

Preparing for the Future of Mining

How Skill Change Drives the Future of Work

Matt Sigelman, CEO
Emsi Burning Glass
msigelman@burning-glass.com
@mattsigelman
FCH Fast Forward Mining Conference
2 September, 2021

Emsi Burning Glass Turns Real-Time Data into Actionable Insights for Building & Transforming the Workforce

Emsi Burning Glass is the **global authority on talent and skills**, leveraging our **robust market data and rich taxonomies** to help global enterprises drive transformation and boost the value, mobility, and future-readiness of their workforces.

Our **data-driven approaches to mobility and strategic workforce planning** help firms to:

- 1 Predict **future changes** to their workforces and their impact
- 2 Identify **new talent pools** for hard to fill jobs
- 3 Rearchitect roles to ensure workforces are **future ready** and to optimize for **cost & availability**
- 4 Map **reskilling, upskilling** pathways & align **learning investments to talent** strategy

Deep expertise in:



Big data



Natural
language
processing



Taxonomy
development



Complex
modeling
for HCM

Quick facts:

- Based in Boston, MA & Moscow, ID
- Backed by KKR
- 340 employees across four continents



US & CA



AUS/NZ



UK & Italy



India

Across Enterprise, Learning, Research & Government Leading Organizations Trust Our Data



Across Many Fields, The Skills Required Are Changing Fast

- The average job has seen **28% of its top skills replaced** just in the past decade

	Top 20 Skills % replaced	Top 30 Skills % replaced	Top 50 Skills % replaced
Overall	27%	28%	29%
BA+	28%	27%	28%
Sub-BA	27%	29%	30%

Skills of Mass Disruption

Emerging Skills are Disrupting Supply Chains

Skill Area	Projected 5-Year Demand Growth
Software Dev Methodologies	35%
Cloud Technologies	28%
Proactive Security	39%
IT Automation	59%
AI and Machine Learning	71%
Connected Technologies	104%
NLP	41%
Fintech	96%
Parallel Computing	17%
Quantum Computing	135%

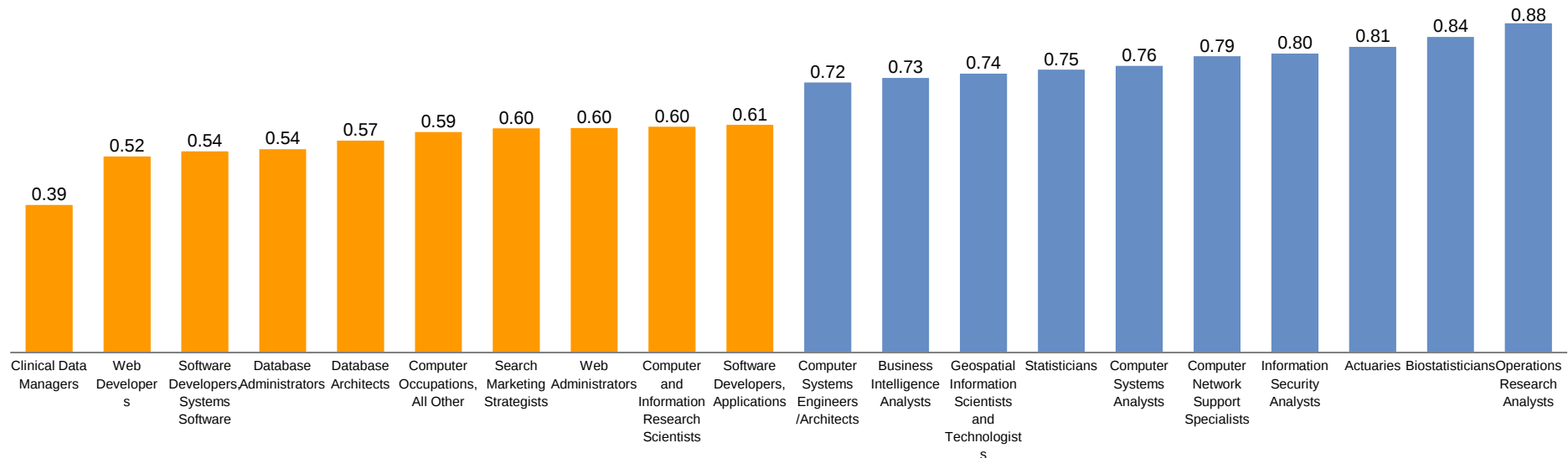
Understanding How Jobs Change

Even Among Tech Jobs, Some Change Faster

Skill Change Score: The score can take values between 0 and 1 – the smaller it is, the more a job has changed.

Top 10 fastest changing tech / data jobs

Top 10 tech / data jobs changing the least



Note: the job titles follow the ONET taxonomy and only the jobs with more than 10,000 appearances in online postings in 2018 were considered

1. Intra-similarity score: based on the changes in skills, education and experience required to perform a certain job over 2015-2018

2. Changes in skills, education and experience: by % of online postings in which they were required; only skills required in at least 10% of postings in either 2015 or 2018 were included

Source: Burning Glass; BCG analysis

Jobs Are Evolving

The Emergence Of A Hybrid Genome

Accountant

Data Scientist

ACCOUNTING

Accounting
Account Reconciliation
General Ledger
Financial Statements
Generally Accepted
Accounting Principles
Financial Reporting
Balance Sheets

SOFT SKILLS

Communication Skills
Detail-oriented
Excel



+23%

Since 2013



+598%

Since 2013

PROGRAMMING

Python
SQL
Hadoop
R

DATA SKILLS

Data Visualization
Tableau
Excel
MapReduce

BUSINESS SKILLS

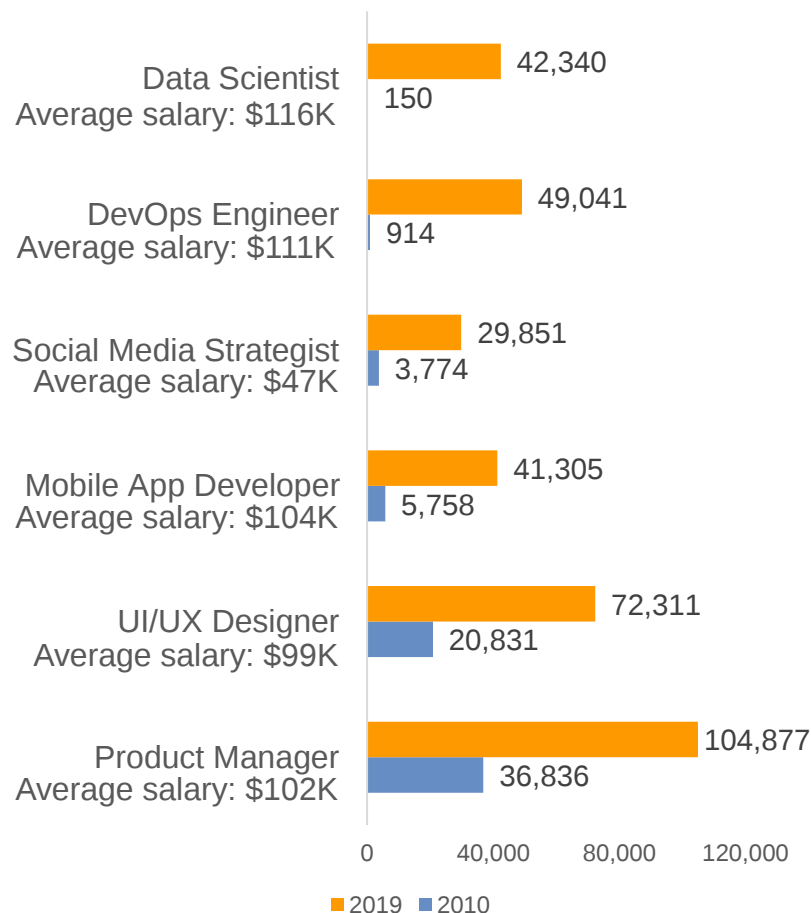
Predictive Models
Business Process
Economics
Strategic Planning

SOFT SKILLS

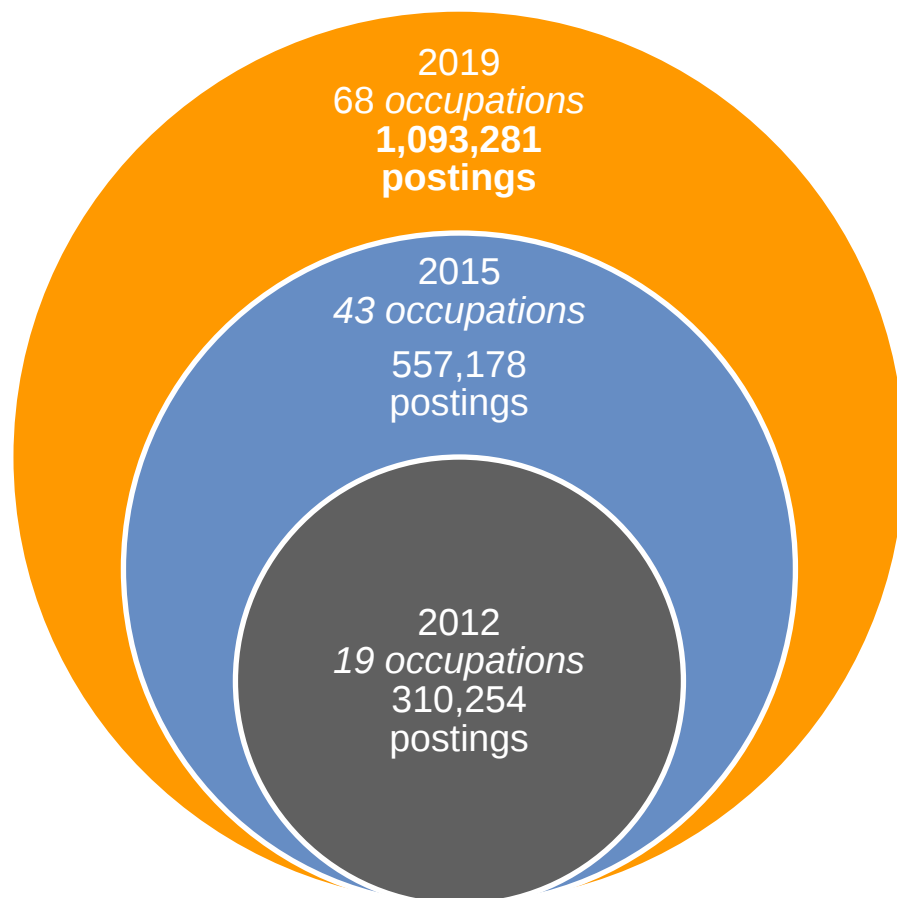
Problem Solving
Writing
Teamwork

New Jobs Are Being Created But The Bigger Impact Is In Existing Jobs

Job Postings Growth in New Hybrid Roles



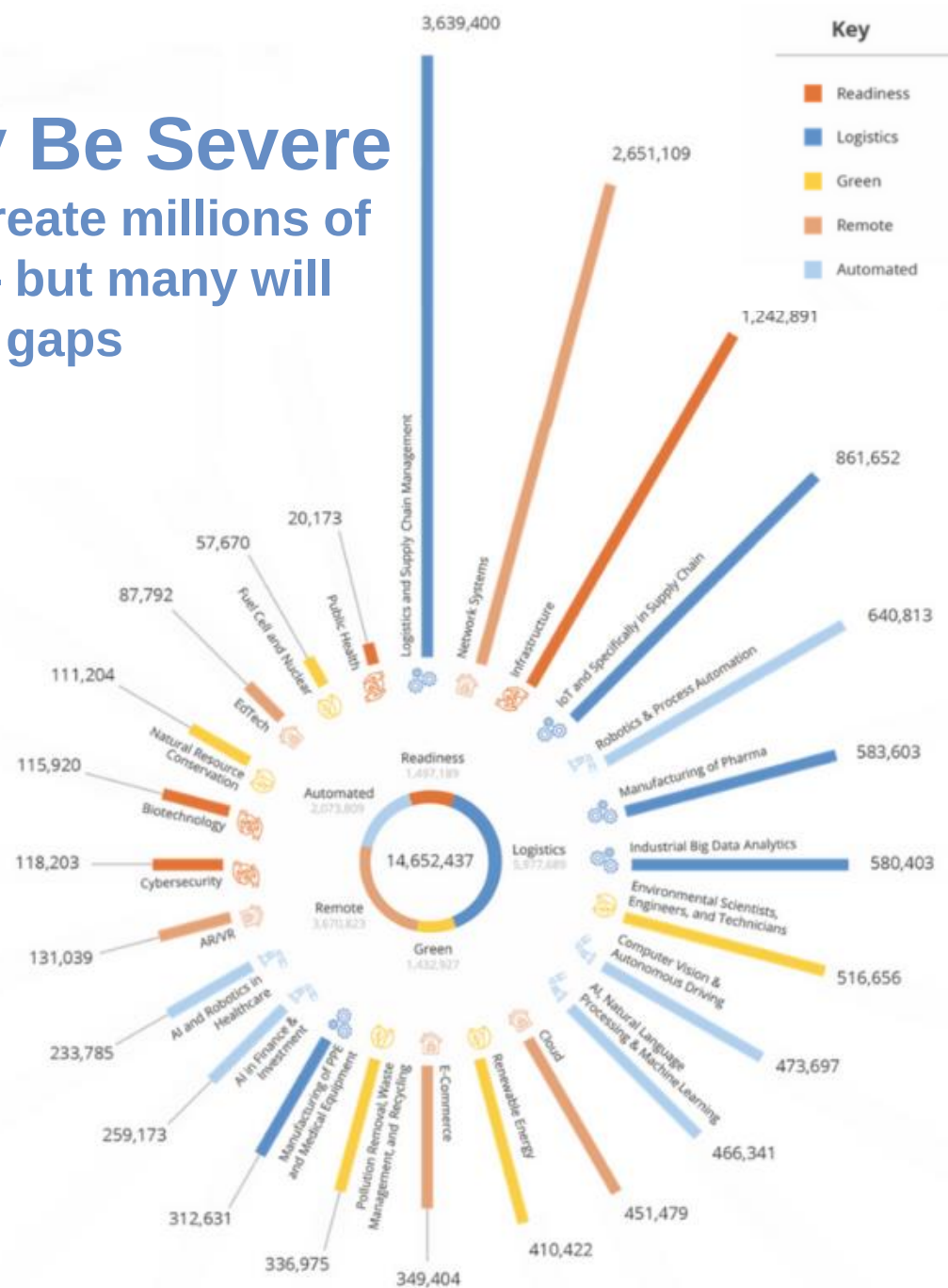
Occupations with at least 10,000 postings requesting data skills



Talent Shortages May Be Severe

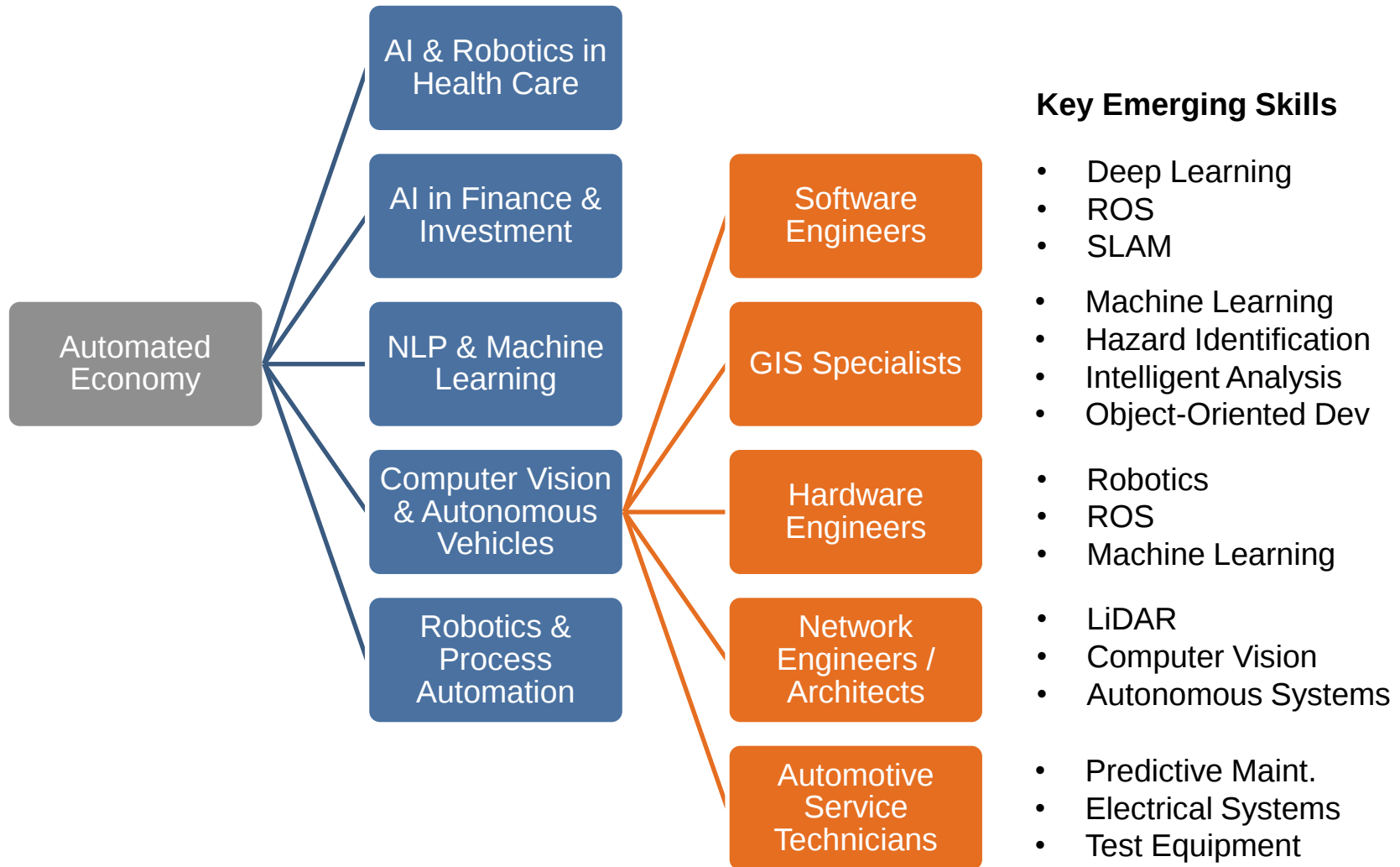
Five emerging economies will create millions of new jobs in the next five years – but many will require new skills, exacerbating gaps

	50% Increase Scenario	
Economy	Growth Rate	5-Year Openings Projection
Readiness	12.10%	1,756,874
Logistics	4.83%	4,549,046
Green	12.79%	866,902
Remote	16.67%	6,282,331
Automated	28.82%	4,548,798

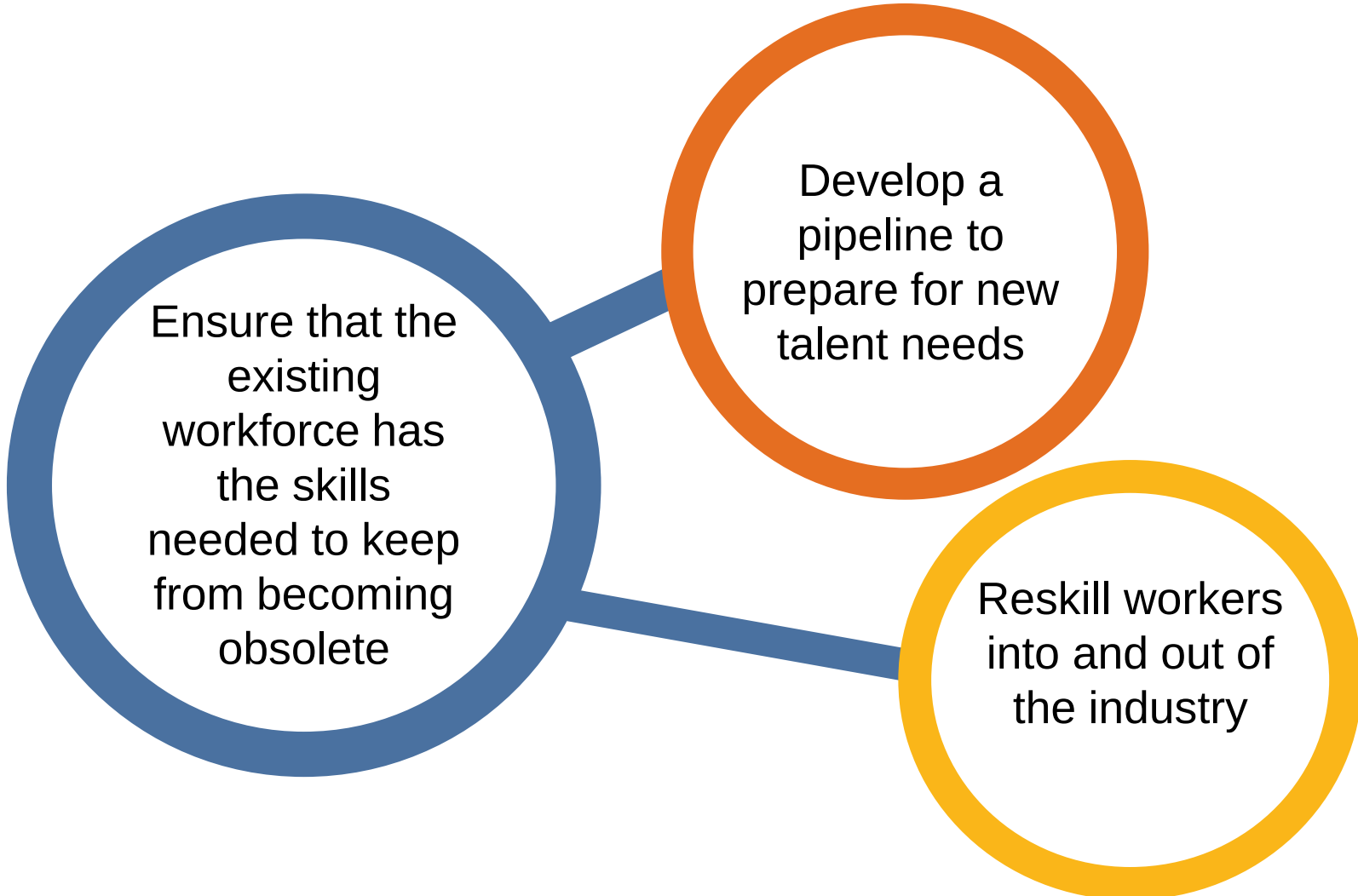


New Opportunities, New Skills

Prepare Workers for the Jobs & Skills Powering Each Sector's Growth



Three Challenges for the Mining Industry



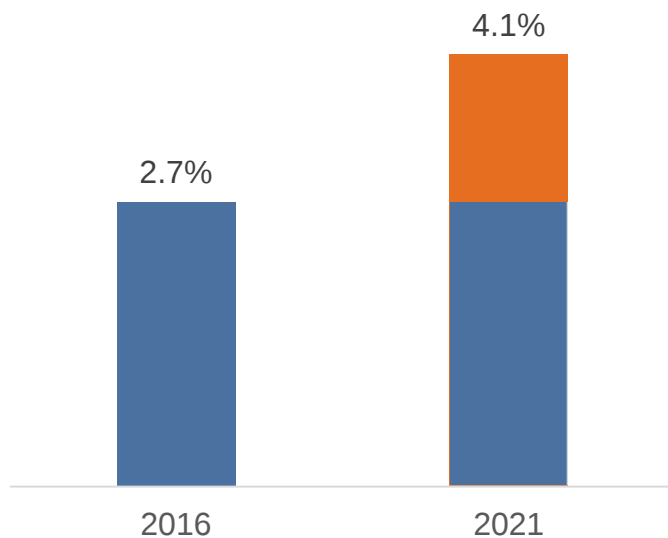
Ensure that the existing workforce has the skills needed to keep from becoming obsolete

Develop a pipeline to prepare for new talent needs

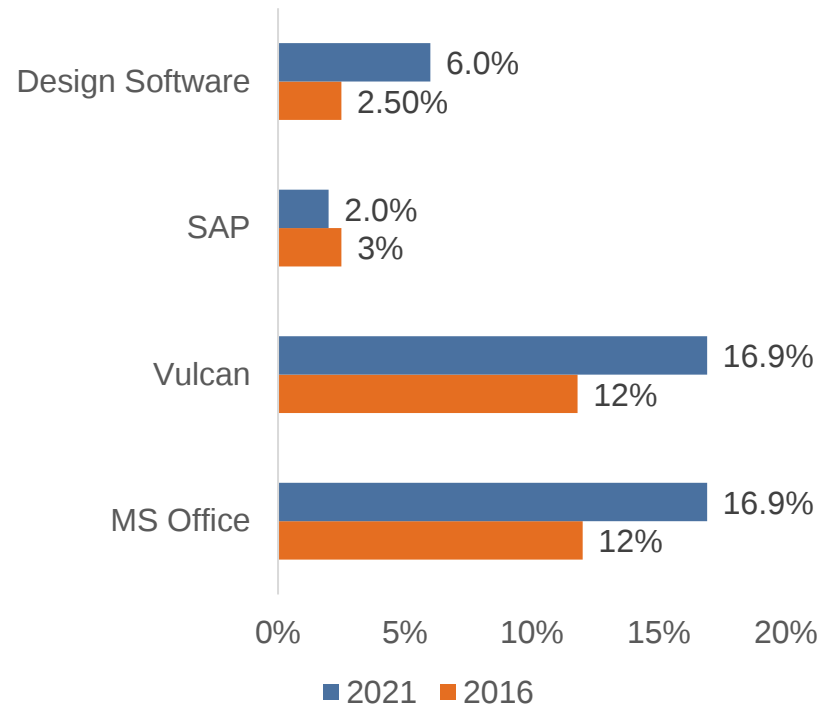
Reskill workers into and out of the industry

Mining is Becoming a High Tech Field

In Australia, the share of mining jobs in IT roles has grown 50% over the past five years...



...While IT skills have spread broadly across all mining roles



Reskilling & Upskilling Can Be Arbitrage

Get A Return On Investment In Your Workforce



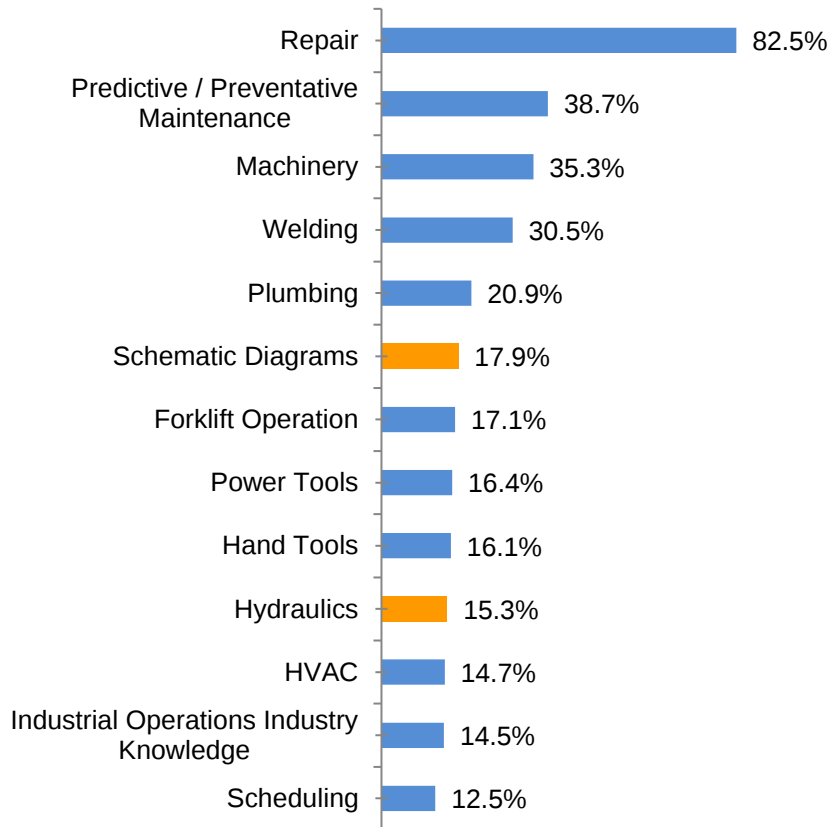
The skills a
worker acquires
in training...



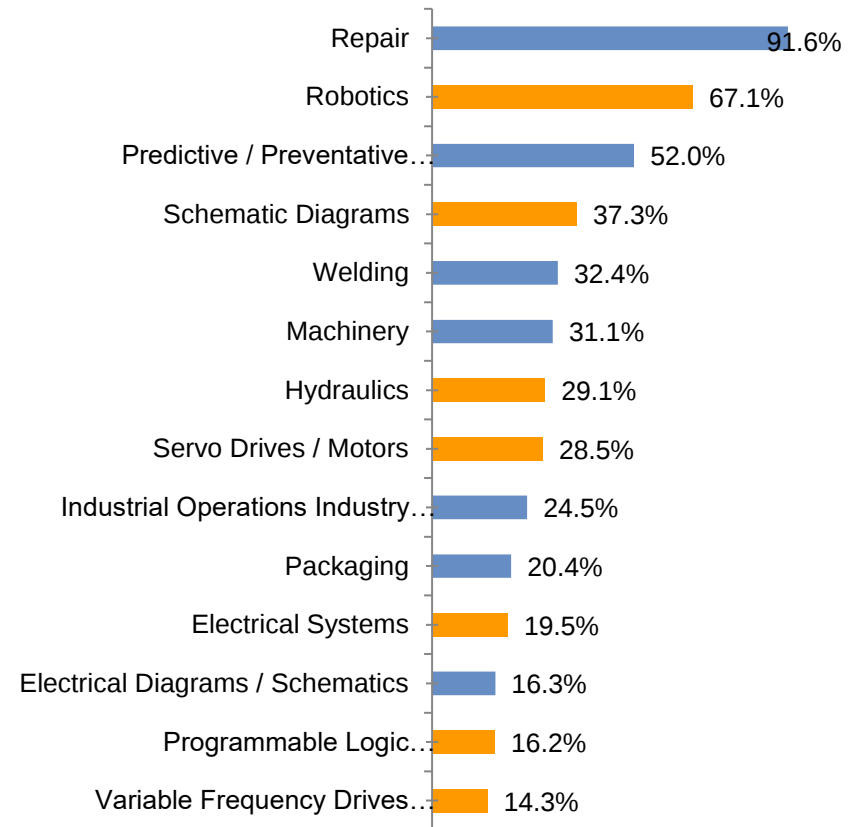
..should add more
value to your
workforce than the
cost of the program

Impact of Automation: To Keep Up, Workers Will Need New Skills

Skills for Maintenance Technicians,
Overall

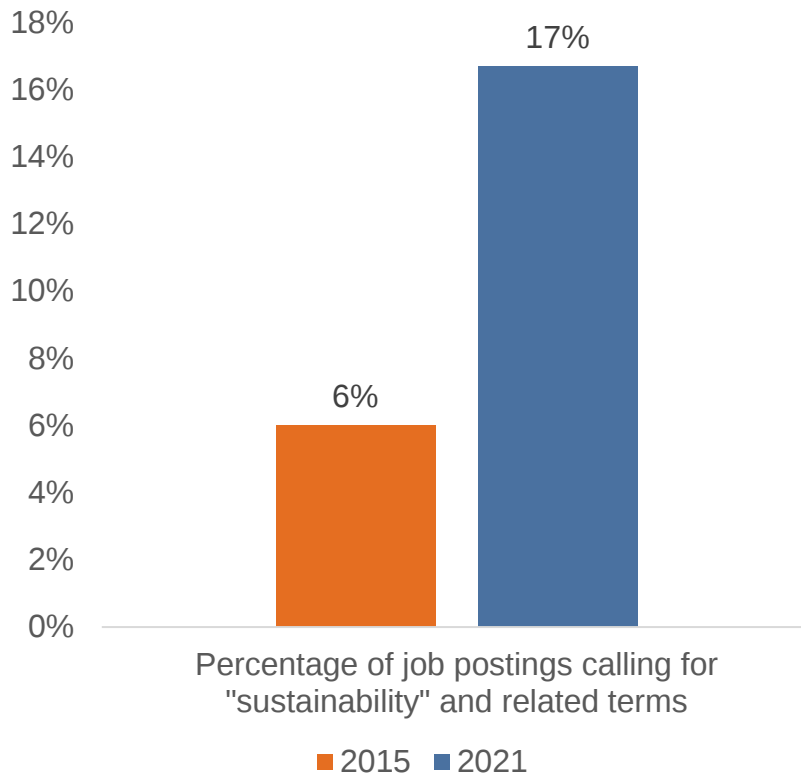


Skills for Maintenance Technicians,
Robotics



More Mining Jobs Call for Green Skills

Percentage of mining jobs requiring sustainability skills



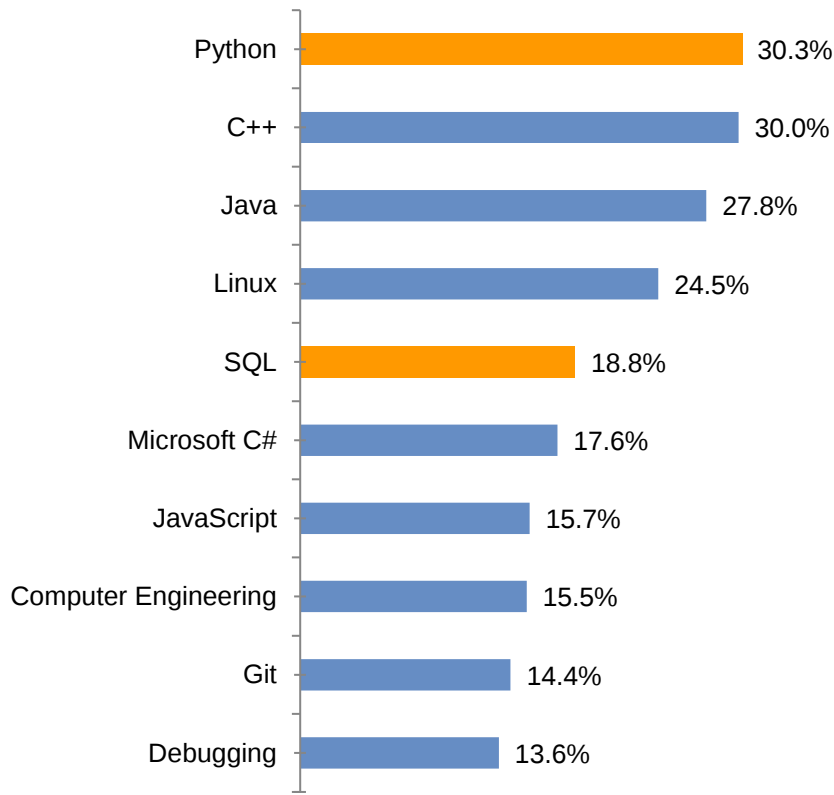
Key Green Skills in Mining Roles

Brownfields
Renewable Energy
Environmental Science
Environmental Management
Environmental Engineering
Environmental Management Systems
Environmental Compliance
ISO 14001
Water Treatment
Environmental Health and Safety

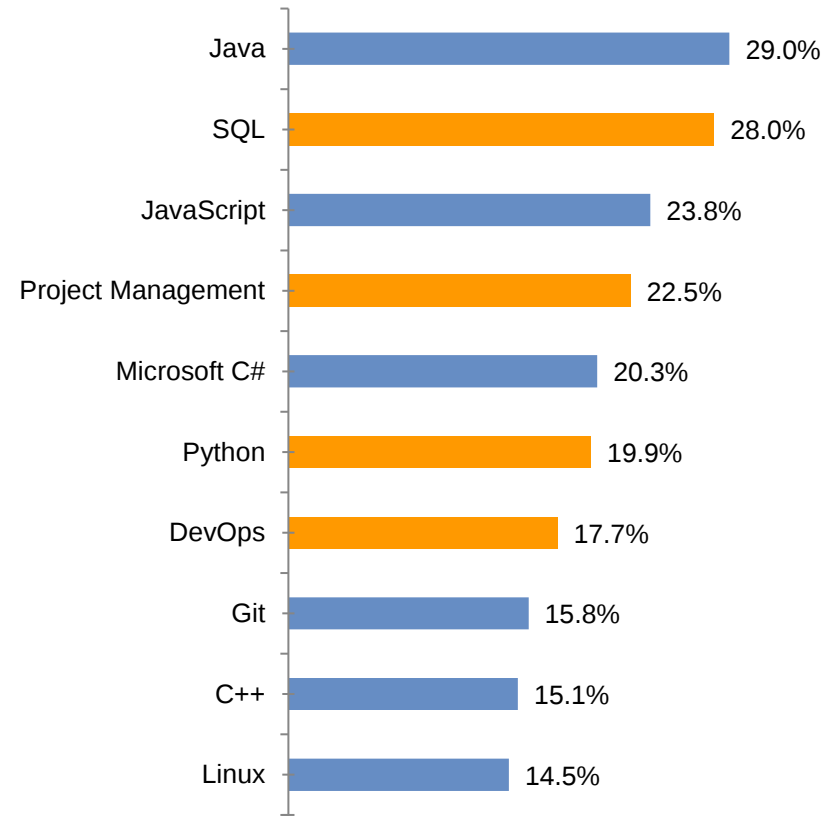
Same Title, Different Skills

Drawing Talent into Mining May Require Developing Additional Skills

Skills for Software Developers,
Manufacturing Sector



Skills for Software Developers,
Mining Sector

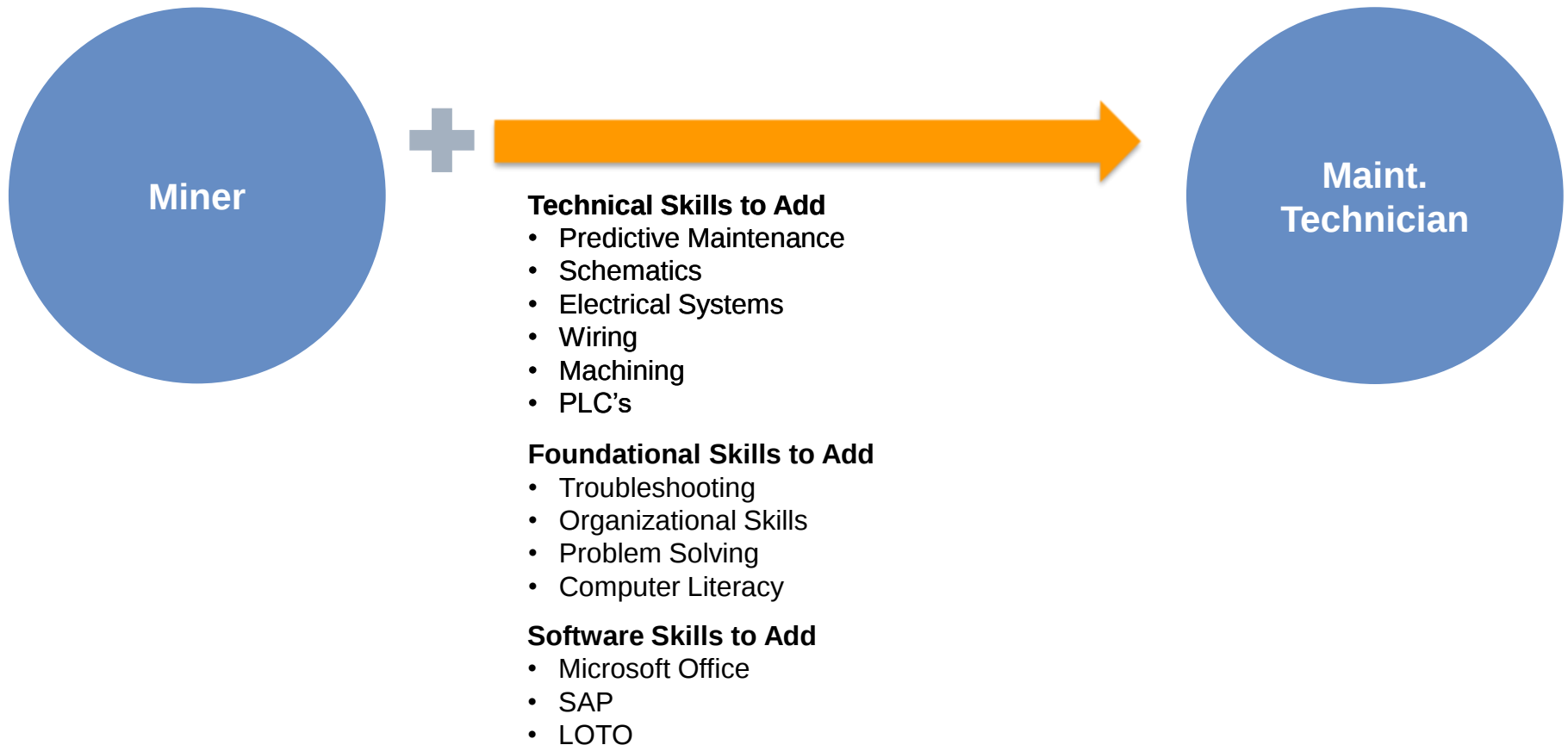


Skills Form the Bridge

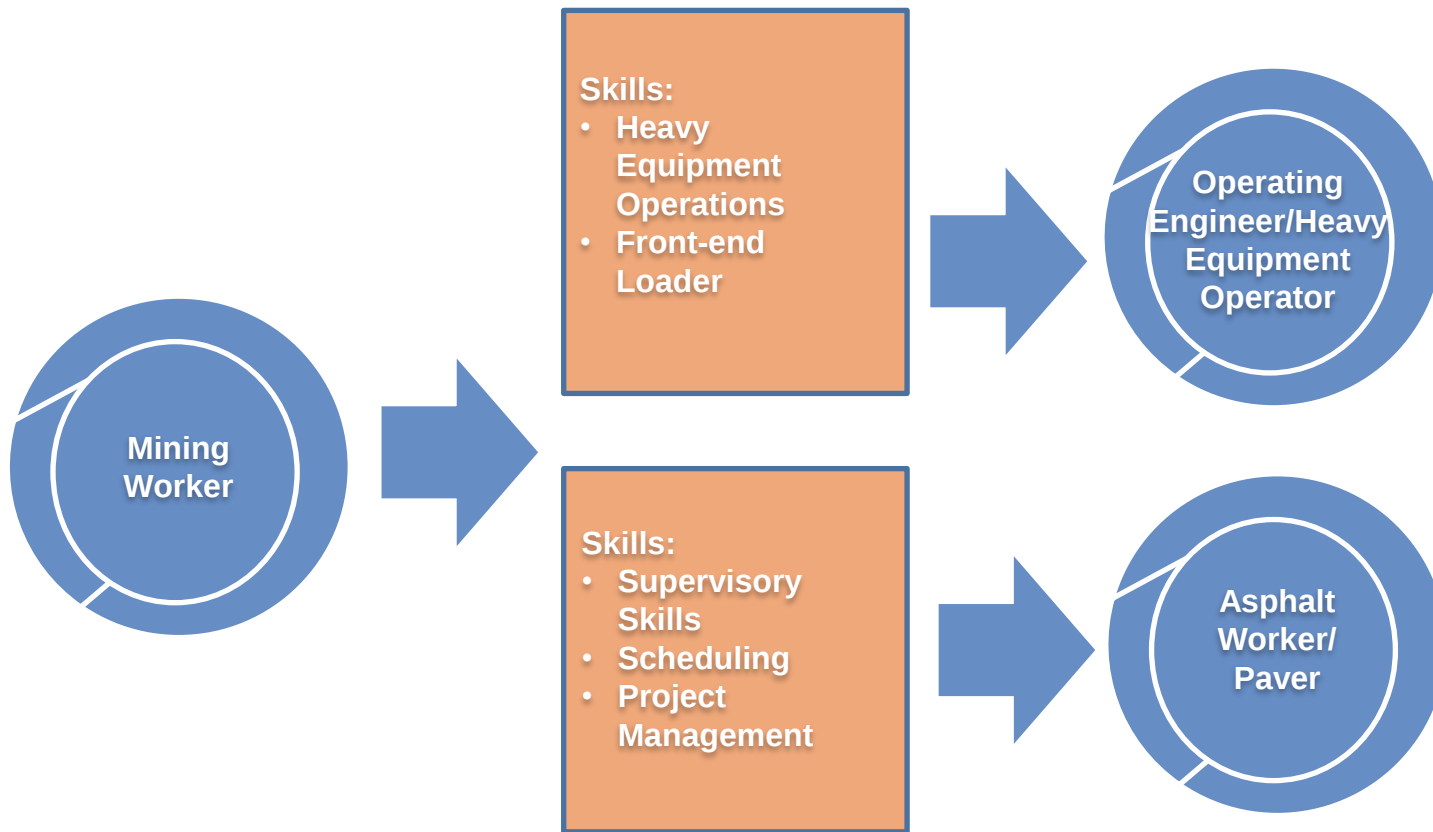
Reskilling from Adjacent Talent Pools Can Bring Talent into the Industry



Reskilling Can Also Provide Workers with New Opportunities for Mobility within Mining



...And Reskilling Can Help Displaced Workers Move Beyond the Industry As Well



An Imperative for Business and Labor

As sectors
change,
adaptation is
crucial

The diagram consists of three circles connected by lines. A large blue circle on the left is connected by a blue line to an orange circle at the top right, and by a blue line to a yellow circle at the bottom right.

Mobility becomes
a crucial value
for workers

And ensures
that industry
remains
competitive in a
changing world

Matt Sigelman, CEO
msigelman@burning-glass.com
@mattsigelman

Emsi Burning Glass | 66 Long Wharf, Floor 2 | Boston, MA 02110 USA

+1 (617) 227-4800 | www.burning-glass.com