



m SOUTH DAKOTA MINES

THE CASE FOR CHANGE

The context, urgency, and institutional rationale for South Dakota Mines' strategic planning package.

WHY

I. Launching from Strength

South Dakota Mines begins this strategic planning cycle from a position of real strength. The university has a rich history, a distinctive identity, and a deeply rooted tradition of rigor, ingenuity, practical problem-solving, and service to South Dakota and the region. For generations, Mines has prepared scientists, engineers, innovators, and leaders whose work has shaped industries, communities, and lives.

Mines has earned trust through the quality of its academic programs, the intensity of its student experience, the commitment of its faculty and staff, and the value its graduates bring to employers and society. That foundation gives the university credibility, momentum, and the capacity to make deliberate choices about its future.

At the same time, strength today does not guarantee relevance tomorrow. The world around higher education is changing quickly. Students, families, employers, communities, policymakers, and technological systems are all shifting at once. Mines can continue to do many things well and still find that the model that produced past success is not sufficient for the next decade. The challenge before us is to adapt while staying true to who we are.

II. Why Change Is Necessary Now

The case for change begins with a simple reality: the conditions surrounding engineering, science, work, and higher education are moving faster than traditional institutions are designed to move. Universities that rely only on incremental improvement risk being outpaced by demographic change, new learning models, rapidly evolving technologies, shifting public expectations, and changing workforce needs.

Mines does not need to become a different kind of institution. It needs to become a more intentional, more agile, and more visible version of itself. The opportunity is to sharpen what has always made Mines distinctive while redesigning the systems, experiences, and partnerships that will allow that distinctiveness to matter in a new environment.

Forces shaping the next strategic period

- Demographic pressure and increasing competition for students require a clearer value proposition and stronger pathways into the university.
- Students and families are asking harder questions about affordability, return on investment, belonging, flexibility, and career outcomes.

- Employers need graduates who can apply knowledge in ambiguous settings, work across disciplines, communicate well, use emerging tools, and keep learning after graduation.
- Artificial intelligence (AI) and automation are changing both the work our graduates will do and the way students learn, create, research, and make decisions.
- Research, innovation, entrepreneurship, and industry engagement are increasingly connected to regional competitiveness and public trust in higher education.
- Institutional agility is becoming a strategic advantage, especially for focused universities that can test, learn, and adapt faster than larger or less specialized institutions.

These pressures are not separate from the university's mission. If Mines exists to educate scientists and engineers to address global challenges, innovate to reach our creative potential, and engage in partnerships to transform society, then the institution must continually renew the way it prepares students, supports faculty and staff, organizes work, and connects with the world beyond campus.

What the evidence shows

The forces above are not abstractions. The following indicators describe the environment Mines is entering and the position from which it enters.

- The national pool of high school graduates peaked in 2025 and is projected to decline by roughly 13 percent through 2041, with 38 states seeing decreases. South Dakota is among the small group projected to hold steady or grow modestly, but Mines recruits nationally, and the wider regional pool it draws from is contracting.
- The share of high school graduates enrolling in any postsecondary education immediately after graduation has fallen from a high of 70 percent in 2016 to approximately 62 percent.
- Mines enrolled 2,541 undergraduates in fall 2025, down from 2,579 the prior year, while doctoral enrollment grew nearly 15 percent and first-to-second-year retention held at 83 percent. The institution is steady, but not immune from the challenges around us.
- Mines graduates earn an average starting salary of \$76,805 with a 94 percent placement rate in their field, graduate school, or military service. Students who complete an internship place at 97 percent. Experiential learning is not a philosophical preference at Mines; it produces a measurable difference in outcomes.
- A Georgetown University analysis ranks Mines first among South Dakota's four-year public universities for 40-year return on investment, with a net present value exceeding \$1.52

million. Roughly 39 percent of graduates remain in South Dakota, making the university a direct contributor to the state's technical workforce.

- Median federal loan debt among Mines undergraduate completers is approximately \$27,000 against an average net price near \$20,000/yr. Value is a genuine strength, and it is also a claim that families increasingly expect institutions to prove rather than assert.
- Engineers represent approximately 1.3 percent of the American workforce but account for roughly 2.8 percent of GDP, and each engineer added to a metropolitan economy generates approximately five times that number in additional jobs. The leverage of this university's work on regional prosperity is disproportionate to its size.
- A randomized controlled trial found that students using unguarded AI performed 48 percent better on assisted tasks and 17 percent worse once the tool was removed. Whether AI strengthens or erodes learning depends on whether it is deployed to scaffold cognitive effort or replace it, which is a question of pedagogy and therefore of faculty capacity.
- Institutions that have built parallel pathways for academic innovation have moved from concept to launch in months on programs that would otherwise still be in committee review. Speed is achievable, but only by design.

Read together, these indicators point to a single conclusion. Mines is performing well on the measures that matter most, but the conditions that produced that performance are changing. The advantage of acting now is that the university can choose its adaptation rather than have it imposed.

III. Institutional Engagement and Emerging Themes

This strategic framework was informed by engagement with faculty, staff, students, alumni, industry partners, and community stakeholders through strategic planning working groups, campus conversations, surveys, leadership discussions, and stakeholder input.

Across those conversations, participants did not call for Mines to become a broad, generic institution. They called for focused evolution: a stronger expression of what already makes Mines distinctive and a more deliberate approach to preparing students, supporting people, and moving ideas into impact.

Themes emerging from engagement

- Identity and differentiation: Participants emphasized that Mines should avoid becoming a generic STEM institution and instead make its hands-on, industry-connected, future-oriented character more visible and more consistent.
- Experiential learning and student formation: There was strong support for expanding project-based learning, industry-sponsored work, undergraduate research, entrepreneurship, mentorship, belonging, wellness, and other experiences that help students develop capability and professional identity.
- Agility and institutional capacity: Stakeholders expressed interest in reducing unnecessary friction, improving responsiveness, supporting experimentation, strengthening faculty and staff systems, and building the capacity required to execute change well.
- Research, AI, innovation, and external engagement: Participants saw opportunities to strengthen research infrastructure, increase interdisciplinary collaboration, integrate AI thoughtfully, and make the culture of engineering, science, design, discovery, and problem-solving more authentic and visible.

The feedback highlighted an important tension. Mines is rightly proud of its rigor and traditions, but rigor cannot mean standing still. Tradition cannot mean preserving every inherited process. The strongest version of Mines will honor its past by preparing students for the future with the same seriousness, practicality, and ambition that built the institution in the first place.

IV. The Strategic Choice

Mines cannot and should not try to be every kind of university. Its advantage lies in focus. The strategic choice is to become exceptionally good at forming engineers, scientists, entrepreneurs, researchers, and technical leaders through rigorous academics, authentic work, applied research, industry partnership, community, and continuous adaptation.

That choice requires more than a new set of goals. It requires an institutional habit of connecting purpose to execution. It asks the university to align curriculum, research, student experience, partnerships, operations, investment, communication, and culture around a clearer shared direction. It also asks the university to make tradeoffs: to prioritize work that advances the mission, to stop or redesign work that no longer serves the future, and to create room for experimentation where learning is valuable even before certainty is possible.

The institution will therefore pursue a strategy focused on:

- Differentiation rather than imitation
- Design rather than incremental adjustment
- Agility rather than institutional inertia
- Experiences rather than credit accumulation alone
- Capability formation rather than information transfer alone
- Strategic focus rather than broad expansion
- Intentional community and professional formation rather than disconnected student services
- Pilot-based experimentation rather than slow institutional change cycles

These commitments are carried forward in the strategic plan as five strategic directions: reimagining STEM education around experiential learning and professional formation; accelerating research, innovation, and economic impact; expanding access and affordability while strengthening student and workforce outcomes; building an agile, high-performing institutional culture; and strengthening the university's reputation through storytelling and engagement.

The alternative is not immediate decline. Rather, it is the gradual loss of distinctiveness, slower response to student and employer needs, missed opportunities for partnership and innovation, and a widening gap between what the world requires and what the institution is organized to deliver. The purpose of this plan is to avoid that drift by choosing adaptation while the university is strong enough to shape it.

V. From the Case for Change to Strategic Action

This document explains why Mines is entering a new strategic period and why adaptation is necessary from a position of strength. It is intentionally not a full restatement of the strategic plan, the operating model, or the annual priorities. Those documents carry the work forward in more specific ways.

- The Strategic Plan defines the long-term direction: the mission, vision, values, strategic directions, outcomes, objectives, and indicators that will guide institutional choices.
- The Strategic Investment Fund and Operating System describes how the university will align resources, test ideas, make decisions, maintain accountability, communicate progress, and learn from implementation.

- The FY2027 Annual Strategic Priorities identify the first focused body of work that will move the plan from aspiration to execution.

Together, these documents are intended to help Mines remain grounded in its history while adapting with urgency, clarity, and purpose. The case for change provides the rationale. The companion documents provide the direction, operating discipline, and near-term action required to move Mines toward its next horizon.

References

The following sources were most important in shaping the case for change. They are a selected list rather than a comprehensive bibliography.

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