Unlocking Workforce Potential in Texas' Growing Data Center and Bitcoin Mining Sectors

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The Charles Koch Foundation and Education Design Lab have partnered to report on the talent gaps in Texas' rapidly growing **bitcoin mining** and **data center** sectors. Employers in these fields require a unique mix of technical, mechanical, and soft skills in order to meet increasingly complex and evolving industry demands. The rapid growth of these sectors promises substantial economic impact, yet fully realizing this potential hinges on a deeper understanding of their talent needs and the vital roles that local industries—such as oil and gas—can play in supporting these developments. To understand these needs more fully, we convened 15 industry leaders in the West Texas region in order to:

- Identify shared opportunities for addressing barriers to sourcing qualified talent.
- Explore strategies for aligning: educational partnerships and pathways; workforce initiatives and training programs; employer needs and demands.
- Scope opportunities to create and/or strengthen pipelines for these industries.

We hosted an in-person, as well as a virtual salon, with key employers in Texas to meet these goals. The insights below summarize the perspectives shared by employers, providing a roadmap for addressing the workforce needs in the region.

Disconnected Training and Talent for Nascent Job Roles

Employers in these sectors are burgeoning with **new tech-driven labor roles**, most of which do not require a college degree. Despite this widened aperture for hiring, talent shortages persist due to critical gaps in training pathways and the lack of capacity employers have to engage in the development of talent pipelines. This lack of structured programming can leave many applicants underprepared for these evolving, specialized positions. Some formal training programs are beginning to emerge from local colleges and industry associations, however these offerings are disconnected from industry employers and cannot individually address the broader skills gap.

Some hiring managers manually screen resumes for transferable skills from adjacent industries, like trades, farming, and/or military backgrounds; which can extend the ramp-up time to get new hires fully operational. Cross-training and small-scale internships have been introduced by employers with the resources to implement these strategies. In addition, geography poses a challenge for many. Facilities in remote areas limit the available talent pools, and while some employers can offer on-site camping, the long commute between home and work can lead to turnover. Data centers also face the unique challenge of being highly secure; they cannot offer site visits or imagery of their facilities, further disconnecting potential talent. As these organizations – and their respective sectors – experience exponential growth, the demand to fill critical roles continues to outpace available, qualified talent.

Employers identified the following as part of their needed job roles:

Category	Job Roles
Technology	Computer Installation Technicians, Wiring/Telecom Technicians, Cybersecurity Professionals, Network Engineers, Software Developers.
Mechanical + Electrical	Mechanical Engineers, Chiller Technicians, HVAC Technicians, Mechanical Contractors, Battery Maintenance Technicians, Generator Maintenance Technicians, Electricians, Critical Facilities Technicians.
Facilities Design / Response	High-Rise Building Operations, Plumbers, Cooler Technicians, Servicing Staff, Quality Assurance, Critical Facilities Manager.

The Need for an Engaging Narrative: Informing, Inspiring, and Connecting Potential Talent

Employers recognize that many people still misunderstand the true nature of their work. Far from "sitting behind a computer all day," these well-paid careers are hands-on, physically engaging, and rooted in cutting-edge technology that is actively shaping the future. The data processing power from these industries drives advancements in healthcare, unlocks new technological possibilities, and fuels research that may one day help cure cancer to further extend human life. The job roles outlined above contribute to a broader vision of building a better society that enhances human health, resilience, and potential. Cultivating a skilled talent pipeline is essential to sustaining this momentum, equipping the next generation to power these advancements and lead innovation.

Reaching potential talent requires meeting learners where they are through targeted engagement strategies. Here is a sample of what employers are saying and doing:

- Offering apprenticeships and hands-on training to develop skills early, such as with dual-enrollment and STEM education programs; employer visits on high school and college campuses; and partnerships with high school and college clubs.
- Looking into second-chance hiring opportunities that offer structured pathways to employment for individuals looking to re-enter the workforce.
- Establishing career discovery programs with facilities that are interested and able to offer site visits, either in-person or through VR.
- Engaging in veteran-specific outreach to leverage transferable skills and provide career opportunities for those transitioning from military service.

Achieving these goals requires a collaborative ecosystem—employers, industry associations, educators, workforce initiatives, and non-profit partners—working together to align efforts, share resources, and address evolving workforce needs. This united, skills-based workforce can open doors that fuel personal growth, contribute to the nation's energy abundance, and also advance the technology that drives meaningful, global change.

Building an Employer Collaborative: The Opportunities to Create a Flywheel of Success

Many employers across these sectors have shared that they lack the capacity to engage deeply with talent providers, underscoring the need for stronger connections that foster industry growth by codifying essential skill sets and establishing sustainable talent pipelines. Education Design Lab aims to complement and build upon existing programs and relationships, substantiating the education provider ecosystem with a clearer, unified understanding of industry needs. Rapid prototyping will help identify where new career training programs may be needed in West Texas and across the nation. This will rely on real-time data on employer needs and agile training programs to meet the rapid pace of industry growth by reaching more talent and developing job-ready candidates.

An employer collaborative is a group of employers working together to develop **coordinated, demand-driven solutions** to workforce challenges. For example:

Demand Planning	Forecasting needed job roles and skills, both now and in the future.
Talent Supply Analysis	Assessing talent providers + availability of qualified candidates in a geographic region.
Value Stream Mapping	Visualizing the responsibilities, sequence, and major activities between an employer and their chosen talent providers.

This collaborative effort will identify the most pressing workforce needs and create agile, scalable solutions that directly address skill and training gaps. The next steps will focus on convening key partners, gathering real-time feedback, refining training pathways, and ensuring the ecosystem and solutions we build are not only practical, but also sustainable for long-term industry growth.

Themes from Employer Discussions

- **Critical Trades Shortage:** There is a consistent shortage of skilled workers, especially in trades like electricians, HVAC, plumbers, and mechanical contractors.
- **Skills Transfer from Other Industries:** Employers highlighted the need for adapting skills from adjacent industries like construction, military, and building facilities management into data centers and Bitcoin mining. Veterans were frequently mentioned as ideal candidates due to their transferable skills and familiarity with security protocols.
- **Lack of Awareness and Career Pathway Clarity:** Many participants noted that there is a general lack of awareness about careers in data centers and Bitcoin mining. Due to confidentiality concerns, site visits and hands-on experiences are limited for data centers, which hinders career awareness and talent development.
- **Slow Development of Long-Term Workforce Solutions:** Programs like dual-enrollment (*high school students taking college classes*) are seen as crucial but slow to develop.
- **Engaging with Schools and Students:** Many employers suggested that connecting with students earlier through programs like apprenticeships, high school engagements, and career discovery programs is essential to cultivating a talent pipeline. Ideas like using VR tours to overcome confidentiality challenges were floated as a way to raise awareness.
- **Internal Training Programs:** Employers are training in-house to build up foundational skills, especially in areas where industry-specific programs are lacking. Time and resources become scarce and industry growth becomes unsustainable when employers are needing to train every incoming employee.
- **Alternative Recruitment Methods:** Employers are getting creative with their hiring strategies, using grassroots job boards, referrals, headhunting, and even recruiting talent from other industries. Some participants spoke to changing job titles to include less technical verbiage to appeal to wider audiences.
- **Exploring New Talent Pools:** There was discussion about tapping into second-chance hiring by working with justice-impacted individuals.
- **Crafting a Compelling Narrative:** Many employers believe that storytelling can help with recruitment. Framing the impact of these roles as part of larger societal contributions (e.g., innovations in energy and technology helping cure diseases) could help attract more talent.