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Building tomorrow’s skills-based province

An evolution from jobs to skills for the mining industry

Saskatchewan mining and metals labour market report

MAKING AN IMPACT THAT MATTERS since 1845

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Saskatchewan mining and metals labour market report

Foreword

Will Saskatchewan's labour market have enough people with the right skills to meet its 2030 Growth Plan and rise to the opportunities of the mining and resources sector?

Saskatchewan mines contain 23 of the 31 critical minerals deemed necessary for Canada's sustainable economic success.[1] The province has the potential to step up and become the premier source of critical resources for the country if it maximizes the potential of its mining sector, which already dominates economic activity in the province. Saskatchewan is looking to further unlock this potential through its 2030 Growth Plan, which involves the creation of an additional 100,000 jobs by 2030.[2] Saskatchewan is a province on the rise—with growing labour force needs.

The province, though, is facing a potentially derailing challenge: vast labour shortages. It's a region where outflow of residents is high, demand for talent is high, supply is limited, and many competitors are vying for the same talent pool and skillsets. In order to rise to its growth opportunities and ensure the sustainability of its organizations, Saskatchewan must get ahead of its labour challenges.

We developed this report to provide a better perspective on the magnitude of expected labour and skills shortages between now and 2030, and to explore how members of the province's mining and resources ecosystem (including government, industry bodies, organizations, Indigenous communities, and academic institutions) should come together to tackle the problem. We present a new research approach, which merges traditional labour market analysis components with an economic-skills based approach. Our analysis focuses on 10 critical mining occupations, which allows us to be more targeted in forecasting talent gaps. We then propose a method of rearchitecting work from a focus on jobs to a focus on skills—and look at a case study of one critical occupation to demonstrate the potential of this method to solve for workforce gaps in the mining and resources sector.

This Deloitte report helps readers grasp the complexities of Saskatchewan's labour challenge and demonstrates the incredible potential of looking at the issue from another angle. If Saskatchewan's ecosystem partners can truly come together on this, they can build tomorrow's skills-based province and set a new benchmark of successful ecosystem collaboration.

Grounded in a new approach: Our research and methodology

In this report, we've merged traditional labour market analysis elements with an economic skills-based approach. This allows us to provide a comprehensive analysis of—and more tactical solutions to—the labour and skills shortages expected in Saskatchewan's critical mining and resources industry between now and 2030.

Traditional labour market analysis elements*

Traditional labour market analysis helps us **understand how the labour market is faring**, showing how many people are unemployed and how many jobs are unfilled.

Using these traditional analysis elements, we were able to drill down to industry and occupational levels to **forecast labour supply and demand** trajectories and expected talent shortages for 10 selected critical occupations in the mining sector.

Yet traditional methods of analysis can only take us so far in understanding the discrepancy between available workers and jobs. **That's why we must turn to skills.**

The economic skills-based (ESB) approach

In tight labour markets, we can be overly focused on the traditional package of a "job" and only consider traditional talent pools and qualifications. **When sector leaders instead focus on skills, it opens doors** to candidates that may have been otherwise overlooked.

Using skills to inform workforce planning is not a net-new approach, but what is new are data analytics capabilities that enable us to assess current skills, identify skills gaps and develop targeted interventions. In tight labour markets, like Saskatchewan's today, this allows **organizations to safeguard themselves from hiring for "jobs"** only to find that critical skills to perform the work are missing.

Deloitte's new approach

To gain a better perspective on the expected magnitude of labour and skills shortages facing Saskatchewan's mining and resources industry, we used the ESB approach underpinned by labour market analysis.

Accordingly, we looked at Saskatchewan's labour ecosystem through two lenses: first, the overall labour market lens, including supply and demand, and second, the skills-based lens, which helped us understand whether certain supply/demand interventions should be pursued.

This thoughtful approach allows for a holistic, comprehensive understanding of the problem and of which tactical solutions to recommend.

**Note, this report does not entail a full traditional labour market analysis. Elements of labour market analysis were used across 10 selected critical roles in order to more accurately forecast gaps.*

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Our insights can help you get ahead of imminent labour and skills shortages. If you're looking for transformative ideas, we should talk.

Do not hesitate to contact a leader, but also feel free to reach out to the experts who have contributed to the content in this cross-service report.

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Not afraid to be ambitious

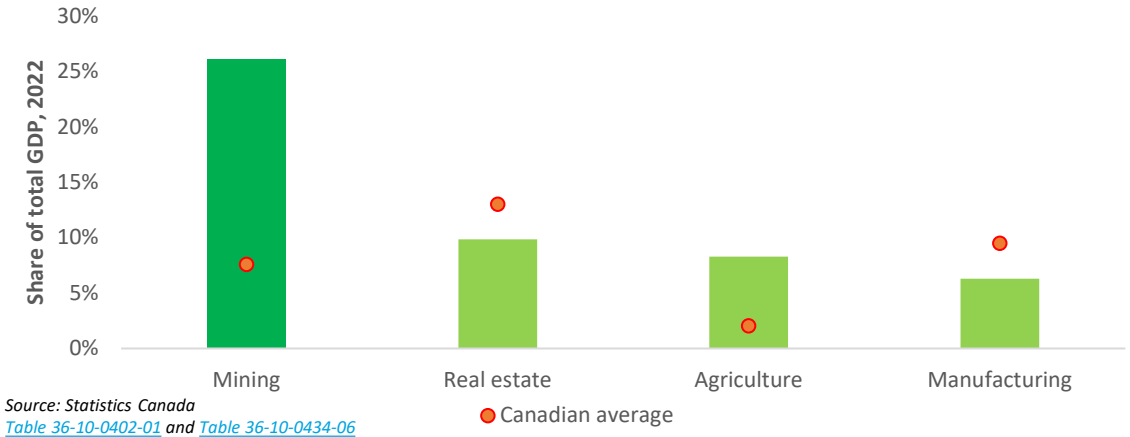
Understanding Saskatchewan’s growth plans and true potential

The potential of the mining industry for Saskatchewan's economic growth

As Saskatchewan pursues its ambitious growth plans, it needs to lean into the potential of its mining sector, which already dominates the economic activity in the province. The mining industry is responsible for roughly one-quarter of the province's economic output—more than three times the Canadian average share.[9]

Catch me if you can

Mining dominates economic activity in Saskatchewan



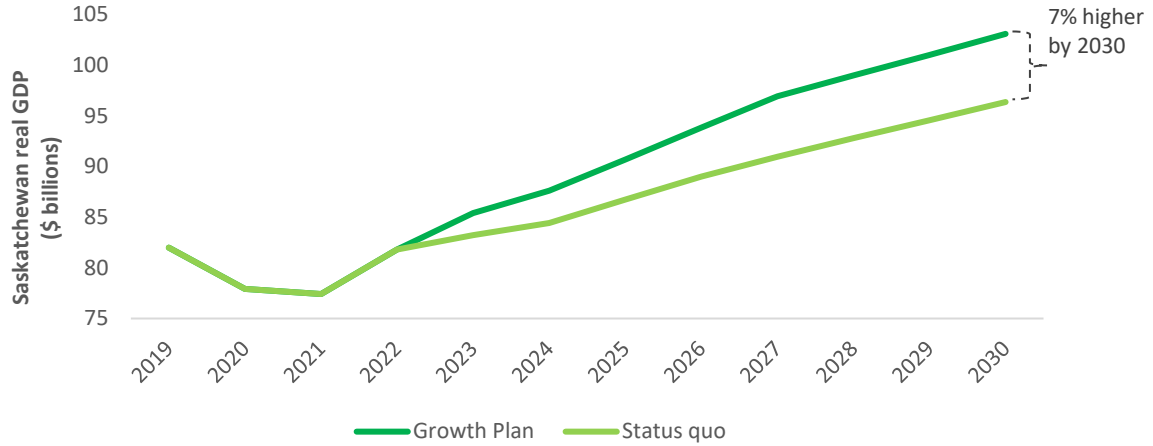
Source: Statistics Canada
Table 36-10-0402-01 and Table 36-10-0434-06

To better understand the mining industry's potential for growth in the province and its alignment with the 2030 Growth Plan projections, we started by modelling the economy's expected baseline or status-quo growth. We then overlaid this with the Growth Plan's mining sector targets (without considering its targets for other industries). The province's plan for the mining sector alone would see the provincial economy growing by about 25% between now and 2030, well above the 18% growth forecasted in our baseline (status quo) scenario.[10]

All subsectors of mining are projected to grow faster than the overall economy. Embedded in the Growth Plan scenario are a 25% rise in oil production to 600,000 barrels per day by 2030, and the additional potash and uranium capacity set to come online in the coming years as the province bolsters production in order to increase sales to $9 billion and $2 billion, respectively.[5]

Growth Plan requires a big lift

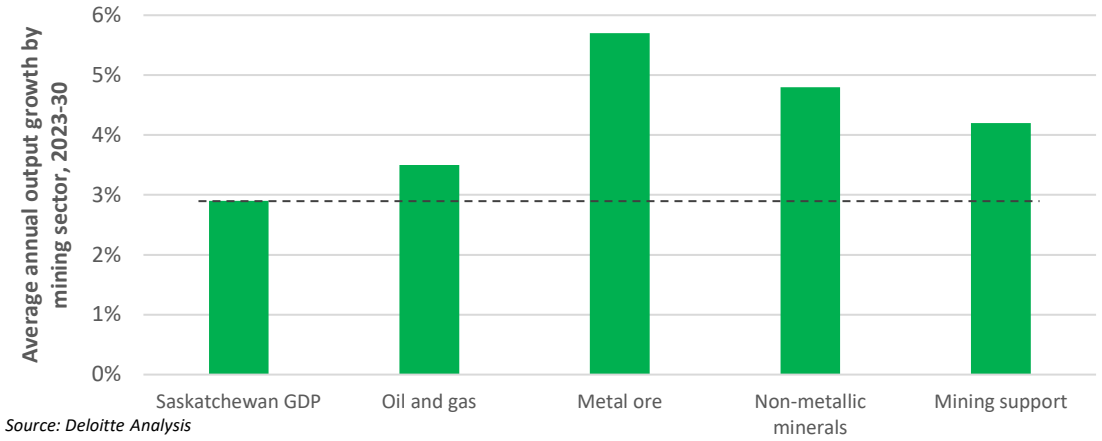
Growth Plan foresees much faster growth than our status quo forecast



Sources: Historical data—Statistics Canada Table 36-10-0402-01; Forecast—Deloitte Analysis

Mining leads the way

All subsectors of mining projected to grow faster than the overall economy



Source: Deloitte Analysis

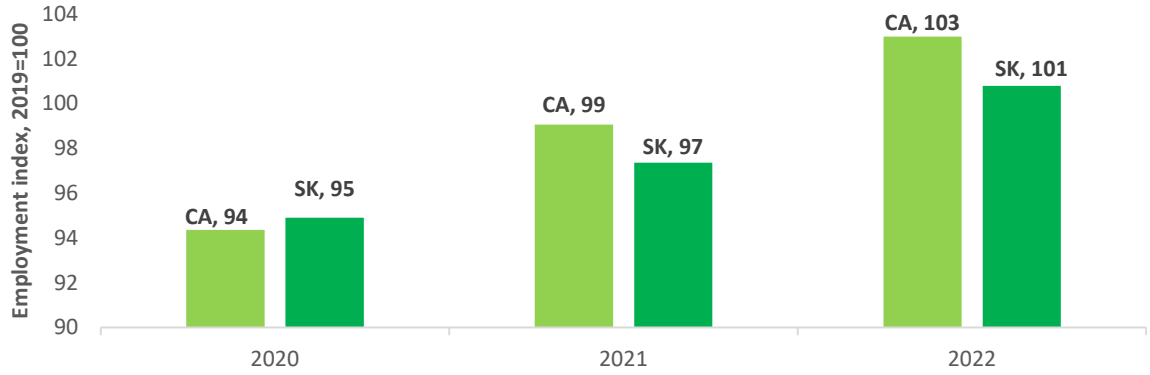
Saskatchewan, a province in rapid transformation

Saskatchewan is in the midst of an evolution. In recent years, the province has experienced remarkable investment growth, owing to its potential to meet the critical mineral needs of our evolving world.[3] As economies transition to low carbon, new green technologies scale up, and global leaders grapple with the challenge of food security, Saskatchewan is in a unique position to become the premier source of critical resources needed for our global future.

The provincial government has ambitious goals for transforming the Saskatchewan economy through its 2030 Growth Plan, which was released in 2019. This plan comes at a time when Canada is working to rebound from the unprecedented economic upheaval experienced during the pandemic, when growth plummeted. By 2022, the Canadian economy was back, surpassing 2019 levels. Unfortunately, not all provinces have experienced a rapid recovery—Saskatchewan is one of three provinces where GDP remains below 2019 levels.[4] On the plus side, however, this means that the province will experience above-average growth over the near-term as it recovers from the pandemic.

Comeback kid

Total employment across all industries in Canada and Saskatchewan has now surpassed 2019 levels



Source: Statistics Canada Table 14-10-0027-01. (14-10-0027-01.)
Note: Data covers all industries.

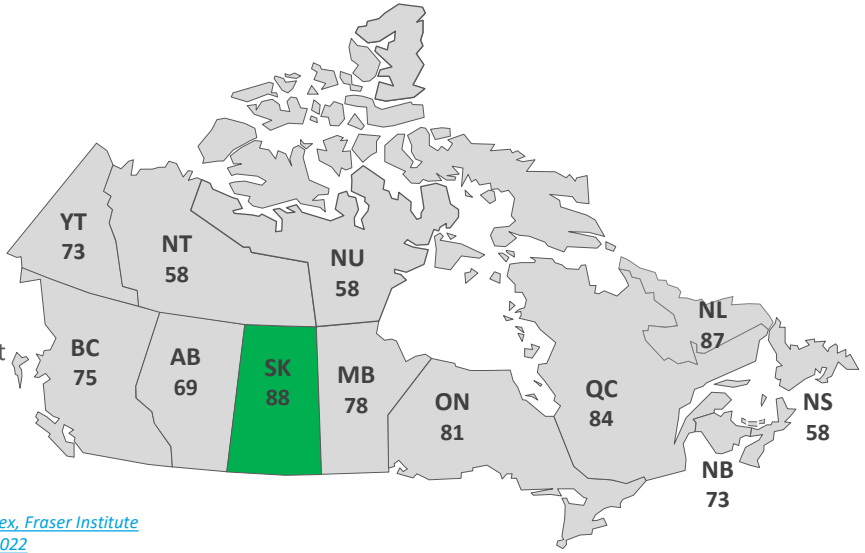
The 2030 Growth Plan comes at a great time as the province seeks to rebuild the economy and support communities and families. The plan foresees a shift toward economic diversification, balancing economic development with environmental sustainability as production and growth increase across all resources industries.[5]

Saskatchewan is uniquely positioned to lean into the economic potential of the mining and resources space. It currently is Canada's number-one mining jurisdiction, leading the country in mining development and production.[1,6] In 2022, the Fraser Institute ranked Saskatchewan first in Canada, and third globally after Nevada and Western Australia, in terms of mining investment attractiveness.[7]

Open for business

Saskatchewan ranks as Canada's most attractive province for mining investment

Provinces are scored out of 100, where 0 is the least and 100 is the most attractive jurisdiction for mining investment



Source: Investment Attractiveness Index, Fraser Institute Annual Survey of Mining Companies 2022

The province boasts rich mineral deposits, including 23 of the 31 critical minerals deemed necessary for Canada's sustainable economic success.[1] Of these, none take centre stage quite like potash and uranium, where Saskatchewan has an indisputable reputation as an industry leader in Canada and globally. Saskatchewan currently produces all of Canada's potash and uranium and is the largest and second-largest global producer of these commodities, respectively.[8]

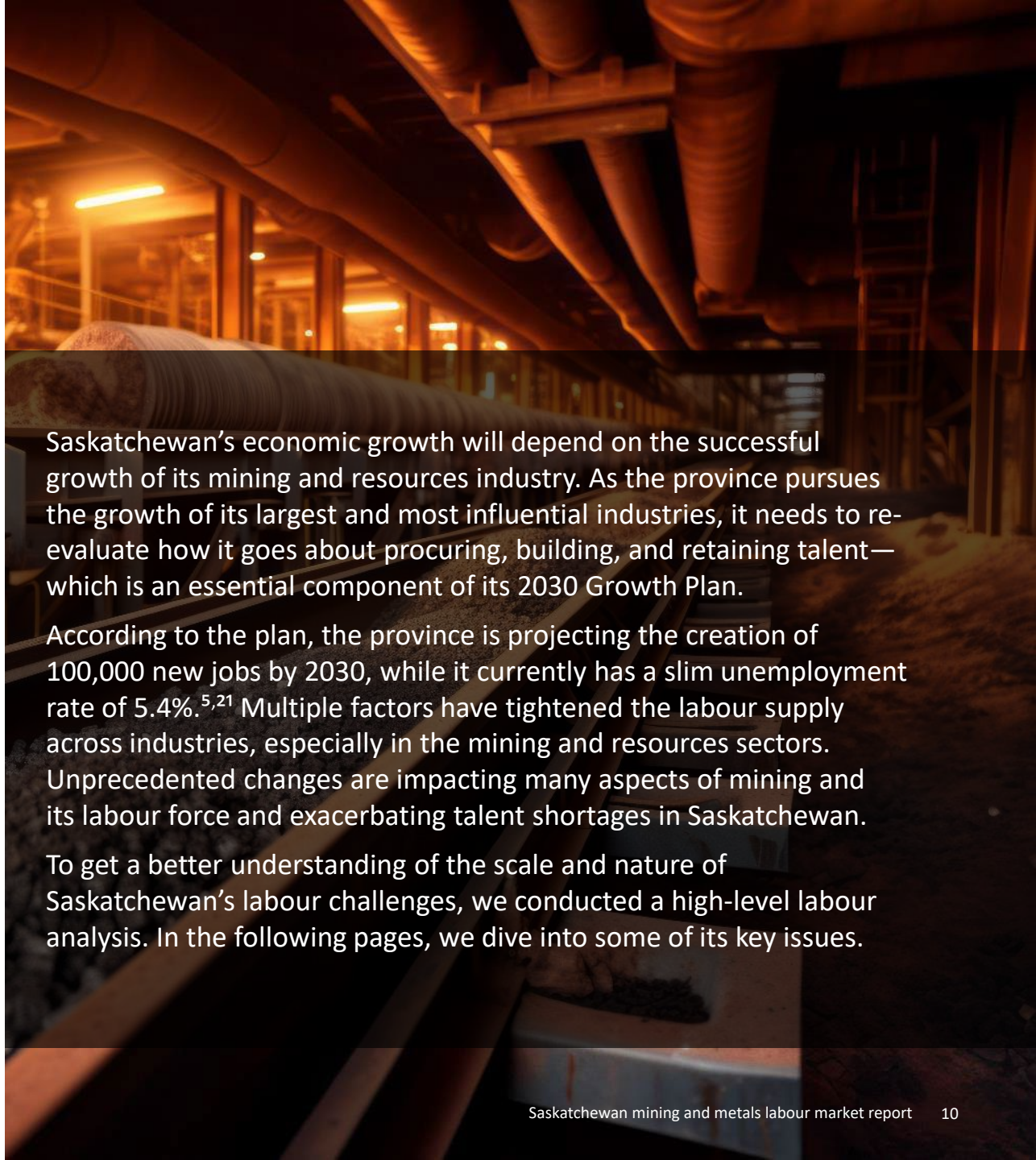
The labour conundrum for the mining industry

It’s a mining and resources sector thing

Several factors are shifting mining’s labour market landscape:

- **Growing demand for brand-new roles** due to new ways of working in mining, **creating new educational demands:** 81% of job postings in mining now require at least a Bachelor’s degree.[11, 12]
- **An aging, and quickly retiring, workforce:** Almost half of Canada’s current mining workforce is over 45 years old, and 60,000 mining workers will retire in the next decade.[13]
- **Limited pool and uninterested younger workforce:** Only 11% of young Canadians (aged 15 to 30) surveyed responded that they would probably or definitely work in the mining industry.[14]
- **Shifting workforce demands:** Workers increasingly want flexibility in where and when work gets done, and they highly value work-life balance.[15]
- **Low immigrant participation:** Immigrants represent only 12% of the mining workforce, compared to 25% of the total Canadian workforce.[16]
- **Changing in-demand skills:** Organizations are prioritizing critical thinking, problem solving, learning, resilience, stress tolerance, and flexibility.[17]
- **Increased focus on diversity, equity, and inclusion:** Organizations are setting new targets and initiatives for women and Indigenous Peoples.[18]
- **Skills vacancies** are more acute than job vacancies: 48% of existing mining employees will require upskilling/reskilling in the next four years to meet the evolving skills needs.[19, 20]

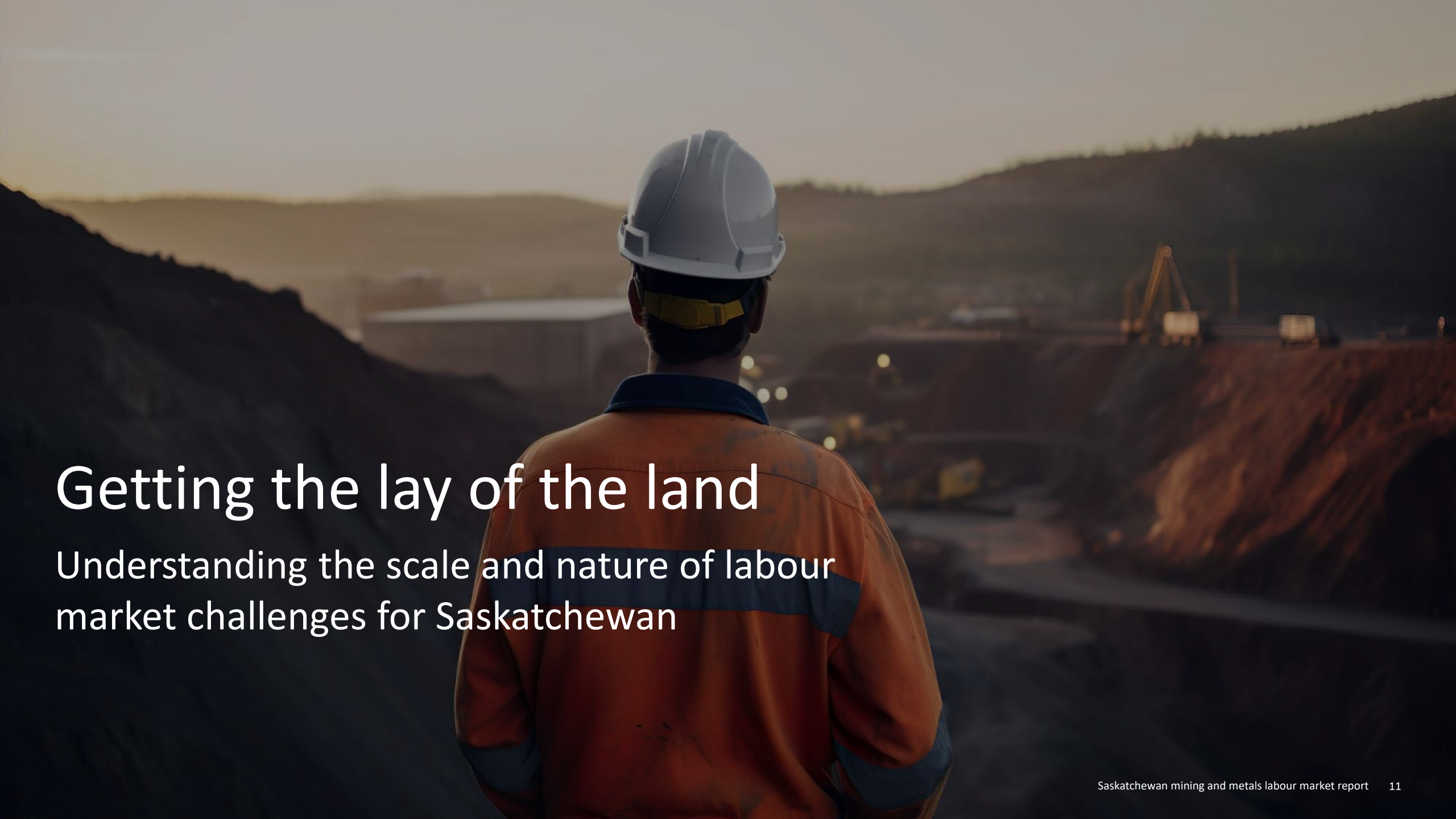
As we look to the future, a central question arises: will Saskatchewan’s labour market have enough people with the right skills to get the work done?



Saskatchewan’s economic growth will depend on the successful growth of its mining and resources industry. As the province pursues the growth of its largest and most influential industries, it needs to re-evaluate how it goes about procuring, building, and retaining talent—which is an essential component of its 2030 Growth Plan.

According to the plan, the province is projecting the creation of 100,000 new jobs by 2030, while it currently has a slim unemployment rate of 5.4%.[5,21] Multiple factors have tightened the labour supply across industries, especially in the mining and resources sectors. Unprecedented changes are impacting many aspects of mining and its labour force and exacerbating talent shortages in Saskatchewan.

To get a better understanding of the scale and nature of Saskatchewan’s labour challenges, we conducted a high-level labour analysis. In the following pages, we dive into some of its key issues.



Getting the lay of the land

Understanding the scale and nature of labour market challenges for Saskatchewan

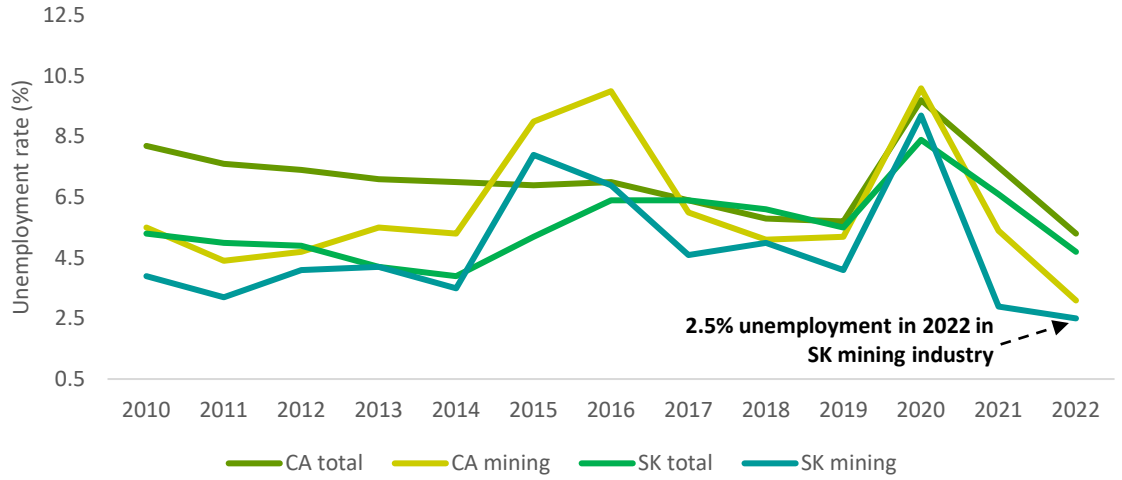
Labour markets are really tight

Labour markets are tight across the board. Across Canada and in Saskatchewan, the growth in demand for workers has outpaced supply, pushing up job vacancies and reducing unemployment rates.

Canada's unemployment rate remains low, averaging 5% in 2023 so far.[22] While Saskatchewan's unemployment rate is still above what we saw during the boom years of the resource super-cycle (from the mid-nineties to 2016), it is still lower than the rest of the country, averaging at 5.4% in 2023 as of August.[21, 23] In the mining industry specifically, the unemployment rate hit a record low in 2022 in both Canada (3.1%) and Saskatchewan (2.5%).

Setting records

The mining industry in Saskatchewan had record low unemployment in 2022



Source: Statistics Canada Table 14-10-0023-01

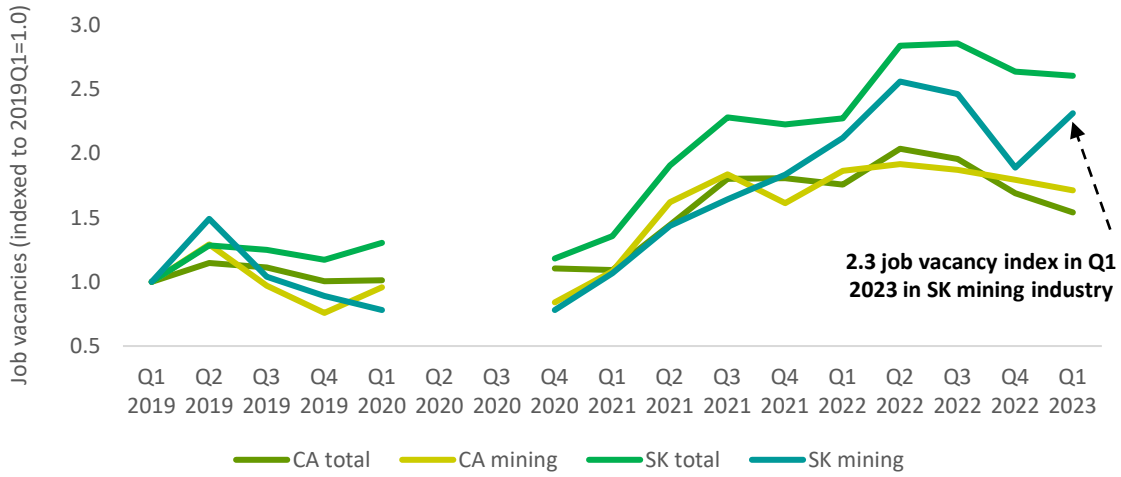
As the number of people looking for work has fallen to near-historic lows, the number of employers looking to fill positions has exploded. Across Canada, there are now 50% more job openings than in the beginning of 2019. In Saskatchewan, there are nearly three times as many unfilled vacancies as there were then.

It's very unlikely that your next employee is sitting at home with the skills you need.

We see a similar trend in the mining industry, with both Saskatchewan and Canada posting a sharp rise in vacant mining-sector jobs.

Need a job?

Job vacancies are way above pre-pandemic levels



Source: Statistics Canada Table 14-10-0398-01
Note: no data is available for Q2 and Q3 2020 due to the pandemic.

Against this reality, it's no surprise that in the spring of 2023, one in five mining employers in Saskatchewan reported labour shortages as a key obstacle to their business operations in the coming quarter.[23]

We can see here that labour markets are tight across the province and throughout the country, which means that there is heightened competition for talent—not only between industries within the province, but also between provinces.

There is almost one unemployed person for every job vacancy in Saskatchewan and across Canada. This suggests that there is either a geographical mismatch or a skills mismatch between available workers and available jobs.

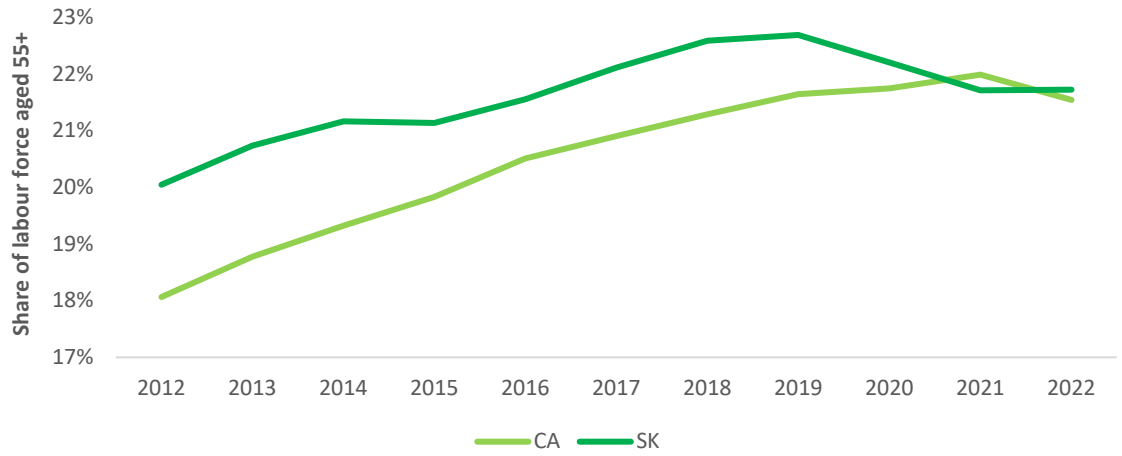
Why are labour markets so tight?

Multiple factors have led to tight labour markets. While exacerbated by the pandemic, labour shortages have been brewing for decades, owing in part to the aging population. Apart from a brief correction period during the pandemic, the share of the labour force that's made up of workers 55 years and over has increased steadily over the last 10 years both in Saskatchewan and across Canada.[24]

We know that labour force participation rates begin to drop as people reach their sixties. We can therefore reasonably expect to see many of today's workers retire over the next decade, intensifying labour supply challenges. Not only do retirements create new job vacancies, but retiring workers are also usually the most experienced and skilled workers in their fields. This loss of workers and skills is likely to be one of the largest challenges facing the province this decade.[25]

Booming boomers

More than one fifth of labour force nearing retirement across Canada and Saskatchewan



Source: Statistics Canada Table 14-10-0327-01

As the domestic workforce ages, Canada and Saskatchewan have increasingly relied on immigrants to meet labour needs. This reliance has come with its own costs.

Over the last decade, 74% of the 88,000 individuals added to Saskatchewan's working-age population were immigrants.[26] However, the pandemic led to reduced immigration levels, which contributed to the national labour supply challenges we currently face.

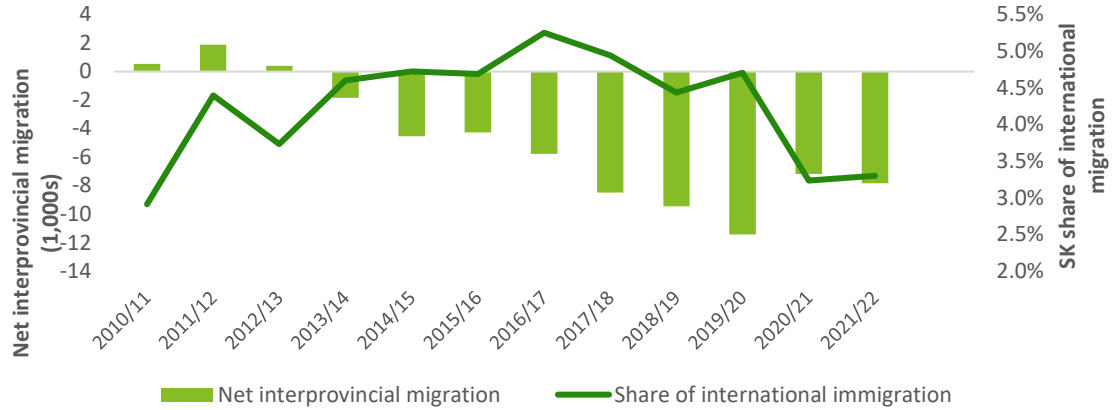
The Canadian government's plan to significantly increase immigration will help alleviate some of the labour supply challenges, provided that immigrants have or can be taught the skills demanded by Canadian employers.[27]

The two most recent years of data point to a sharp drop-off in the share of Canadian immigrants heading to Saskatchewan. The province will need to increase the share of international migrants coming to the province, returning it to pre-pandemic levels.

Another factor dampening the labour supply in Saskatchewan is the outflow of residents to other parts of the country. While there has been a modest improvement in interprovincial outflow since the pandemic, a focus on reversing the outflow would provide a sizeable boost to the provincial labour supply.[28] This will require that governments actively drive retention strategies for immigrants and citizens alike.

Looking for greener pastures?

Too many people are leaving the province and immigration shares have fallen



Source: Statistics Canada Table 17-10-0008-01

Overall, organizations should expect the tightness in the market to continue, as retirements increase and outflow of residents continues. They should begin to plan alternative approaches for accessing the talent and skills they need.

Labour market tightness stems from an aging population, negative interprovincial migration, and low levels of international migration.

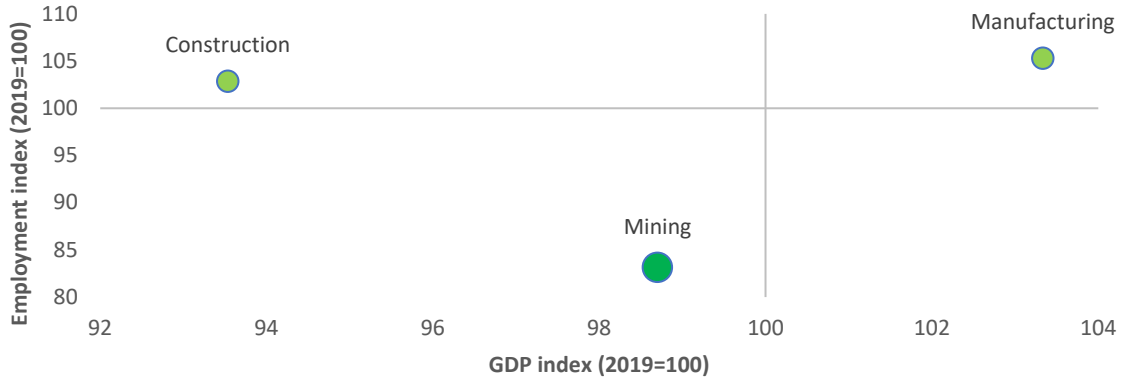
How is labour tightness affecting mining output?

As we look at the effects of labour shortages, it is also essential to consider labour productivity to better grasp the depth of the challenge the province is facing.

Unfortunately, mining output (as measured by GDP) and employment continue to lag pre-pandemic levels in Saskatchewan. While the gap is narrowing in GDP, employment recovery continues to lag significantly.[29]

Saskatchewan's road to recovery, 2022

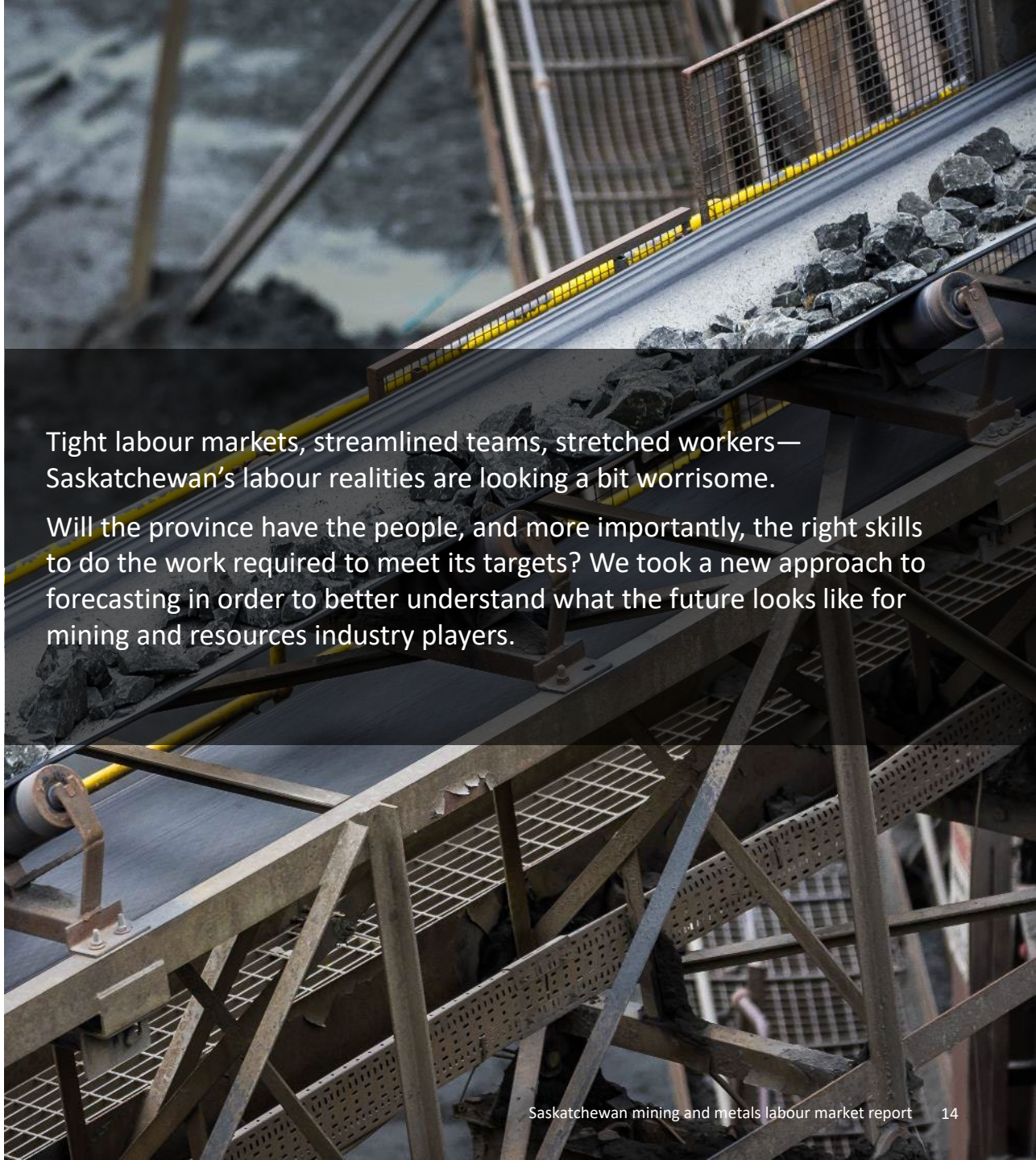
Mining employment and output continue to lag 2019 performance



Source: Statistics Canada Table 36-10-0402-01 and Table 14-10-0023-01

One possible explanation is that employers have been seeking to do more with less, asking employees to work longer hours due to the widespread labour shortages. In 2022, the average number of hours worked for all mining jobs was 2,227 hours, up from the 2,182 hours reported in 2019.[30] This increase is a warning sign of future productivity concerns. Pressures on the working population can lead to overwork, burnout, lower engagement, and higher turnover.

While the short-term solution of doing more with fewer workers can certainly help the mining industry to recover from the effects of the last few years, the industry will need a more sustainable solution if it wants to meet the 2030 Growth Plan targets.



Tight labour markets, streamlined teams, stretched workers—Saskatchewan's labour realities are looking a bit worrisome.

Will the province have the people, and more importantly, the right skills to do the work required to meet its targets? We took a new approach to forecasting in order to better understand what the future looks like for mining and resources industry players.

Looking at what lies ahead

Analyzing shortages for key mining roles: A refreshed approach to forecasting the future

A new take on old labour concepts to forecast future shortages

To predict the imminent labour shortages in Saskatchewan's mining industry and better understand whether the province will have access to the right skills, we took a new approach to forecasting. Instead of looking at workers as job holders, we looked at them as individuals whose skills and capabilities will determine whether organizations, sectors, and jurisdictions can meet their targets.

This was not an easy pivot. The traditional labour discourse organizes work around functional jobs. Yet we are increasingly finding that jobs are just the medium through which workers apply their skills. As jobs themselves continue to change, it is essentially the skills of workers that we need to access.

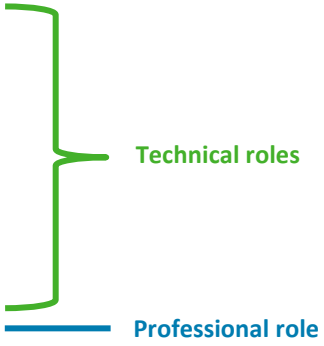
This approach will help leaders, organizations, and whole sectors tap into the full potential of the labour market by identifying skills gaps and forecasting future needs.

We approached our forecasting by:

1. **Prioritizing 10 critical and predominantly technical occupations**, which account for 45% of mining industry employment in Saskatchewan, then **identifying the key skills required for these occupations** and how these will evolve in nature and demand
2. **Forecasting demand** for these occupations and skills based on Saskatchewan's Growth Plan
3. **Forecasting supply** for these same occupations (inflows and outflows), and looking at the current channels through which the skills are accessed, and how they are developed
4. **Developing data-driven occupations and skills profiles**, which offer more specific views of demand and supply, as well as the nature of each skill and role

10 prioritized critical occupations

- Underground production and development miners
- Oil and gas well drillers, servicers, testers and related workers
- Heavy equipment operators (except crane)
- Construction millwrights and industrial mechanics
- Oil and gas drilling, servicing and related labourers
- Industrial electricians
- Heavy-duty equipment mechanics
- Welders and related machine operators
- Underground mine service and support workers
- Mining engineers



To understand the scale of the push needed to meet the Growth Plan, we focused on these 10 key occupations, which are a mix of technical roles and professional roles.

We then forecasted the number of new jobs each of these occupations will need to add in order to hit the mining targets in the 2030 Growth Plan, while also accounting for demand for these workers from other industries.

Based on our forecast, we expect that employers will need to add 2,327 net new positions across these 10 occupations. Depending on the occupation, that means growth of anywhere from 4% (welders) to 32% (underground production and development miners) from current levels.[31]

The rookies

The province's Growth Plan requires thousands of new skilled workers

Key Occupations	Number of Jobs Added by 2030	Average Annual Growth
Underground production and development miners	509	3.5%
Oil and gas well drillers, servicers, testers and related workers	226	3.0%
Heavy equipment operators (except crane)	288	0.7%
Construction millwrights and industrial mechanics	407	1.7%
Oil and gas drilling, servicing and related labourers	216	2.8%
Industrial electricians	199	1.5%
Heavy-duty equipment mechanics	121	0.6%
Welders and related machine operators	218	0.5%
Underground mine service and support workers	85	3.1%
Mining engineers	58	3.1%

Source: Deloitte Analysis

These estimates only consider forecasted needs, and do not account for Saskatchewan's labour market tightness—not to mention the range of demographic factors in Saskatchewan that are set to intensify labour shortages of these key roles, as we'll discuss on the next page.

Labour shortages forecasted to intensify

We can better understand upcoming labour demands by factoring in key occupational demographic shifts, such as new employees joining after completing school, new skilled workers immigrating to the province (both interprovincially and internationally), people who retrain and switch occupations, and retirements of existing workers.

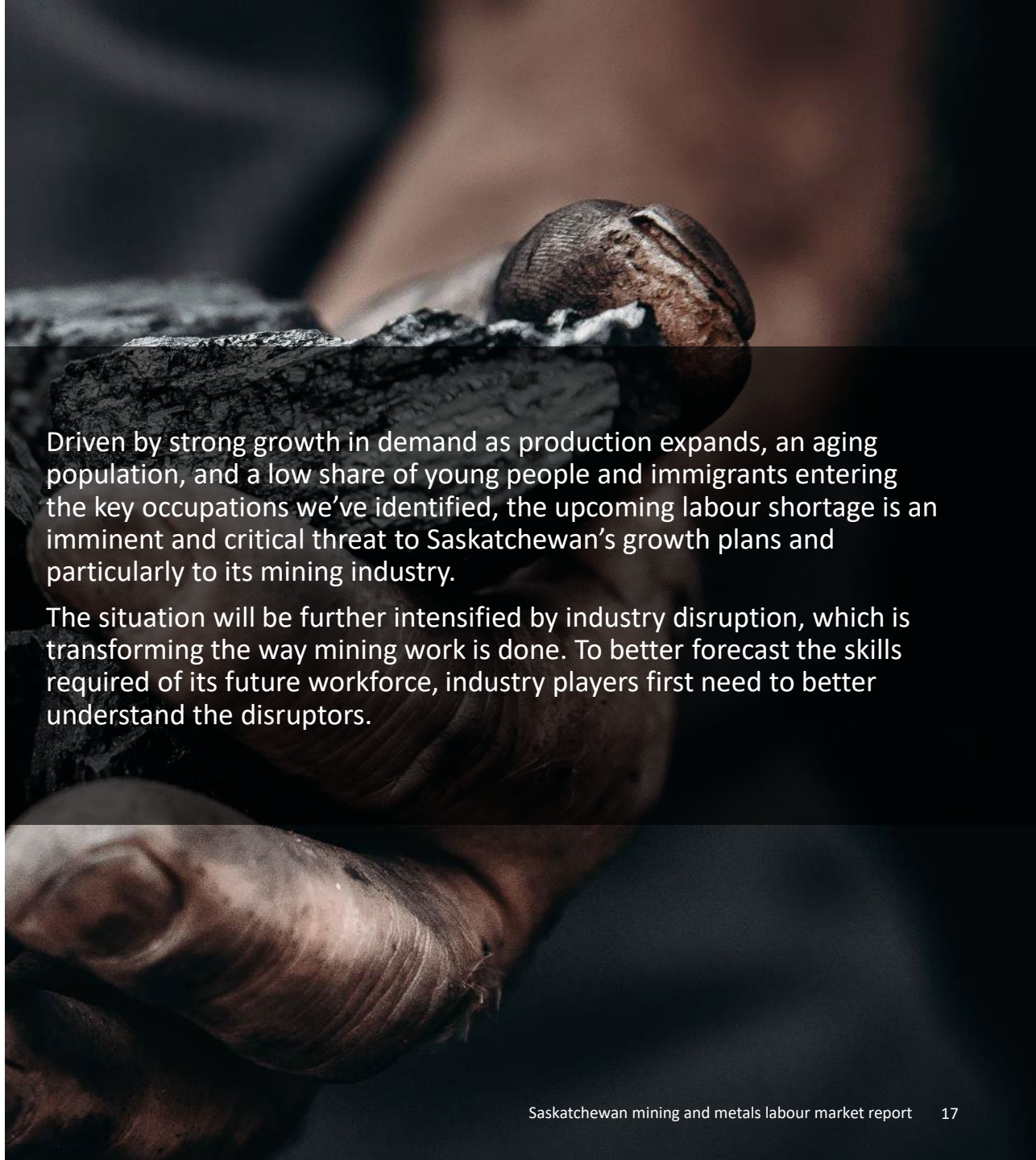
Based on current trends, by the end of the decade Saskatchewan will be short 4,793 workers in these 10 key professions, placing the viability of the 2030 targets in jeopardy. Among the individual occupations, only one of the 10 is projected to have enough workers to satisfy demand (oil and gas drillers, servicers, testers, and related workers). The other nine occupations will see an acute shortfall; the situation is most dire for mining engineers, where by 2030 we project that there will only be enough workers in Saskatchewan to fill 33% of positions.[32]

A big gap between future supply and demand

Employers will face a huge gulf between their needs and available staff

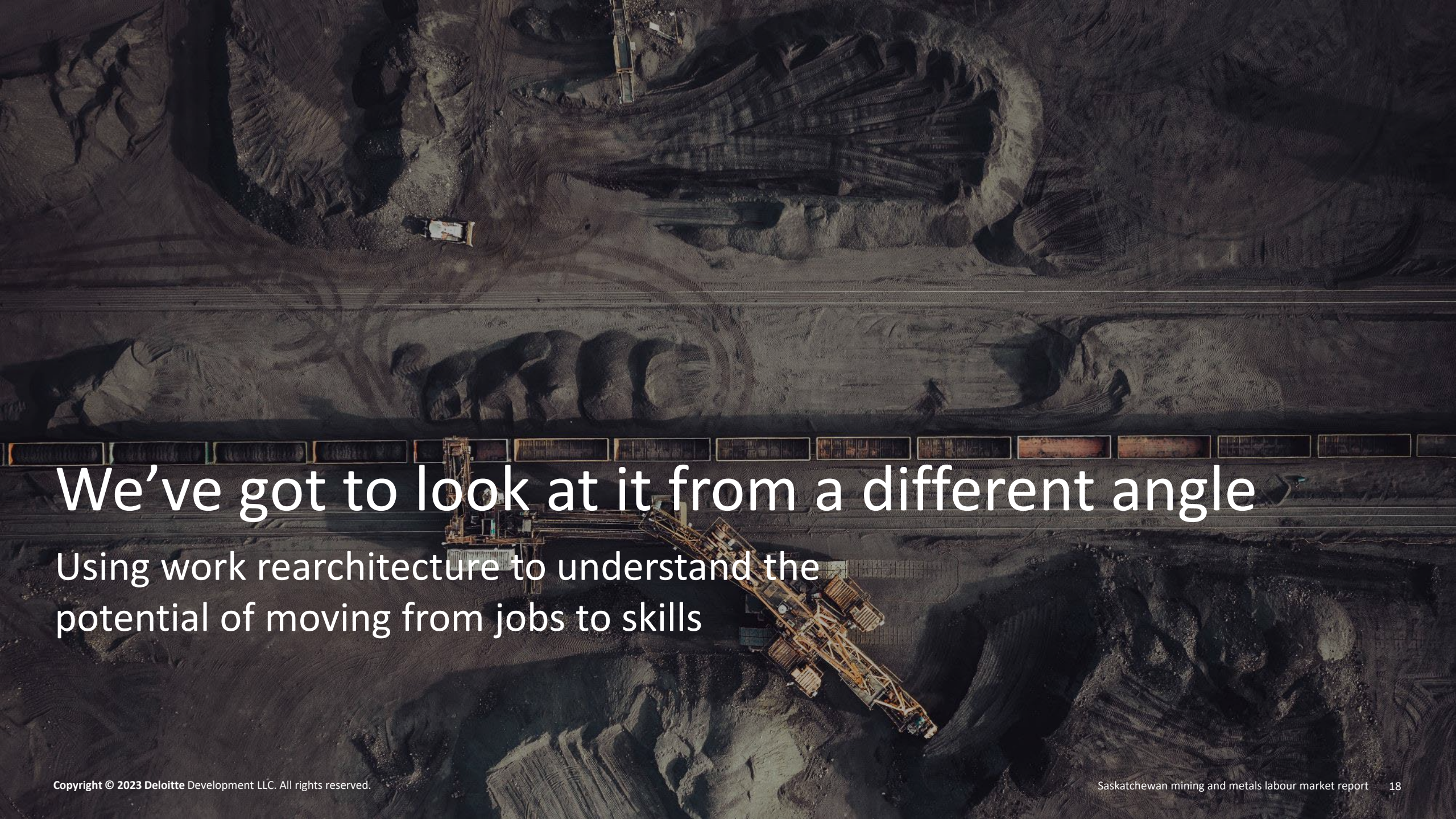
Occupations	Shortage (-) / Surplus (+)	Supply of workers as a share of demand
Underground production and development miners	-251	88%
Oil and gas well drillers, servicers, testers and related workers	293	128%
Heavy equipment operators	-151	97%
Construction millwrights and industrial mechanics	-929	71%
Oil and gas drilling, servicing and related labourers	-255	77%
Industrial electricians	-785	56%
Heavy-duty equipment mechanics	-201	93%
Welders and related machine operators	-2,090	61%
Underground mine service and support workers	-187	53%
Mining engineers	-183	33%

Source: Deloitte Analysis
Note: Supply as a share of demand is interpreted as follows: for mining engineers, supply will equal 33% of demand. A number greater than 100% means that supply exceeds demand.



Driven by strong growth in demand as production expands, an aging population, and a low share of young people and immigrants entering the key occupations we've identified, the upcoming labour shortage is an imminent and critical threat to Saskatchewan's growth plans and particularly to its mining industry.

The situation will be further intensified by industry disruption, which is transforming the way mining work is done. To better forecast the skills required of its future workforce, industry players first need to better understand the disruptors.



We’ve got to look at it from a different angle

Using work rearchitecture to understand the potential of moving from jobs to skills

Industry disruptors fuelling new talent demands

The mining industry is seeing unprecedented changes, which is forcing it to look toward new ways of preparing its workforce for the future. Over the last few years, we have seen many rumbles in "the ways things in mining get done," and these trends are only set to intensify.

What's shaking the mining industry

Automation and robotics
Embedding robotics, artificial intelligence (AI), sensors, and other cognitive solutions into everyday operations

Digital transformation
Digitizing the way work is planned and executed, driving a shift toward more intelligent operations

Environmental regulations and sustainability
Increasing measures to support decarbonization, reduce environmental impacts, and optimize energy efficiency

Value chain realignment
Shifts in operating models, including remote work and digitized operations

Social purpose
Reinvigoration of social purpose, focused on a low-carbon future and a desire to drive a lasting societal change

Diversity, equity and inclusion
Renewed focus on diversity, equity, and inclusion; gender parity; and the participation of local and Indigenous communities

Demand for talent
Growth and demand for brand new roles, with a focus on harnessing human capabilities, digital potential, and innovation

Industry disruption is fundamentally shifting the industry's demand for talent. Now more than ever, mining organizations are seeking new skills to align with their new agendas. For instance, developments in cognitive technologies and sensors require that technical workers understand how to navigate digital tools and devices and use data analytics to perform their roles. Two thirds of mining CEOs predict that a digital skills shortage will negatively affect the industry in the next 10 years—there's a real need to upskill talent in order to remain productive and unlock a new relationship with technology. [33] Similarly, the focus on energy transition is creating a need for talent with skills in sustainable design who can drive renewable energy initiatives.

As disruption changes the industry, in-demand talent, roles, and skills are changing too, forcing mining organizations to think differently about how they approach talent modelling. New talent models aim to optimize skill allocation, offering a pathway to address the industry's demand and supply gap for critical roles.

These new models take technology into account across all facets of work (e.g., mechanics logging into a tablet to access their daily tasks, or millwrights using AR/VR to learn how to fix something in real time), and they allow for wider access to specialized skills (e.g., leveraging remote talent with specialized skills to help with repairs virtually, or accessing untapped talent pools).

Elements of the redesigned talent model

Skill sharing
Collaborating with others who share similar skill needs

Remote assistance
Leveraging technology for remote assistance and expert guidance

Distributed expertise
Tapping into a diverse network of skills and expertise

Future-readiness
Focusing on adaptive, transferrable skills and proactive learning

Hybrid expertise
Combining on-site mechanics with remote guidance

As the industry changes its talent model approach, it will move away from traditional talent concepts and role descriptors, looking outside conventional boxes to push the boundaries of what's possible.

Considering the dire situation that Saskatchewan's mining industry is facing—the acute shortage of workers and the industry disruption that's reshaping the demand for talent—we propose a new approach: a focus on skills, and the rearchitecture of work.

Why the hype on skills

Skills are critical to get work done. Beyond filling vacant spots and putting workers into seats, the key is that the workers need to have the ability, capability, and knowledge to execute the work and safely conduct day-to-day operations.

As industry disruption continues to change the way mining work gets done and increase environmental and social expectations, we can expect continued shifts in the in-demand skills of the workforce.

To solve for the skills gaps in the industry, we have to appreciate two important needs: The need to **future-proof the current workforce**, and the need to **rethink attraction approaches and create new entry points** for underrepresented talent. Concerted effort must be taken to upskill and reskill existing workers while attracting talent with the right skills for the future of mining.

Given that the entire country and the province of Saskatchewan will be contending with labour and skill shortages this decade, if the mining industry is to meet its growth targets it must **focus on finding and developing the right skills.**

How can organizations find the right skills

The industry can take two aggregate approaches

Facilitate entry points and improve attractiveness of the industry for diverse workers

Encourage young people to go into training and education for high-demand occupations, better integrate groups who have traditionally faced barriers to participation, and attract immigrants with in-demand skills

Boost the skills and productivity of the existing workforce and new labour market entrants

Boost the skillsets of the workforce, and lean into disruptions and productivity gains made possible through technology and automation implementation

It's important to consider the fact that skills take time to build. The basics are easy to teach, but they can be difficult to master within the context of a specific job. There can often be a lag between when the skill is learned and when it becomes effective in practice.

The key to both approaches is to rethink the nature of work by focusing on skills rather than jobs across the mining industry. Let's look at what the rearchitecture of work looks like.

Rearchitecting work…

A traditional job

Rearchitecting the work

Tasks fade, stay, or get augmented or added based on demands from industry disruptions

A new take on work

Work is re-imagined around critical skills

…to reimagine the possibilities.

Understanding the need to rearchitect mining work: An example

To illustrate how work rearchitecture with a focus on skills can shift the talent demands for mining roles in the future and thus help curb the labour shortages for the province, let's look at an example: the construction millwright and industrial mechanic.

The construction millwright and industrial mechanic role

This critical role for mining operations is facing imminent shortages and major disruptions

The role is critical to ensuring that mining equipment continues to operate effectively and that mine sites remain productive and safe. Today, the role relies on skilled labourers, mainly based in-province, who work with tools to install, repair, and maintain mining equipment.

1.6%

Average annual growth required of this role to reach 2030 Growth Plan targets—amounting to 407 new jobs

929

Forecasted shortage of construction millwrights and industrial mechanics by 2030, based on current vacancies and forecasted labour challenges

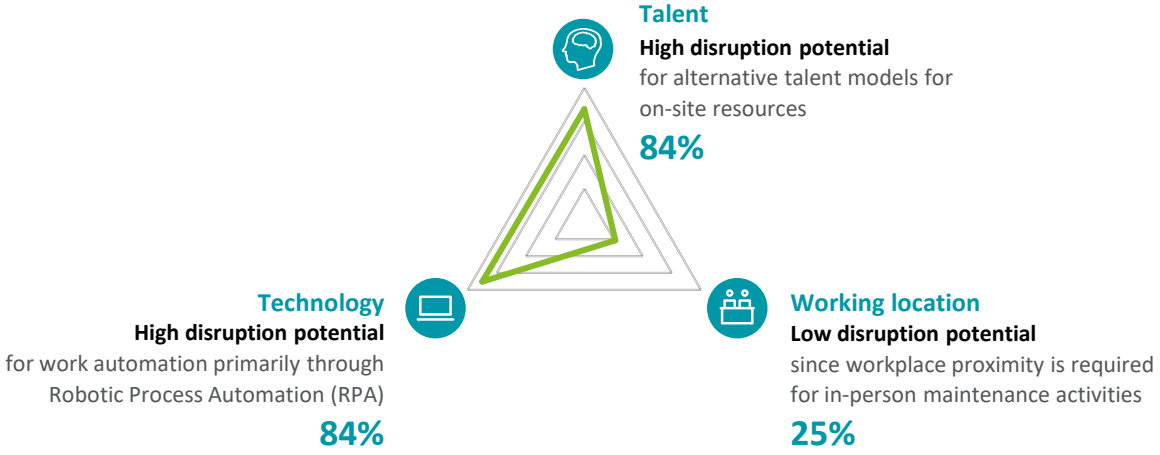
The forecasted demand for this role does not match the supply, and Saskatchewan's 2030 Growth Plans will not be realized unless the industry takes another approach to this role.

To start rearchitecting the role, let's start by analyzing the disruptors that will modify the tasks and skills of this job in the future.* We'll focus on technology, talent, and working location.

**We conducted this analysis using Deloitte's proprietary Future of Talent Optimization (FOTO) tool, which uses natural language processing and machine learning algorithms to identify key opportunities for disruption and to understand how jobs can be re-configured based on the nature of the required tasks and how much time they take.*

Future disruptions to role

Our analysis shows that the role is likely to be significantly impacted by disruption



Potential disruptions to the construction millwright and industrial mechanic role by new technologies and alternative talent models could significantly alter the makeup of the job's tasks. As an example, we analyzed how Robotic Process Automation (RPA) could alter this role.

RPA: Impacting task time and workplace flexibility

Task time remaining analysis based on pace of RPA implementation

This analysis shows that innovators in RPA automation could free up ~48% of task time. This would go a long way to relieving resourcing requirements and creating a role with less redundant tasks and more time working on interesting problems.

Given the forecasted shortage and possible degree of disruption, could the construction millwrights and industrial mechanics role be evolved to a degree that could impact its demand for talent?

Building a new future for the role

Let's now consider a new future for the construction millwrights and industrial mechanics role.* This future leans into disruption to evolve the tasks, the skills, and essentially the talent demands of this role.

Shifting the talent demands of roles in this way would inevitably transform the talent sourcing, talent value proposition, and talent models of organizations. Let's dive into a new future.

Imagine an underground mining facility in Saskatchewan that…

has chosen to become a tech-enabled mine. It **focuses on predictive maintenance through the installation of sensors** on its equipment. The sensors allow the mine to **monitor equipment health (through a platform like SAP Fiori)** to help diagnose possible issues early and address them to keep the machines running at optimal levels.

Millwrights and mechanics can easily pull up their work orders, maintenance plans, and any training materials on their tablets to walk them through a job. The increase in sensor data helps with more efficient planning and resource allocation, with increased ability to collaborate remotely with maintenance experts to help analyze and conduct repairs through AR/VR technologies.

The role of construction millwrights and industrial mechanics becomes tech-enabled, leading to optimized workflows and increased wrench time to diagnose, install, repair and maintain equipment throughout the mine.

On the next two pages, we highlight several ways in which these changes will affect the construction millwright and industrial mechanic role, as revealed by our analysis.

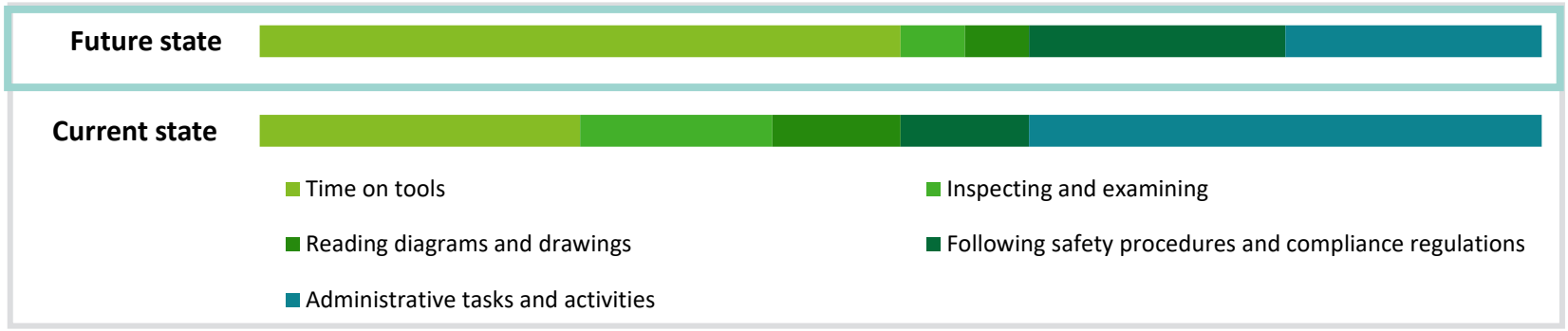
**Job canva results from Deloitte role analysis, Deloitte's proprietary FOTO tool analysis, and Deloitte's subject matter expertise*

Evolving tasks and unlocking new potential

The job's tasks will change

Typical construction millwright and industrial mechanic today		Rearchitected construction millwright and industrial mechanic tomorrow
Highly administrative and manual	→	Fully technology-enabled
Time spent on documentation and admin	→	Increased time on tools and problem-solving
Reactive repair and root-cause analysis	→	Predictive maintenance to decrease future failures
Manual inspection and data collection	→	Empowered with real-time data to make decisions

The time spent on activities will change



New potential will be unlocked

2x more

wrench time per person

By tripling the efficiency of non-wrench-time activities (including projected increases in safety), organizations can unlock twice as much wrench-time

Construction millwrights and industrial mechanics are equipped with emerging technologies like smart sensors, AR/VR, IoT devices, and cloud platforms that disrupt routine administrative tasks and enhance efficiency.

These disruptions enable more time and capacity for work that matters—solving challenging problems empowered by state-of-the-art tools, data, and real-time insights to make decisions in the moment.

Reshaping skills and a new talent approach

The job's skills will change

Skills prioritized for the role today	Skills to prioritize for tomorrow
Mechanical skills	Digital literacy
Technical knowledge	Proactive learning
Collaborative comms	Predictive maintenance
Problem solving	Judgement and critical thinking

Unchanged *Evolving* *New*

The talent value proposition for the role will fundamentally change

Today

Strong demand, secured future

Forge a stable mining career with enduring job security through constant demand for maintenance, repair, and machinery installation

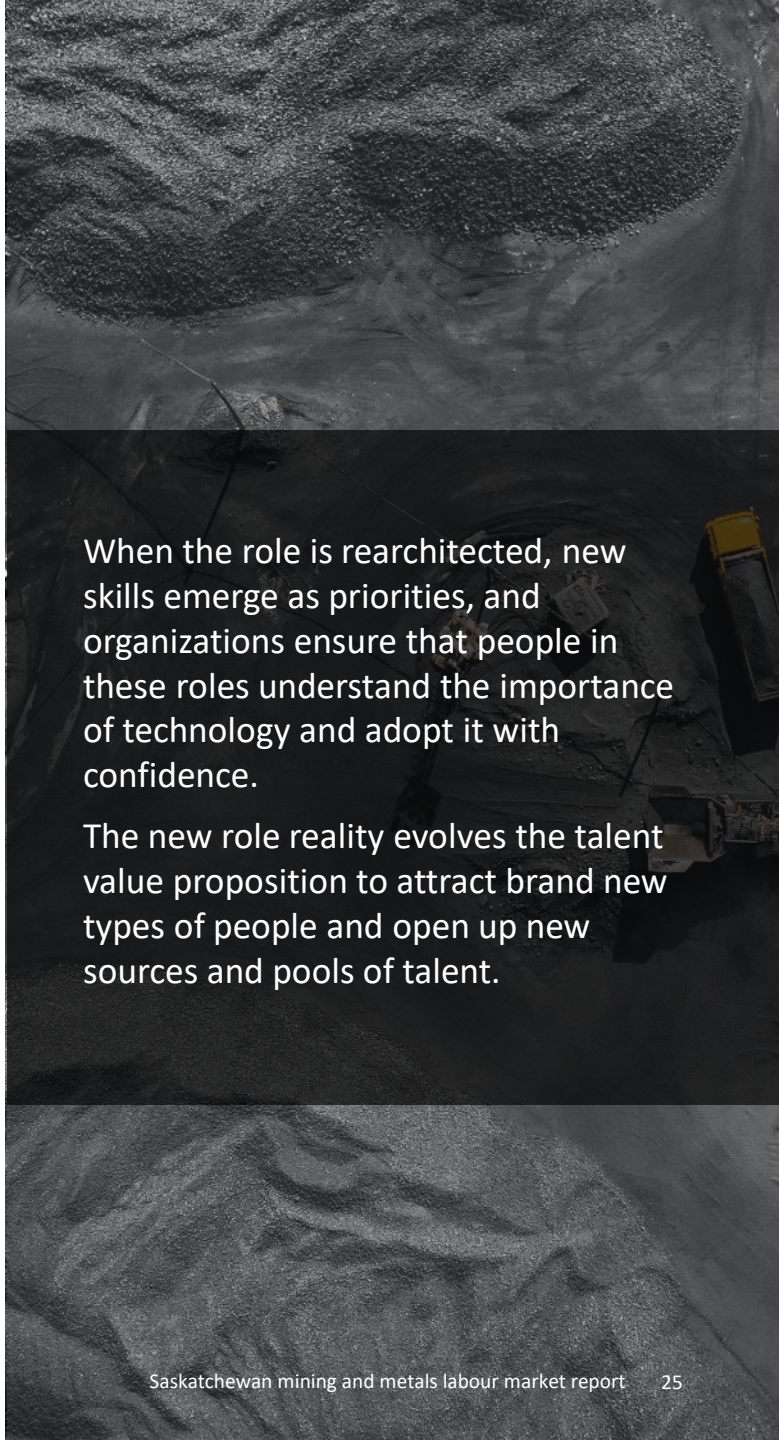
Tomorrow

Solve interesting problems

Work on solving interesting problems empowered by state-of-the-art tools, resources, and coaching in a dynamic environment where ongoing learning is encouraged

Opportunities to open new talent pools are revealed

Traditional talent sources today	Expanded talent sources tomorrow
Technical schools and colleges: Technical institutes, community colleges, and trade schools that offer integrated millwright and industrial mechanic programs, often based in-province	**Youth:** Encourage young people to consider the trades by partnering with high schools and different levels of government to promote careers in the trades and offer work experience
Apprenticeship programs: Programs that provide on-the-job training under the guidance of experienced professionals combined with classroom instruction	**Adjacent industries:** Tap into talent sources outside mining industries such as manufacturing and automotive sectors, as well as technology organizations that offer training in advanced technologies and processes
Experienced workers: Workers who already have experience working in the mining industry in related trades and have worked (or will work) their way up from entry-level positions	**Newcomers and Indigenous Peoples:** Work with different levels of government and Indigenous organizations to establish programs to promote the trades to underserved communities



When the role is rearchitected, new skills emerge as priorities, and organizations ensure that people in these roles understand the importance of technology and adopt it with confidence.

The new role reality evolves the talent value proposition to attract brand new types of people and open up new sources and pools of talent.

The ripple effect of rearchitecting mining roles

Proactively evolving the role of construction millwrights and industrial mechanics in the face of inevitable disruptions and imminent labour shortages will not only shift the role itself (tasks, responsibilities, skills, and capabilities) but will also significantly impact the role demand.

Leaning into disruptions such as increased use of automation and predictive maintenance strategies could double wrench time, which in theory could correlate to reducing resource capacity for the construction millwrights and industrial mechanics role by ~50%.

A 50% reduction in the resource capability for the construction millwrights and industrial mechanics by 2030 is enticing. Considering the labour shortage facing Saskatchewan, bold strategies are needed to close the skills gap and find the right talent. Through our analysis, we have demonstrated that proactive action, leaning into disruption, implementing new tools, and transforming the talent reality of a single role can have a dramatic effect.

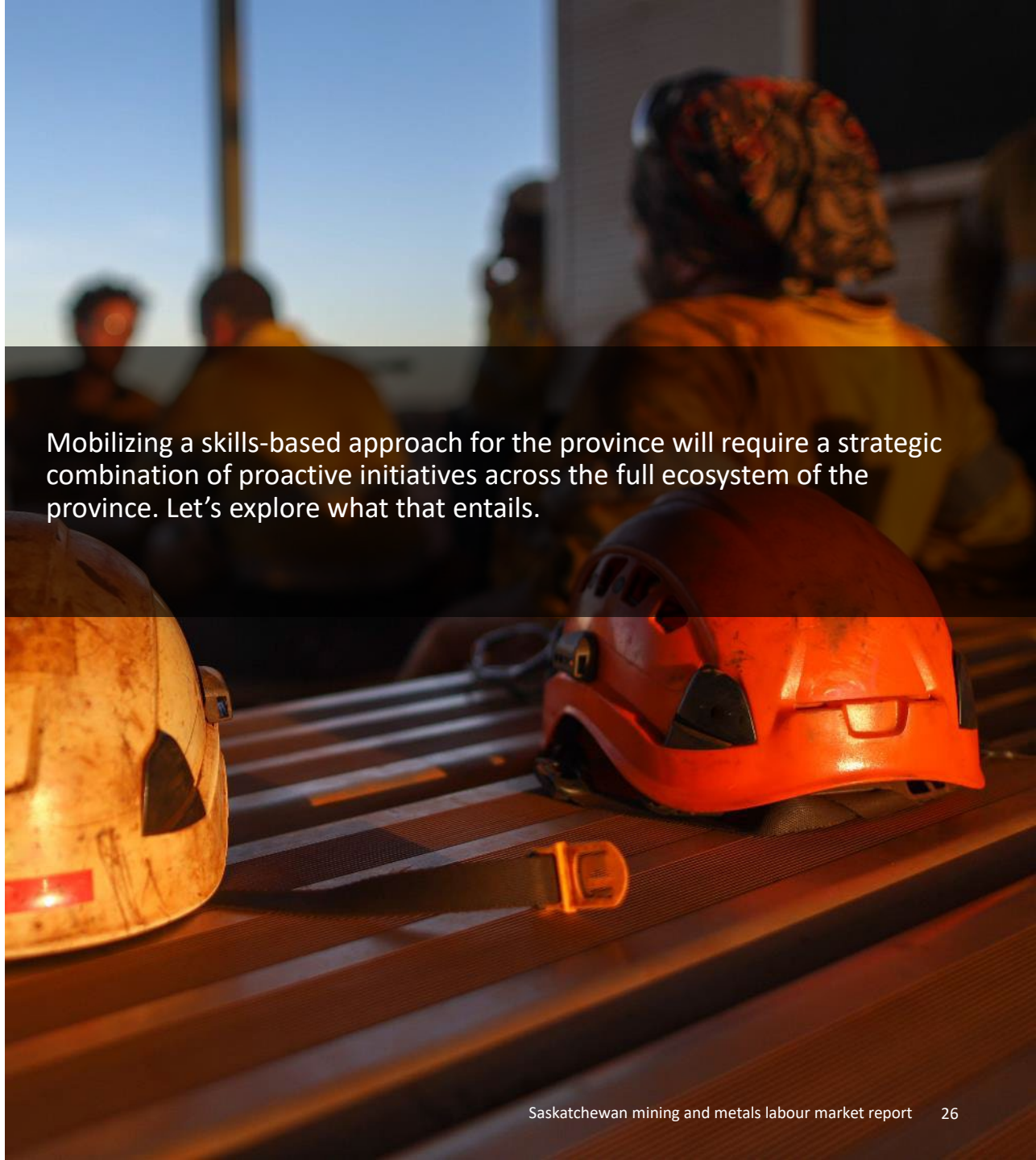
Imagine taking this approach across all 10 critical roles that we highlighted earlier—for which we forecasted that the province will only have enough workers to fill 33% of the positions by 2030 (a shortage of 4,793 workers).

Could we change the work of all of these roles? Could we change their skill requirements and alter their labour demands? We believe we can. If we explore the future skills needed to respond to industry disruptors, then we can achieve the same results across each of these roles. This approach could help increase each role's capacity and thus cut the talent gap in half—by almost 2,400 workers.

Taking a skills-based approach is a surefire way for mining stakeholders to drastically reduce the demand for talent in the province.

Deconstructing critical roles to understand the tasks done today and their associated skills, and then exploring the future of each role as it evolves through disruption, can help organizations understand the skills needed for the future and how these transformations can lead to a decreased demand for talent. This newfound capacity also presents organizations with an opportunity to make strategic choices for how roles will look in the future. Will mechanics and millwrights have new, augmented value-added tasks? These choices could impact how their new capacity will be used.

A key factor for success will be for all stakeholder groups in Saskatchewan's mining industry to work together to establish a labour force ecosystem that can mobilize the skills-based approach and implement various strategies to attract talent to the industry. Collaboration will be key as the group focuses on the in-demand roles, assesses how they are done today, and defines what will be needed in the future.



A call for action

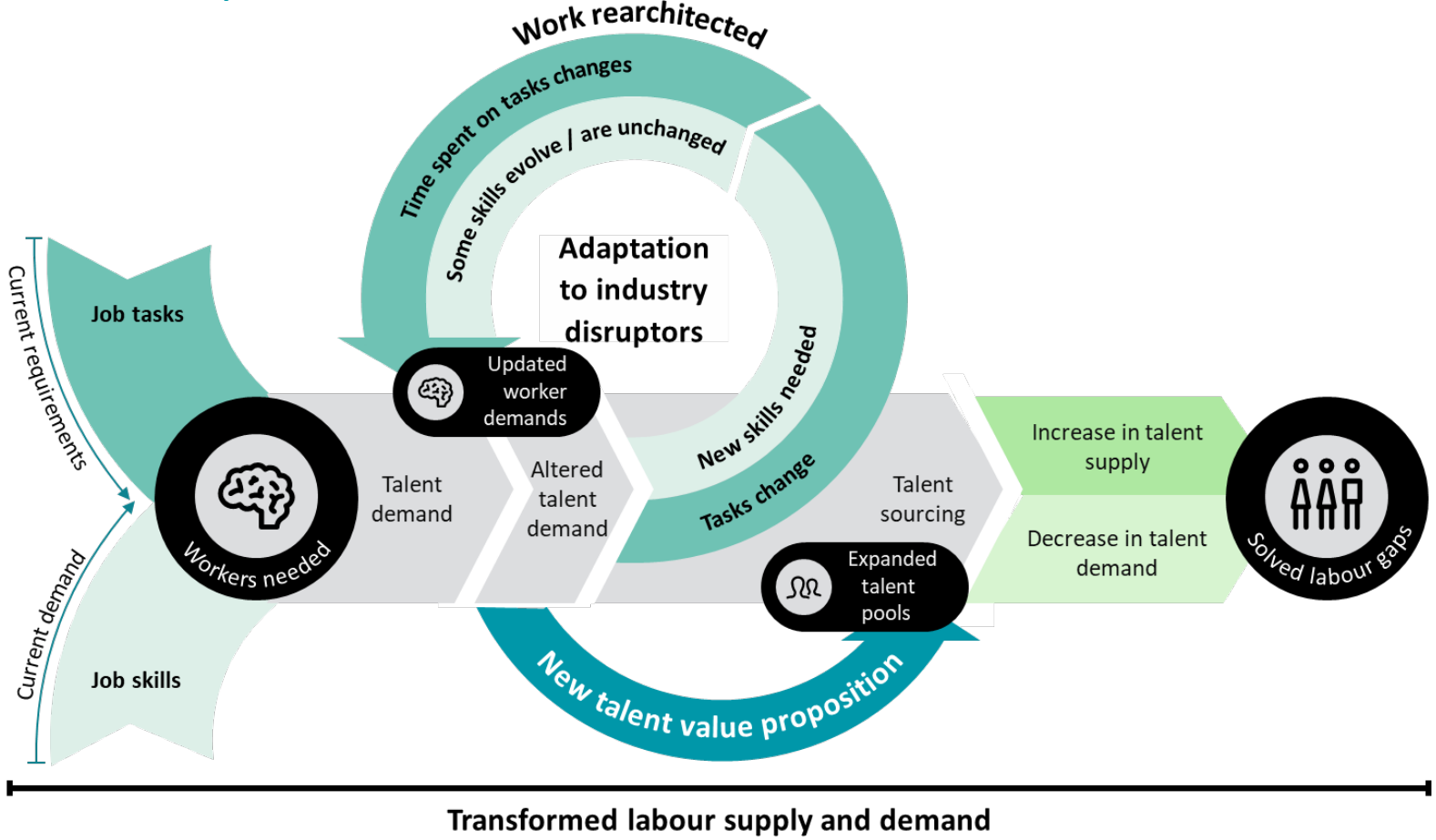
Building a labour force ecosystem: Becoming a skills-based province

A skills-based approach for Saskatchewan

Equipped with an ambitious growth plan for 2030 but faced with an imminent and potentially derailing labour shortage, Saskatchewan's mining leaders need to take action quickly. Whether to act or not act will have lasting impacts on the future of their organizations, the future of the mining and resource industry, and the future of the province as a whole.

As we've demonstrated through this report, a skills-based approach to labour challenges that embraces industry disruptors for the rearchitecture of roles, can have incredible ripple effects that solve for labour shortages. A skills-based approach accelerates agility, growth, innovation, and even diversity, equity and inclusion in the labour market. Such an approach can compensate for the large-scale shortages facing the industry and the province by 2030 and beyond.

The skills-based equation



Collaboration will reap greater outcomes than independent actions. A key factor for success, then, is the creation of a labour force ecosystem centred around the skills-based agenda to help Saskatchewan realize its potential as a global mining and resources powerhouse.

Building a labour force ecosystem

As Saskatchewan looks to tackle labour and skills shortages, a new relationship between labour force actors is essential. This labour force ecosystem must collaborate to redefine the premise of who makes up the mining workforce.

Federal and provincial governments, employers, workers, and education and training institutions have much to gain from convening to face the transformational shifts taking place in the world of work—and to design a new approach to talent where different types of workers, with different needs, can make valuable contributions to Saskatchewan's mining sector.

Put simply, a labour force ecosystem is a structure where actors within and outside of organizations work together to generate access to skilled talent. It is different from the current state, as it generates access to the skilled labour inherently built into the system, rather than driving such access through short-term programs and initiatives.

When done correctly, a labour force ecosystem drives these sustainable outcomes by developing coordinated responses to the questions listed below each one:

Development of and access of critical skills
Are current training and employment models serving us? How can we reduce the time to develop skills? How might part-time or gig opportunities allow access to critical skills?

New worker expectations
Shortages increase workers' ability to influence how they work and whom they work for — how will mining make itself an attractive choice?

Digital workplaces
Access to technology makes it seamless for those with in-demand skills to work at any time or any place —how will mining respond with innovative ways to offer flexibility?

Tackling a systemic challenge like this will only work if the sector comes together and sheds traditional distinctions of who forms the mining workforce. Grappling with this challenge collectively will enable the sector to build a true labour force ecosystem—and with it, unlock critical skills and worker potential.

Bringing the labour force ecosystem together

A consortium of ecosystem players must come together to successfully build the labour force ecosystem for Saskatchewan. Each player has a role to play and can bring their own strengths and tools to turn the vision into a reality.

Why players need to join the cause

Private bodies/organizations
Individual organizations that are experiencing the same challenges and will end up in a war for talent if they take siloed actions

What they can bring to the table

- Work toward revamping the industry narrative and perception to improve talent attraction
- Invest in innovation, pursuing new ways of mining and working through technology, operating models, processes, and talent models
- Transform HR processes to account for new recruitment, onboarding, performance management, and training and development strategies to attract talent

Education institutions
Institutions that provide opportunities for social/economic mobility by selecting and training individuals for the future labour market

What they can bring to the table

- Work with the different levels of government and mining organizations to refine curricula across the province—from high school to post-secondary education—to focus on developing the skills needed in the current and future mining sector
- Develop training centres in collaboration with the private sector

Industry bodies
Both public and private sector actors who support social issues and initiatives within the sector

What they can bring to the table

- Establish scholarships and bursaries for under-represented groups, giving Indigenous youth, for example, better access to higher education and higher-order jobs
- Develop partnership programs to improve representation
- Establish and monitor industry-wide standards of practice for the skills-based province initiatives, ensuring that the principles and target indicators are respected

Levels of government
Public sector actors seeking to solve social and political problems and create opportunities for the province and its people, and the highest-level stakeholder exercising central political authority over provinces

What they can bring to the table

- Develop policies and programs to promote the importance of mining in Saskatchewan while making the province's mining environment attractive for both companies and prospective talent
- Work with mining organizations to understand their talent needs, and conduct labour market studies to understand provincial skill gaps
- Ensure connection among distinct industry bodies
- Enable policies and programs that support the inclusion of under-represented groups into the mining workforce
- Support the development of non-profit groups, which could manage staffing for different organizations
- Influence federal immigration policies, such as reducing the processing time for immigration visas (shortening the current six-to-eight-month timeline) and/or focusing on improving the percentage of temporary foreign workers participation in mining

The incentive for individual ecosystem actors is clear, and so is their purpose: each player can add significant value to the labor force ecosystem movement. Even beyond their critical role in the movement is each player's individual opportunity to lead by example to help other ecosystem actors learn to act like a skills-based organization.

Leading by example: Behaviours of a skills-based organization

- Use skills-based data to facilitate proactive hiring, precise matching, strategic upskilling, and effective deployment.
- Expedite recruitment by pinpointing the critical skills that align directly with evolving business needs.
- Deploy workers to tasks based on a range of factors, including interests and competencies, ensuring optimal work allocation.
- Democratize growth opportunities, ensuring equitable access to development for all workers, regardless of their roles.

Envisioning the skills-based province

As we've demonstrated, a skills-based approach is emerging as a strategic imperative for Saskatchewan's evolving mining industry. As automation reshapes roles, essential human qualities such as critical thinking and empathy are becoming all the more important. Beyond conventional qualifications, the skills-based approach champions fairness, celebrating diverse talents, and hybrid work models are allowing organizations to embrace a newfound agility that further addresses talent gaps and reinforces adaptability.

This transition isn't just about capturing market opportunities swiftly; it's about cultivating a mining workforce that's both diverse and agile, thriving seamlessly in the ever-shifting, fiercely competitive employment landscape.

What does it mean to become a skills-based province?

In a skills-based province, organizations use skills as the fuel for a wide range of talent and business decisions, accelerating agility and growth. These organizations exceed their business needs and better compete in the new world of work by unleashing the full potential of the workforce to build a more resilient organization.

Becoming a skills-based province will future-proof Saskatchewan's growth plans and labour market. It's an imperative for the sustainability of the province. The call to action is clear, but will Saskatchewan's players respond.

The call to action is for Saskatchewan to become a skills-based province by designing a labour force ecosystem where actors within and outside of organizations work together to generate access to skilled talent. Put simply, we are calling for federal and provincial governments, employers, educational institutions, workers, and training centres to collectively redefine the mining workforce and create a skills-based Saskatchewan.

Bringing the skills-based province to life: Recommendations for building a thriving mining labour force

To mobilize an ecosystem strategy that enables a thriving mining labour force, we recommend prioritizing the following actions and tactics. Bringing a skills-based province to life is a vision with multiple strategic levers.

Prioritized levers for action

Take a skills-based approach to labour market analysis
Use data to uncover skills mismatches, which will inform targeted approaches for upskilling and attracting workers with in-demand skills to the province.

Sample tactics

- Establish skills data as part of labour market analysis, layering it onto existing workforce data.
- To inform analysis, ask employers to provide a view into the skills they will required in the next three to five years.
- Establish a labour council made up of ecosystem players (employers, educators, etc.) to keep this skills data fresh.
- Make labour market and training information, tailored to different career stages/entry points for job seekers, available to employers.

Establish a dedicated mining labour force strategy
While a strong system for reskilling and immigration is already in place, the future skills shortage requires innovation. Governments, employers, and education institutions all have a role to play in co-designing and executing a renewed strategy.

Sample tactics

- Focus on making Saskatchewan an ideal destination for skilled talent.
- Look for opportunities to integrate reskilling more tightly into existing government programs.
- Accelerate digital transformation to reduce labour demands (e.g., build digital infrastructure, rearchitect work).
- Embed equity into the labour force (e.g., set targets for representation across the sector, establish audit requirements).

For more details on recommendations, please reach out to one of our leaders, listed on page 6.

Speed up reskilling efforts
Informed by timely skills demand data, build programs that help workers, including discouraged workers, find accelerated paths to skilled jobs. Feature reskilling programs that extend just enough learning to land workers in apprenticeship-style roles.

Sample tactics

- Establish cross-sectoral reskilling and upskilling pathways that elevate the skills of the current workforce and help job seekers learn new skills.
- Introduce standards for micro-credentialing focused on in-demand skills, and create incentives for employers to use micro-credentials for reskilling.
- Create the conditions for integrated learning at work sites.

Improve the education-to-workplace continuum
While institutions of higher education have been investing in building micro-credential programs, uptake by employers has been slow to date. Tightening the connection between labour market data, reskilling programs, and jobs is key.

Sample tactics

- Build in-demand skills into high-school offerings. Future entry pathways should be inclusive and avoid over-credentialing.
- Expand the recognition of transferable skills. Take steps to recognize the portable skills of workers coming from other sectors or with relevant work experience (like from other sites). Programs like Prior Learning Assessment and Recognition (PLAR) can ease the process of skills recognition, eliminate barriers, and help a new pool of potential talent see how their skills can translate to a career in mining.

Re-brand mining into the future
Mobilize the ecosystem to communicate that more inclusive, socially and environmentally responsible futures can be found in mining.

Sample tactics

- Lead a social movement to build new enthusiasm around the future of mining, engaging youth, mining communities, Indigenous people, and investors.
- Redesign mining careers with youth in mind: provide exposure to the industry by launching a Hackathon in which youth are asked to design the mining career of the future. Reward participants by recognizing the skills they gained and applied in the challenge.


Imagine a world where Saskatchewan is a skills-based province,
with a thriving critical minerals and resources sector.
It’s meeting its economic and population growth targets,
improving the lives of its people and communities.
Multiple players work together in a united labour force ecosystem
to build a sustainable future for their organizations, for the mining
and resource industry and for the entire province.

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