of clarity)
- ✓ Tell people why
- ✓ Be transparent
- ✓ Be flexible
- ✓ Be patient
- ✓ Keep them updated



Change Management



Role of H&S Professionals

- ✓ **Define the Safety Problem**

  Ensure technology addresses real operational risks.

- ✓ **Lead Technology Evaluation**

  Assess evidence, effectiveness, and practical fit.

- ✓ **Guide Responsible Implementation**

  Design structured pilots and evaluate results.

- ✓ **Engage Workers and Build Trust**

  Ensure technologies support safety rather than surveillance.

- ✓ **Drive Evidence-Based Decisions**

  Use data to determine whether innovations should scale.

What This Means for Safety Professionals

- ✓ **Stay informed about emerging technologies**

  Understand new tools that may influence safety outcomes.

- ✓ **Build basic technology literacy**

  Develop enough understanding of AI, analytics, wearables, and sensing technologies to ask the right questions.

- ✓ **Collaborate across functions**

  Work with IT, operations, engineering, and leadership to guide responsible adoption.

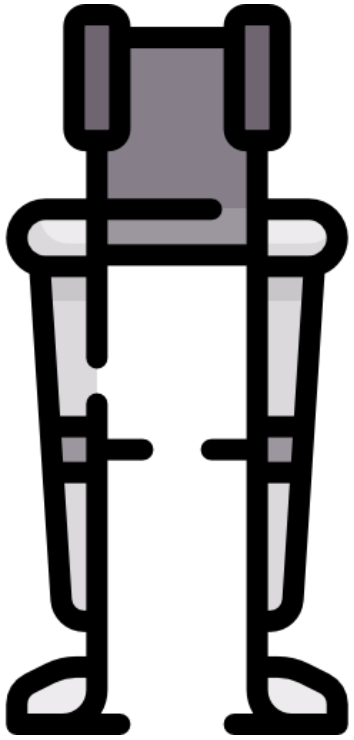
- ✓ **Ask critical questions about technology claims**

  Challenge vendor claims and ensure solutions are supported by credible evidence.

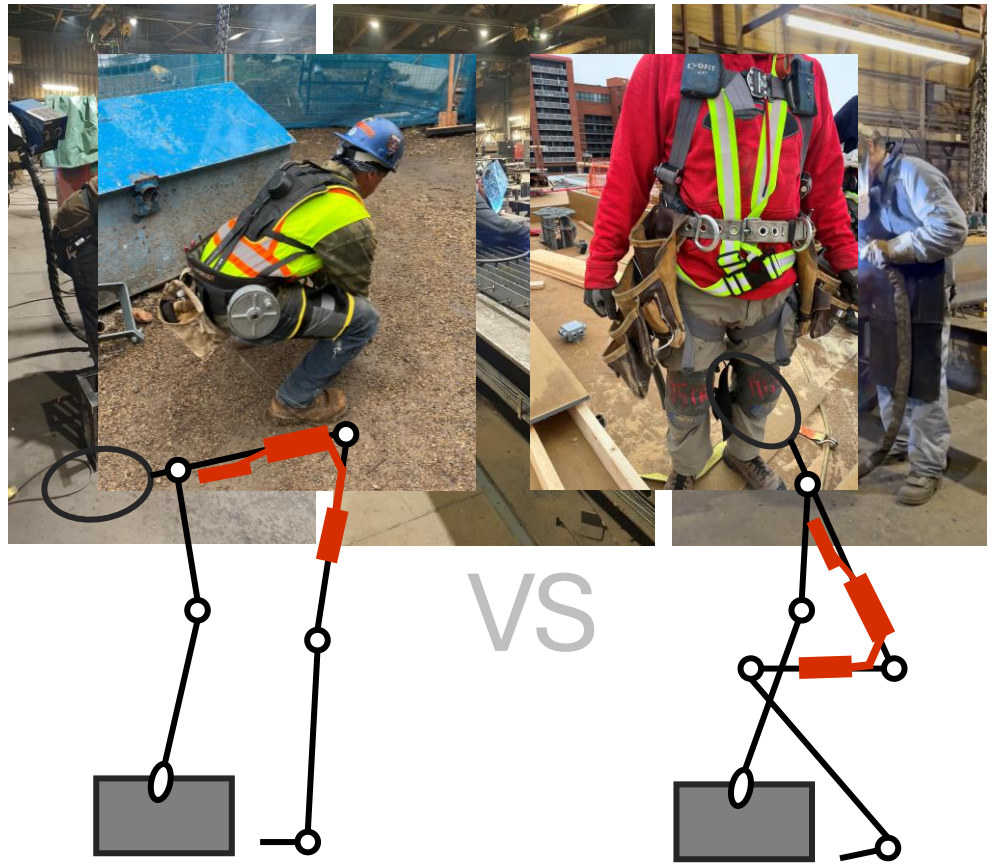
- ✓ **Become effective change leaders**

  Support communication, training, and engagement when introducing new technologies.

Real-World Lessons



- Cool new tech, let's hand out to workers to try
- Now I can lift heavier weights!
- Same job, different feedback
- PPE compatibility
- Culture and worker acceptance
- Training
- Cost



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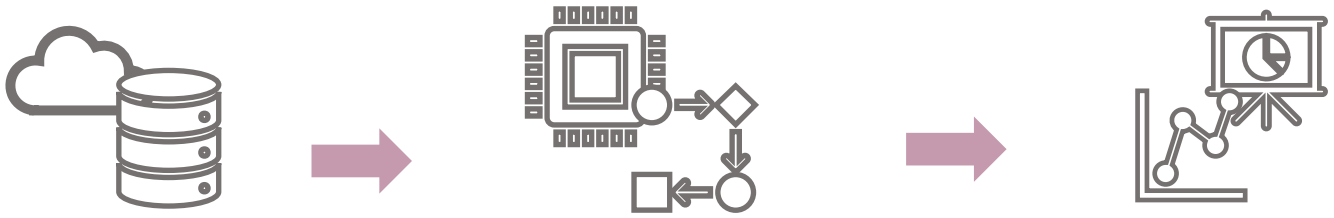


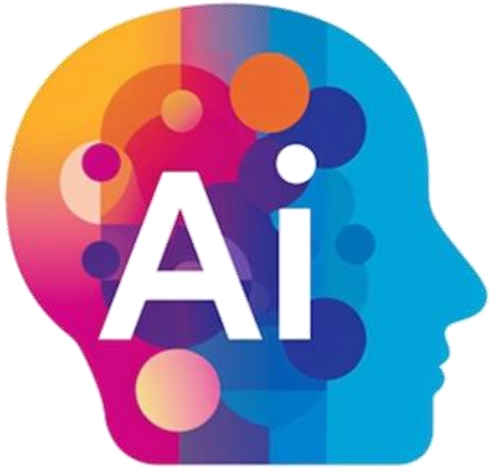
Data → Algorithm → Outcome

What data do we need to achieve this?

What analytics do we need to answer the question?

What safety/business outcome are we looking for?

Real-World Lessons



- What can it do/not do?
- Adding another app/software to tech stack
- Data privacy and security
- Business priority
- Augment or replace?
- Integration with safety processes

Key Takeaways

- ✓ Start with the **safety problem, not the technology**
- ✓ Safety solutions must align with **how work actually happens**
- ✓ **Organizational readiness** often determines success
- ✓ **Structured pilots** create the evidence needed for decisions
- ✓ Safety professionals should **lead the conversation**

Technology alone does not improve safety.
Good decisions and structured implementation do.

THANK YOU!

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