



After the Storm:

The Jobs and Skills that will Drive the Post-Pandemic Recovery

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“Getting the future right: Towards smarter and people-centred skills intelligence”

Digital skills post-covid19 - Shifting gears in the digital transition

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Alessandro Vaccarino is a Senior Big Data Engineer and Data Scientist at **Burning Glass Technologies**. He's responsible of European Applied Research projects and of the **WollyBI Platform**, aimed to analyze **EU Labour Market** demand.

He is involved in the design and development of the "**Real-Time Labour Market Information System on Skill Requirements**" for CEDEFOP.

He collaborates with the University of Milano-Bicocca as a lecturer at the Master Business Intelligence and Big Data Analytics.



Mauro Pelucchi is a senior data scientist and big data engineer responsible for the design of the "**Real-Time Labour Market Information System on Skill Requirements**" for CEDEFOP.

He currently works for **Burning-Glass Technologies**. His main tasks are related to machine learning modelling, labour market analyses, and the design of big data pipelines to process large datasets of online job vacancies.

In collaboration with the University of Milano-Bicocca, He took part in many research projects related to the labour market intelligence systems.

He collaborates with the University of Milano-Bicocca as a lecturer at the Master Business Intelligence and Big Data Analytics and with the University of Bergamo as a lecturer in Computer Engineering.



Burning Glass turns real-time data into actionable insights for Strategic Workforce Planning.

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

Burning Glass's 340 employees span four continents and bring deep expertise **in big data**, natural language processing, **taxonomy development**, and complex modeling for **human capital management**. The company is backed by global private equity leader KKR



Our Purpose

By providing **data-driven insights into the job market** we inform people and businesses to design and implement **sustainable employability strategies** capable of connecting the dots between **education, government, and companies.**

The Process: Collecting Real-Time Labour Market Data

Visit Online
Job Sites



Collect &
Deduplicate
Job Postings



Laboratory Technician

Bayer MaterialScience (BMS) is one of the leading producers of polymers and high-performance plastics in North America and is part of the global Bayer MaterialScience business with nearly 14,700 employees at 30 sites around the world. Business activities are focused on the manufacture of high-tech polymer materials and the development of innovative solutions for products used in many areas of daily life. The main segments served are the automotive, electrical and electronics, construction, medical, and sports and leisure industries.

Job description The primary responsibility of this role is to produce and evaluate foam samples in the laboratory to support flexible foam application development. Bayer MaterialScience (BMS) product quality control, customer technical support, polyol, isocyanate and process research & development programs, and flexible molded and slabstock foam research & development programs.

The incumbent will:

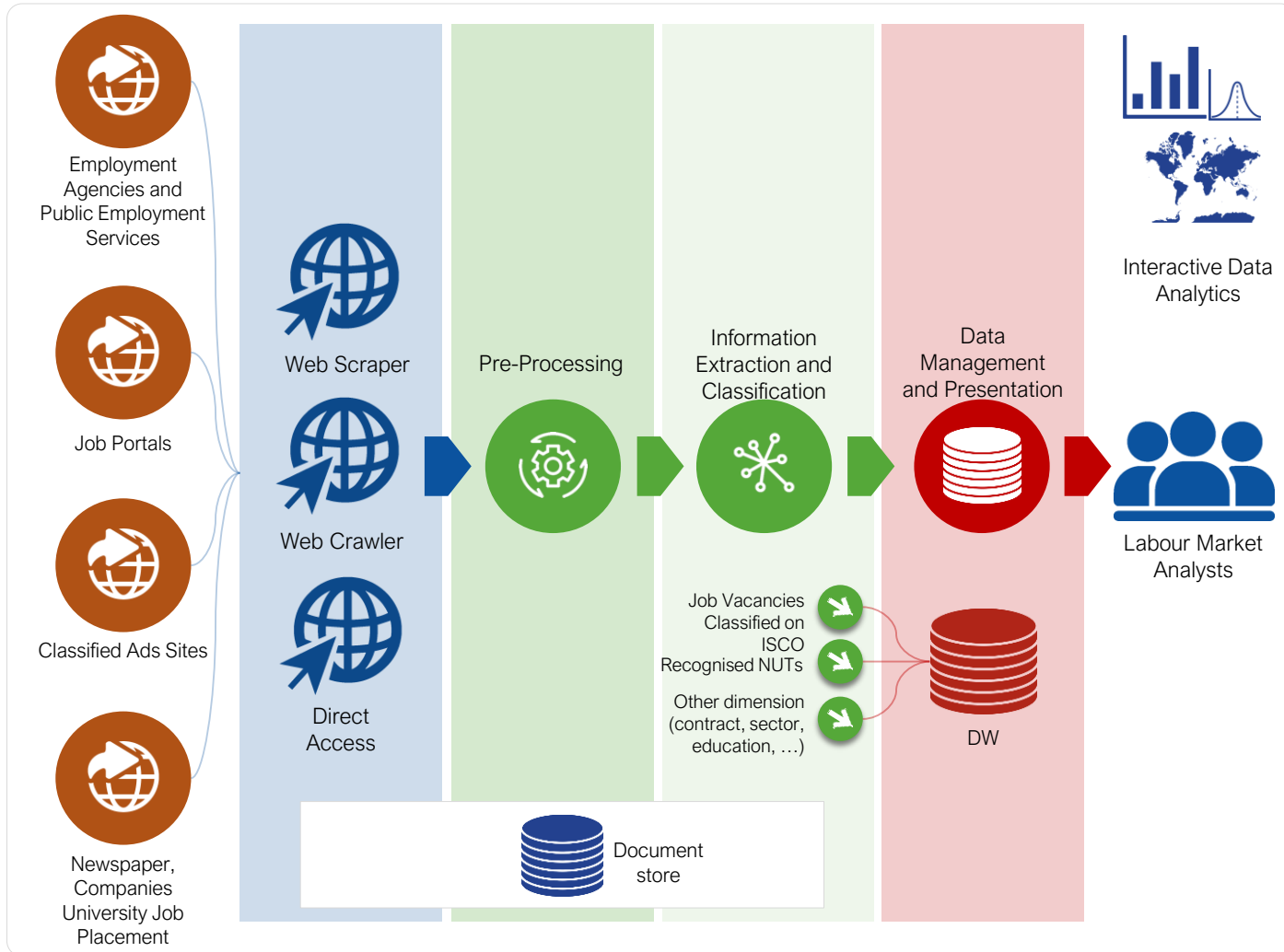
- Producing lab-scale foams, testing of polyols, isocyanates and additives for customer technical programs, process and product research programs and manufacturing support.
- Troubleshooting and maintaining equipment needed for bench foam production and routine foam processing & property evaluation and supporting machine scale-up work.
- Maintaining appropriate logshothooks and other records including computer documents utilizing Excel, Word and PowerPoint programs to support project work.
- Provide internet and other information searches as needed for problem solving.
- Performing stoichiometric calculations for foam production using computer programs or hand-calculations.
- Understanding and following EHS, SOPs and Responsible Care rules, regulations and guidelines while maintaining good housekeeping and a safe work environment through participation in safety programs.
- Capable of managing multiple tasks, working effectively with more than one technical supervisor, interfacing with other functions such as manufacturing and research personnel.
- Interfacing directly with customers if needed, and providing timely foam results to assure the

Tagging & Normalising
Postings to Generate
Detailed Data

- Job Title & Occupation
- Employer & Industry
- Technical Skills
- Foundational Skills
- Certifications
- Educational Requirements
- Experience Levels
- Salaries

What it Takes: A Robust Data and Analytics Engine

Normalising the labour market to enable data-driven conclusions



What it Takes: Collection Infrastructure

Jobs are defined by the skills they require but those skills are constantly changing.

We map your job and skills catalogue with our taxonomies to form a common language that decodes these changes.

This yields real-time insight into the skills that unlock competitive advantage and prepare the workforce for the future.

3.4 billion

Active jobs postings collected daily **across 33 countries.**

50,000

Sources across the web - job boards and corporate sites



80%

Deduplication ensuring integrity and consistency

300 million

Resumes processed per annum

>1 million

Firms represented, from large corporations to SME's
US, UK, CA, ANZ, SG

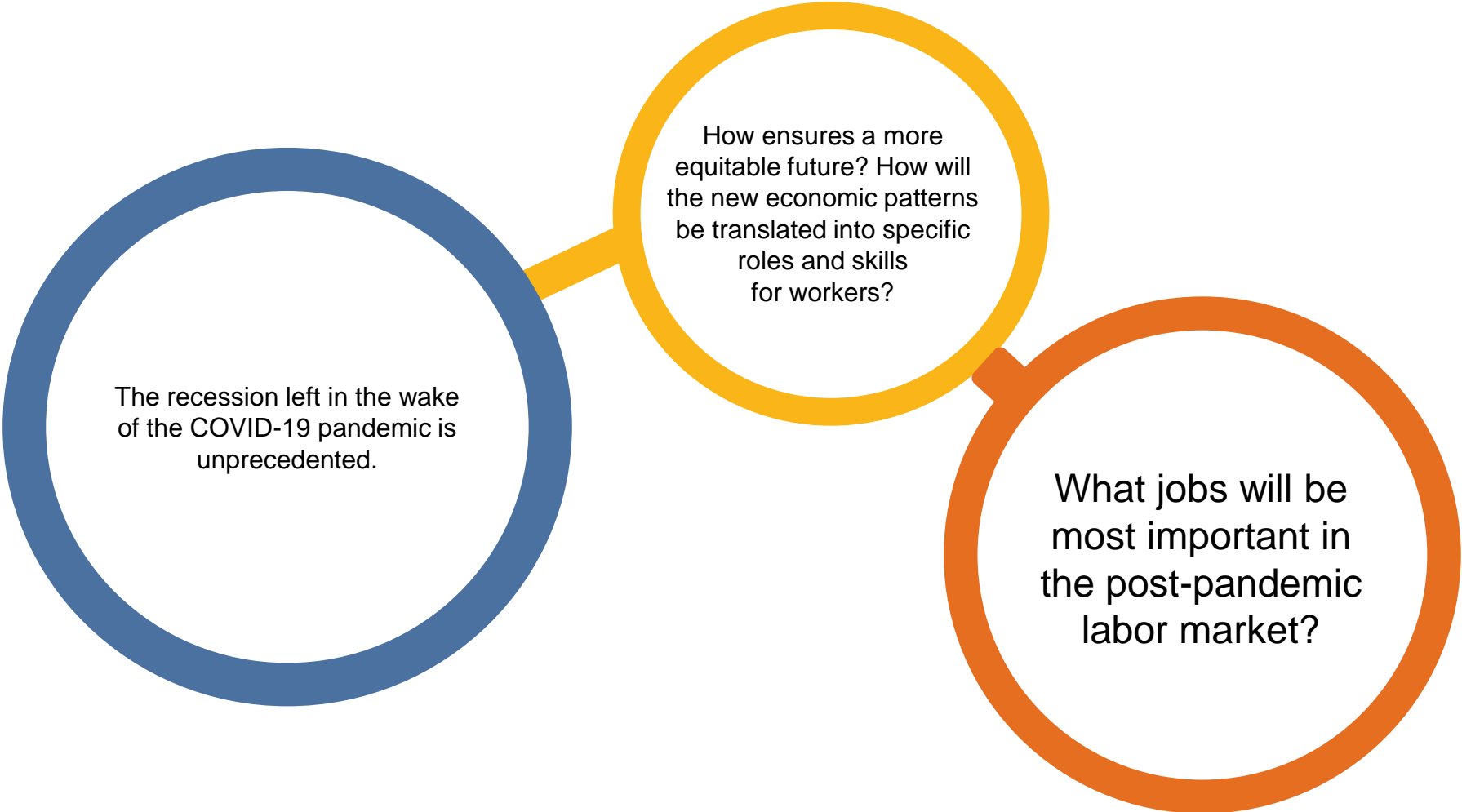
Dynamic Labor Market Ontology

23 Career Areas
2,000 Occupations
18,000 Skills
60,000 Skill Variants

>1 billion

Historical job market records

After the Storm



The recession left in the wake of the COVID-19 pandemic is unprecedented.

How ensures a more equitable future? How will the new economic patterns be translated into specific roles and skills for workers?

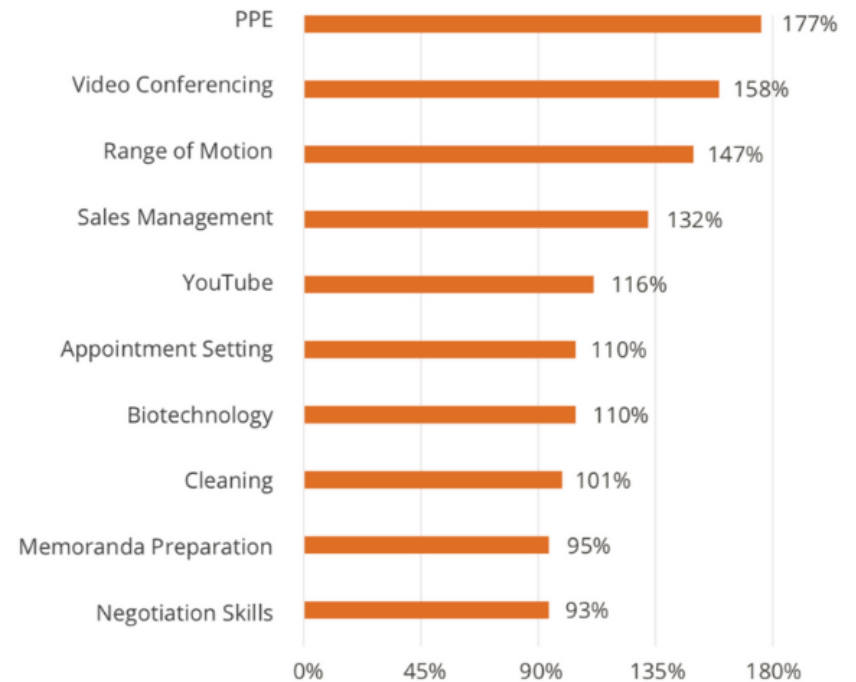
What jobs will be most important in the post-pandemic labor market?

The Pandemic is Accelerating Skill Change

Largest Relative Shift in Skill Demand
2010-2020



Largest Relative Shift in Skill Demand
2019-2020



Skills of Mass Disruption

Emerging Skills Rewriting the Tech Workforce

Skill Area	Total Job Openings (last 12 months)	Projected 5-Year Demand Growth
Software Dev Methodologies	634,660	35%
Cloud Technologies	462,963	28%
Proactive Security	373,123	39%
IT Automation	282,380	59%
AI and Machine Learning	197,810	71%
Connected Technologies	68,313	104%
NLP	36,941	41%
Fintech	35,667	96%
Parallel Computing	11,056	17%
Quantum Computing	2,718	135%

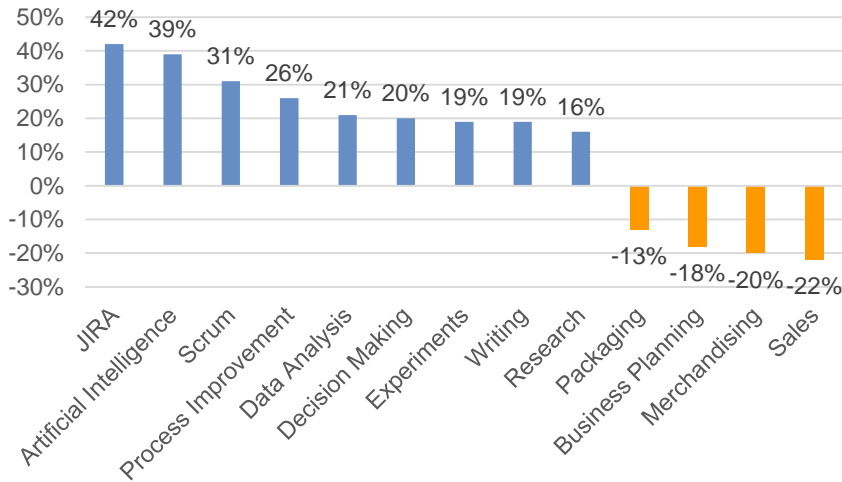
The Roles They Are a-Changin’



Just Since the Start of the Pandemic, Many Roles Demand New Skills

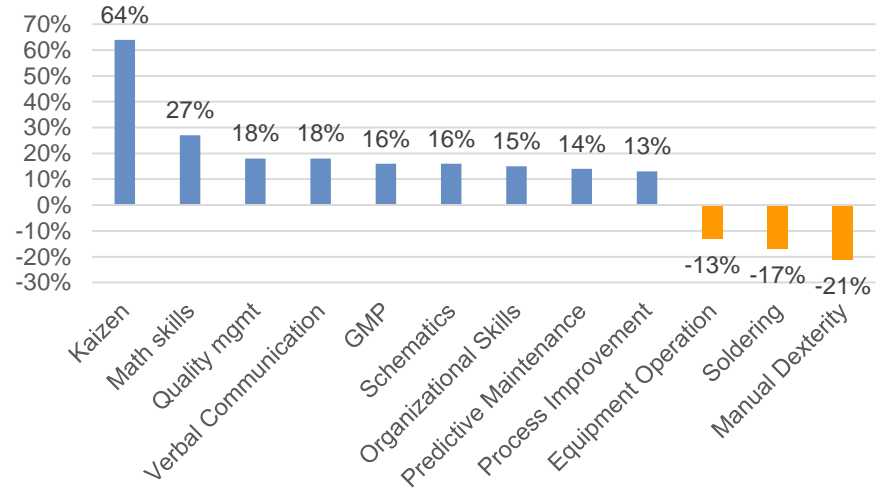
Key Changes in Product Manager Skills

Change in relative demand, last 30 days vs. 2019



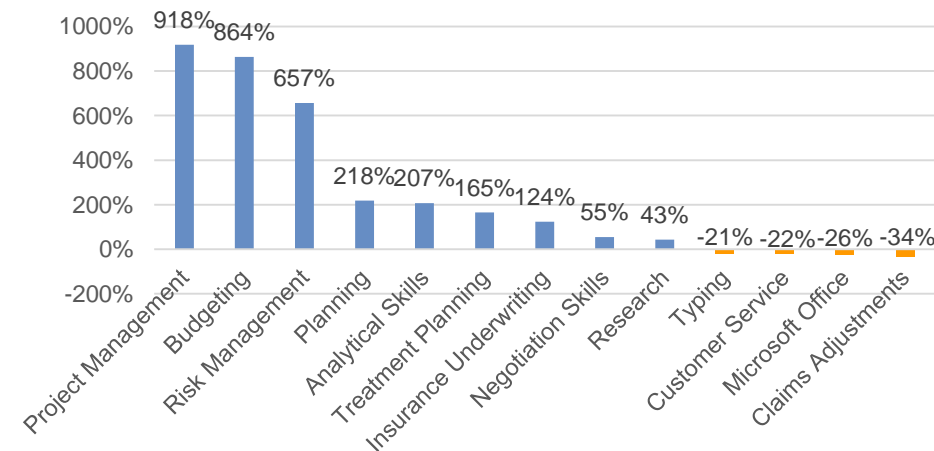
Key Changes in Production Technician Skills

Change in relative demand, last 30 days vs. 2019



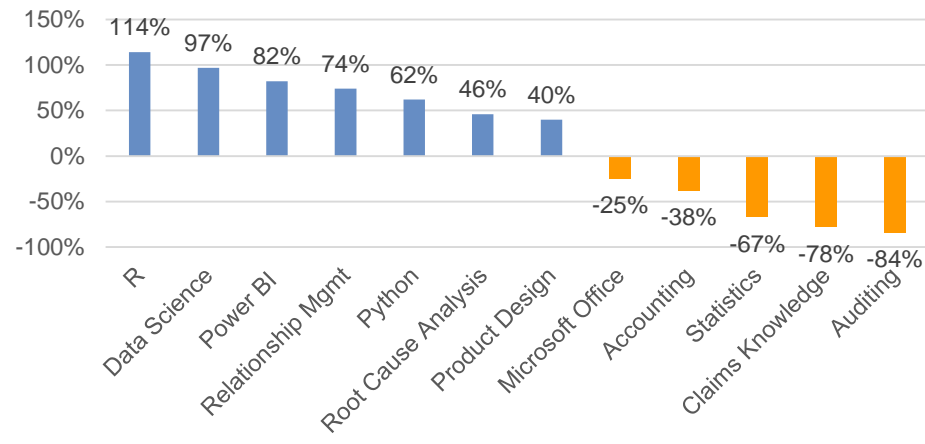
Key Changes in Insurance Claims Clerk Skills

Change in relative demand, last 30 days vs. 2019



Key Changes in Actuary Skills

Change in relative demand, last 30 days vs. 2019



Looking Ahead to Anticipate The Jobs That Will Drive the Recovery

The Readiness Economy

- COVID-19 has revealed how ill-prepared we all are – the “black elephant” we’ve been ignoring. Preparedness will **boost demand in healthcare, infrastructure, cybersecurity, environmental tech, insurance**, etc.

The Remote Economy

- As more work gets performed remotely, there will be **growing dependence on the data and software** that are the key underpinnings of the remote economy.

The Logistics Economy

- Manufacturers can see the **vulnerability of supply chains**, etc. **Reshoring** some industries will put greater focus on **advanced manufacturing**. Similarly, there will be greater need for **logistics expertise**.

The Automated Economy

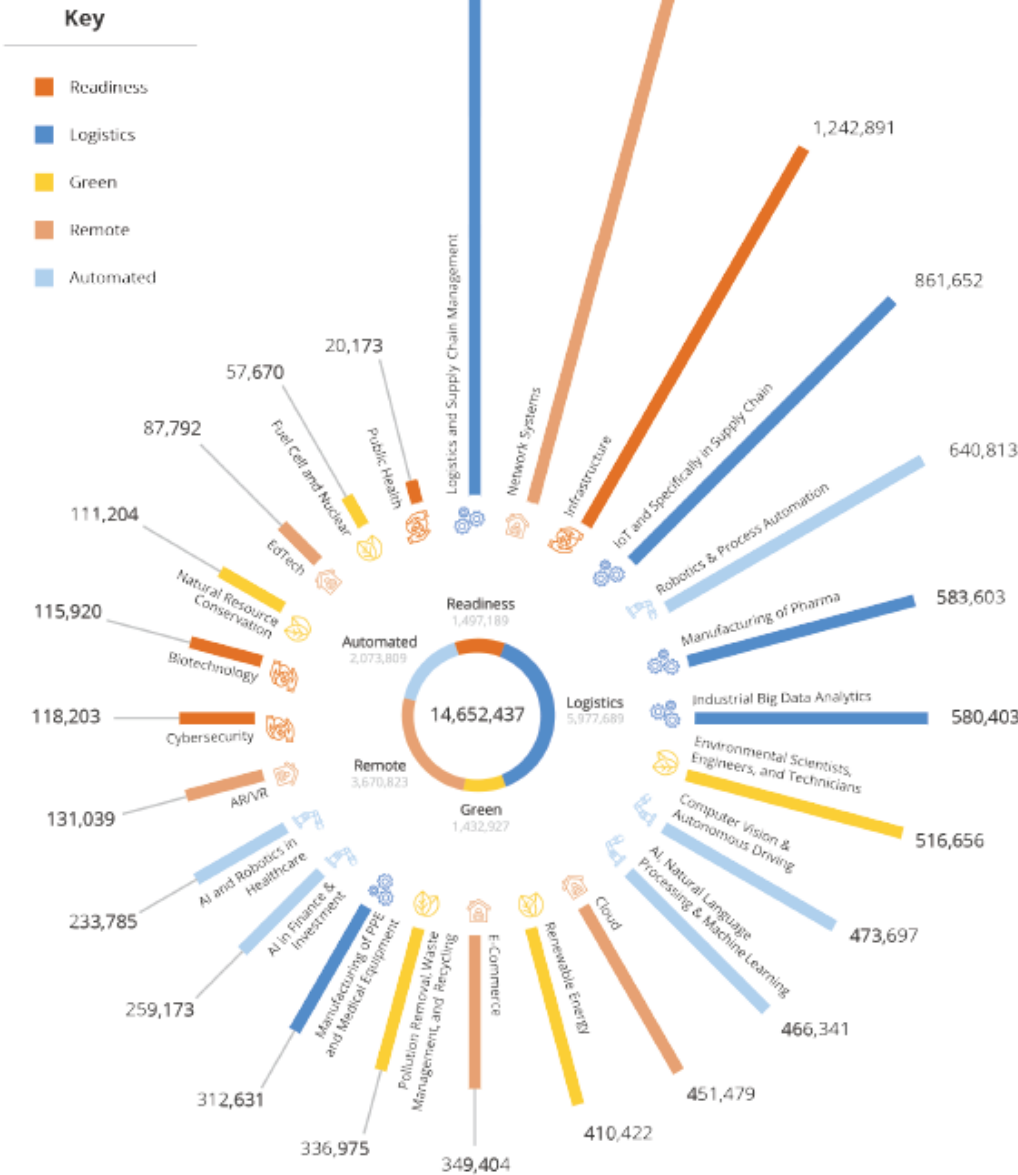
- Employers will prioritize automation over hiring back low-value workers. **Jobs driving automation will thrive**.

The Green Economy

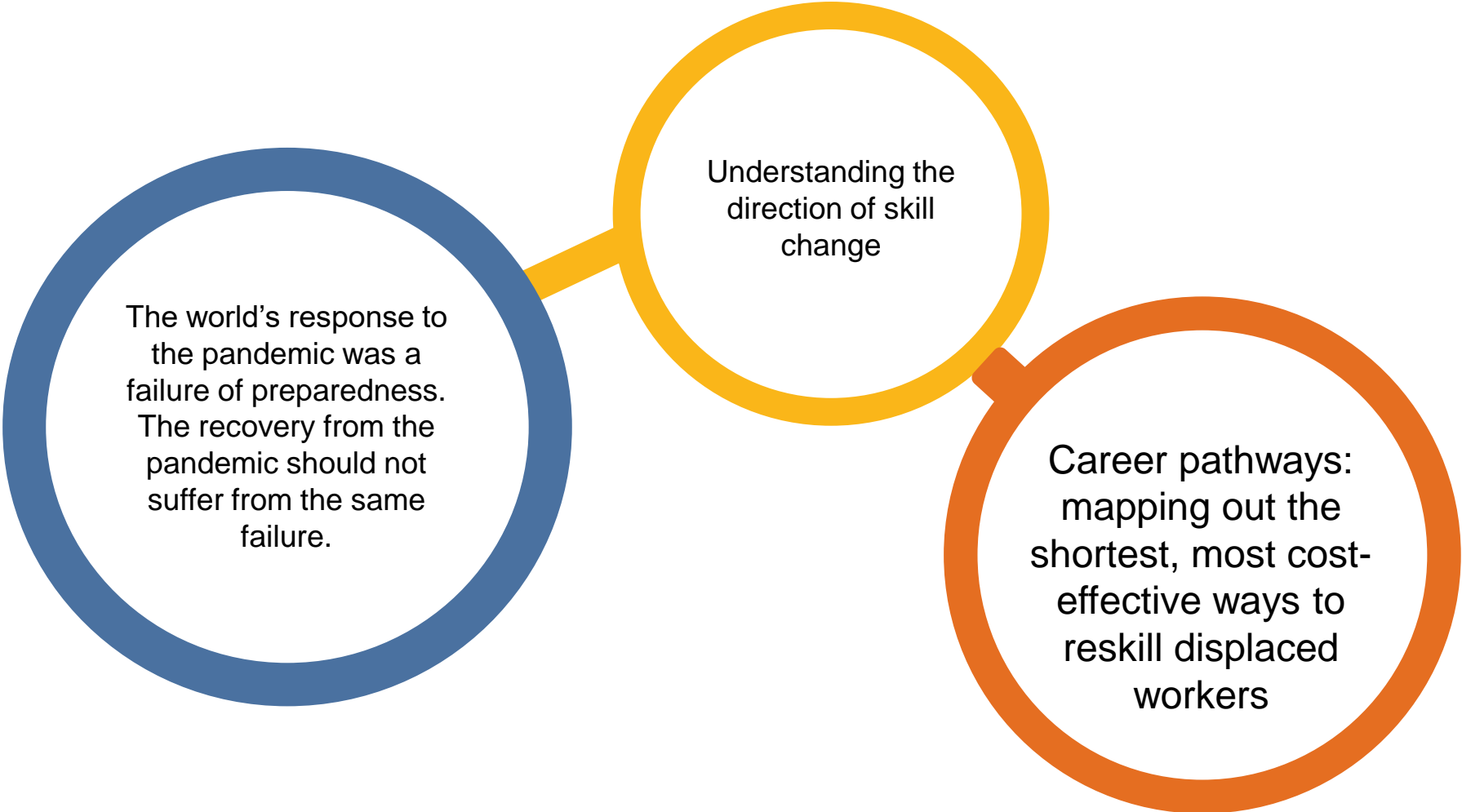
- As the U.S. invests more in changing its energy infrastructure and in ways of fighting climate change, there will be demand for **clean energy expertise**.

Figure 1: Recovery Jobs by Economy

Key Sectors of These Emerging Economies



Implications



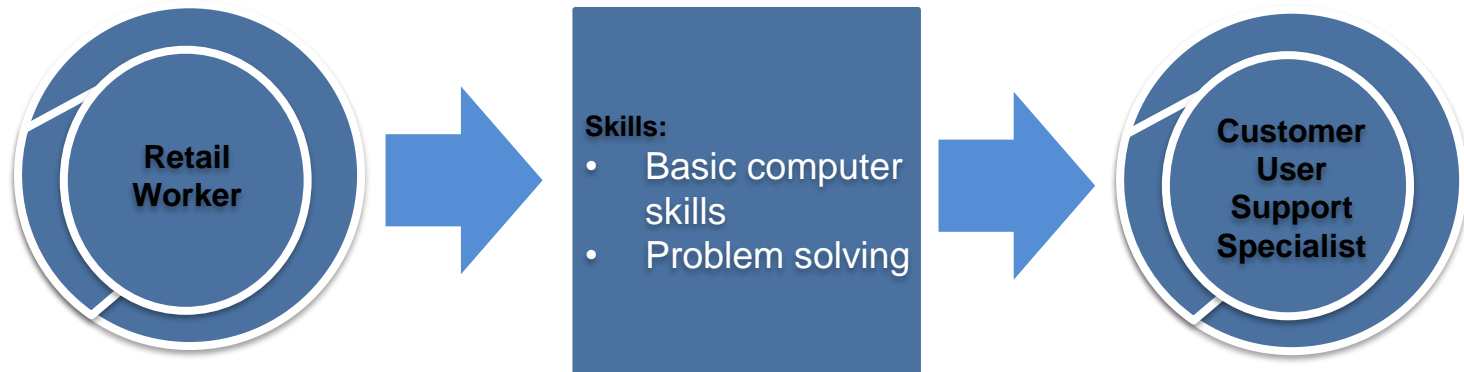
The world's response to the pandemic was a failure of preparedness. The recovery from the pandemic should not suffer from the same failure.

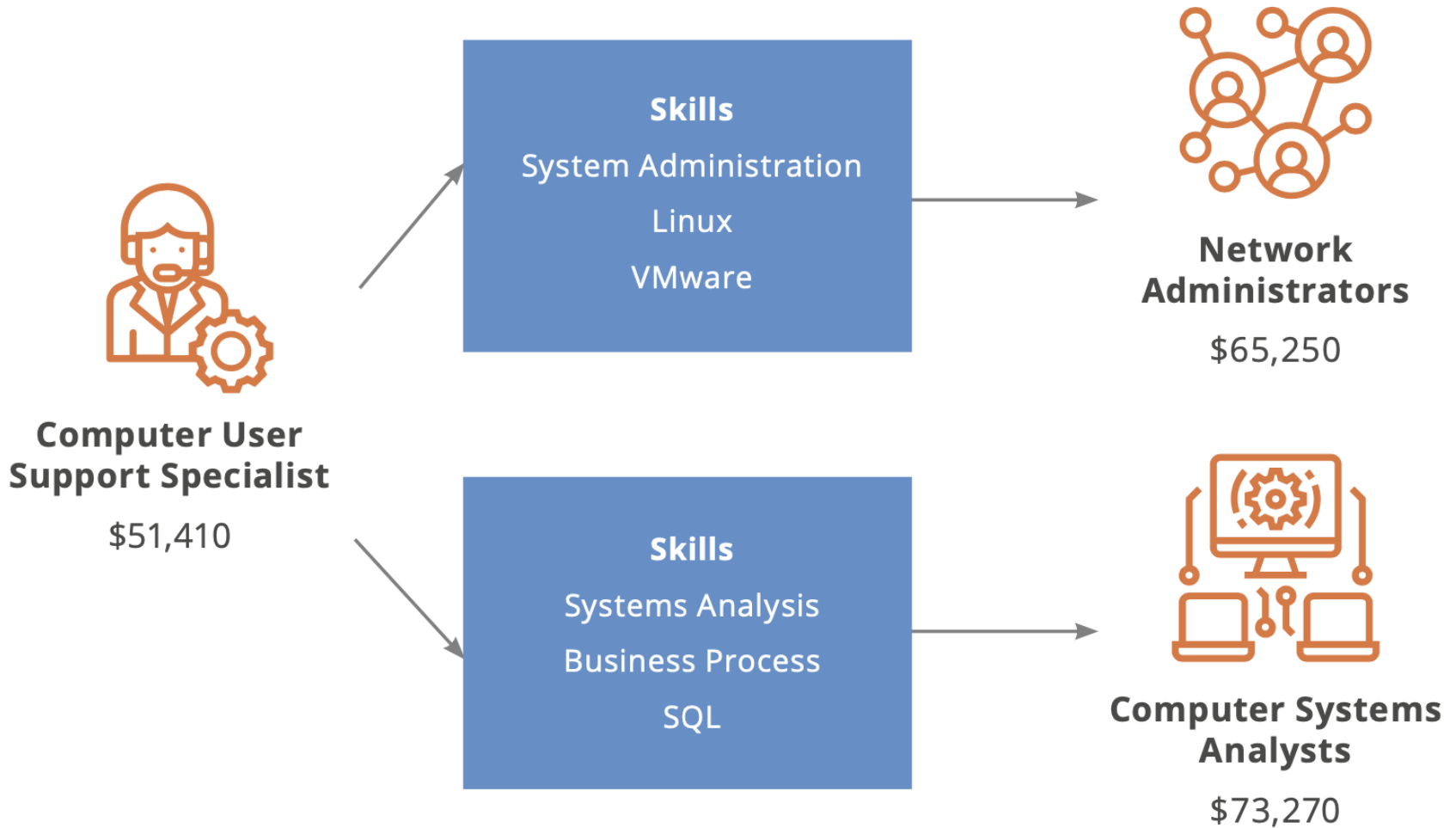
Understanding the direction of skill change

Career pathways: mapping out the shortest, most cost-effective ways to reskill displaced workers

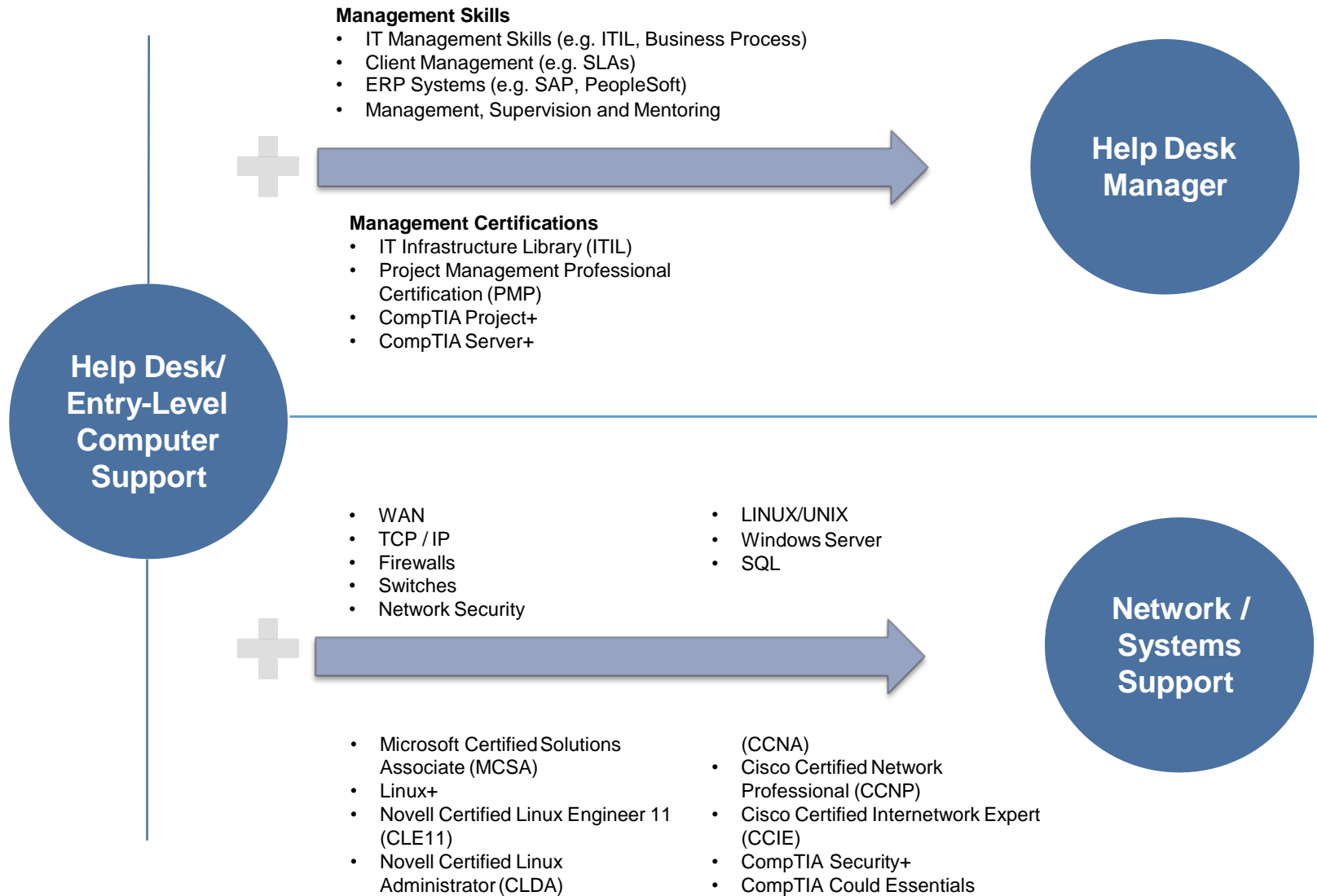
Specific Skills Enable Transitions

And Help Workers Lower Their Risk Of Displacement





A Skills-based Approach: Build Programs For Career Mobility



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Annexes

These Five Economies Have Broad Impact

Economy	Demand	% of US Demand	Employment	% of US Employment	Median Salary	Pre-COVID Growth (FY 2014-FY 2019)	COIVD Growth (Mar-Sept. 2020)
Readiness	508,278	1%	1,497,187	1%	\$58,817	45%	-31%
Logistics	1,646,509	4%	5,977,689	4%	\$52,700	16%	18%
Green	250,724	1%	1,432,927	1%	\$52,639	48%	-21%
Remote	1,605,364	4%	3,670,823	2%	\$66,058	65%	36%
Automated	828,784	2%	2,073,809	1%	\$60,406	131%	-22%
Overall	4,839,659	13%	14,625,435	10%	\$59,090	48%	11%

Parsing Underlying Drivers of Each Economy

To understand each economy’s talent shape, we analyze key trends shaping it and the jobs, skills & technologies powering its growth

Table 4: The Readiness Economy

Sector	Demand	Employment	Median Salary	Baseline Scenario		25% Increase Scenario		50% Increase Scenario	
				Growth Rate	5-Year Openings Projection	Growth Rate	5-Year Openings Projection	Growth Rate	5-Year Openings Projection
Biotechnology	38,148	115,920	\$61,455	1.74%	112,995	2.18%	114,471	2.61%	115,963
Cybersecurity	62,271	118,203	\$83,175	37.41%	602,667	46.76%	767,219	56.11%	968,587
Infrastructure	329,671	1,242,891	\$54,910	6.32%	1,096,098	7.90%	1,148,008	9.48%	1,202,075
Public Health*	5,428	20,173	\$56,179	-13.67%	9,870	1.00%	15,468	2.00%	15,937

Note: Overall economy demand is less than the sum of each sector’s demand because some job postings appear in multiple sectors.

**Scenarios have been updated to 1% growth and 2% growth to reflect predicted shift towards this sector.*

Sources: Burning Glass Technologies job posting data and Bureau of Labor Statistics JOLTS data.

...And Are Poised for Yet Greater Impact Still

Together, these five economies could create 18 million new jobs over the next five years – 1 in every 6 by 2026 – and grow 2x the market

Table 3: Growth Rate Scenarios by Economy

Economy	Baseline Scenario		25% Increase Scenario		50% Increase Scenario	
	Growth Rate	5-Year Openings Projection	Growth Rate	5-Year Openings Projection	Growth Rate	5-Year Openings Projection
Readiness	8%	1,562,994	10.08%	1,657,439	12.10%	1,756,874
Logistics	3%	4,337,261	4.03%	4,442,036	4.83%	4,549,046
Green	9%	766,323	10.66%	815,248	12.79%	866,902
Remote	11%	5,359,159	13.89%	5,804,660	16.67%	6,282,331
Automated	19%	3,489,665	24.01%	3,988,786	28.82%	4,548,798

Sources: Burning Glass Technologies job posting data and Bureau of Labor Statistics JOLTS data.

Adjacent jobs

Similar roles a short skills jump away



Starting job	'Job-fit' category	Similarity score	Target job
Office Clerks, General	High	0.92	Municipal Clerks
	Medium	0.87	First-Line Supervisors of Office and Administrative Support Workers
	Low	0.81	Aerospace Engineering and Operations Technicians
Cooks, Fast Food	High	0.93	Dining Room and Cafeteria Attendants and Bartender Helpers
	Medium	0.86	Butchers and Meat Cutters
	Low	0.82	Locksmiths and Safe Repairers
Electrical Engineering Technicians	High	0.91	Electrical and Electronics Repairers, Powerhouse, Substation and Relay
	Medium	0.86	Geothermal Technicians
	Low	0.81	First-Line Supervisors of Agricultural Crop and Horticultural Workers
Computer Programmers	High	0.92	Web Developers
	Medium	0.86	Computer and Information Systems Managers
	Low	0.82	Anthropologists

Sources: Burning Glass Technologies and US Bureau of Labor Statistics.

Note: Data in this table presents the approach taken to categorizing the potential transitions between jobs by a similarity score calculated in 2018. An updated calculation model was used in the 2019 edition as well, to identify viable and desirable job transition pathways.