

DESIGN IMPACT CASE STUDY

MINING TECHNOLOGY

GroundProbe

Brisbane, Queensland

GroundProbe®

GroundProbe's integration of a customer-centric, design-led approach across all stages of development has resulted in impactful innovations for the mining sector.

Through deep empathy, collaborative ideation, and iterative evaluation, they have delivered solutions that enhance safety, promote environmental stewardship, and achieve strong economic outcomes.

This Case Study underscores how design maturity and purpose-driven impact can work hand-in-hand to drive sustainable and scalable success.



GROUNDPROBE VIDEO CASE STUDY



GROUNDPROBE DESIGN PROCESS MATURITY

DESIGN PROCESS STAGES	KEY LEARNINGS
<p>1. Define</p>	<p>GroundProbe's journey began with a clear definition of purpose, rooted in the company's origins in defence-related radar engineering.</p> <p>Seeking to apply these capabilities beyond the military context, the team evaluated various industries where high-precision radar technology could offer transformative value. Mining emerged as the optimal sector due to its inherent risks related to slope and wall failures.</p> <p>To thoroughly understand the problem, GroundProbe examined the operational realities of mining environments, identified the critical need for early detection of structural instabilities, and recognised the value in providing actionable, visual insights for mine safety personnel.</p> <p>This groundwork provided a sharply defined problem statement: to develop a reliable, user-friendly system capable of detecting microscopic ground movement and translating it into intuitive, visual intelligence for real-time decision-making in mining operations.</p>
<p>2. Empathise</p>	<p>The empathise phase was central to GroundProbe's approach. The team engaged deeply with mining stakeholders, gaining insights into operational challenges - particularly the risks associated with slope and wall failures.</p> <p>These interactions were not theoretical, customers actively participated in co-creation sessions.</p> <p>GroundProbe placed the customer at the heart of the design process, understanding their needs not just functionally but also emotionally, in terms of safety, risk reduction, and operational continuity.</p>

GROUNDPROBE DESIGN PROCESS MATURITY

DESIGN PROCESS STAGES	KEY LEARNINGS
<p>3. Ideate</p>	<p>Ideation at GroundProbe was collaborative and grounded in user-driven innovation. The concept of merging radar data with intuitive visual overlays came directly from customer feedback.</p> <p>Clients expressed that while radar data was valuable, its utility would increase exponentially if tied to real-world imagery.</p> <p>The result was a seamless overlay of radar-based movement detection on a photographic image of the mining wall, simplifying interpretation and enabling fast, accurate decision-making on-site.</p>
<p>4. Evaluate</p>	<p>Evaluation of the solution occurred iteratively with client feedback loops.</p> <p>By continuously validating the usability and effectiveness of the integrated imaging technology, GroundProbe ensured its products were not only technically sound but also aligned with real-world use cases.</p> <p>This iterative design-evaluation loop was key to refining product functionality and building trust with the user base.</p>
<p>5. Launch</p>	<p>The launch phase saw the scaled deployment of these integrated systems across mining operations. As clients experienced tangible improvements in safety, operational efficiency, and predictive capabilities, adoption expanded.</p> <p>GroundProbe's emphasis on customer intimacy, where success is defined by the customer's success, further drove long-term relationships and innovation partnerships.</p>

GROUNDPROBE EMBEDDING DESIGN TO DELIVER IMPACT

DESIGN IMPACT PILLARS	KEY LEARNINGS
<p>1. PEOPLE AND CULTURE</p> <p>Designing to improve the quality of life for society and citizens and to acknowledge and shape culture in a respectful and inclusive manner.</p>	<p>At its core, GroundProbe’s mission is to protect people.</p> <p>The company’s technology allows mine operators to evacuate workers and safeguard equipment ahead of slope failures, directly preserving lives and livelihoods.</p> <p>Their human-centred design approach, evident in their customer co-creation model, highlights the organisation’s commitment to social responsibility.</p> <p>By integrating diverse customer insights into the design process, GroundProbe reflects broader cultural awareness and responsiveness to the specific operational norms and safety cultures within the global mining community.</p>
<p>2. PLANET</p> <p>Designing for Environmental Sustainability and Circularity.</p>	<p>GroundProbe’s technology contributes directly to sustainable mining practices. By enabling mines to monitor slopes and predict potential failures with significant lead time, operations can avoid ecological disasters and reduce environmental degradation.</p> <p>The ability to manage land use more responsibly supports long-term site sustainability and rehabilitation efforts, which are increasingly critical in global mining strategies.</p> <p>Additionally, by improving the efficiency and precision of resource extraction, GroundProbe's solutions indirectly support a reduction in waste and emissions.</p>

GROUNDPROBE EMBEDDING DESIGN TO DELIVER IMPACT

DESIGN IMPACT PILLARS	KEY LEARNINGS
<p>3. PROSPERITY</p> <p>Designing for Commercial and Economic Return.</p>	<p>GroundProbe's transition from defence to mining exemplifies strategic innovation for economic value.</p> <p>Their customer-led design process resulted in solutions that not only addressed a pressing industry need but also created commercial success.</p> <p>By aligning their technological strengths with market demand, GroundProbe positioned itself as a leader in mine safety and operational optimisation.</p> <p>The success of their product led to international deployment and organisational growth, illustrating the commercial viability of design-led innovation.</p>

DESIGN FOR A BETTER AUSTRALIA

We champion the power of design capability to deliver meaningful impact that fuels economic growth, strengthens communities, and shapes a more sustainable and prosperous Australia.

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