



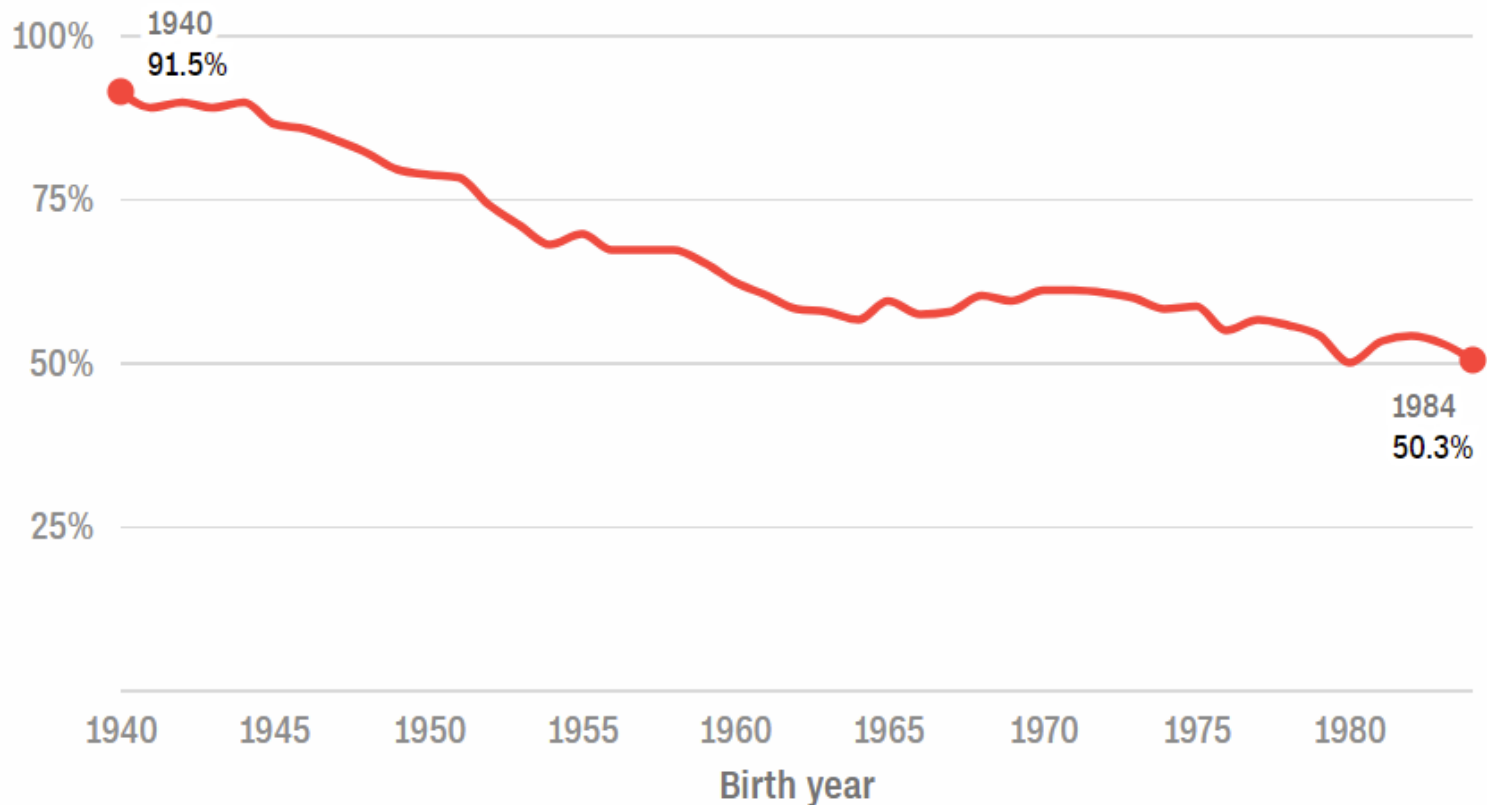
Identifying Illinois' Highest Value Credential Opportunities

What New Data of Worker & Learner Outcomes Tell
Us About The Signals That Matter

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June 2024

What Happens to an American Dream Deferred?

Economic mobility has fallen precipitously

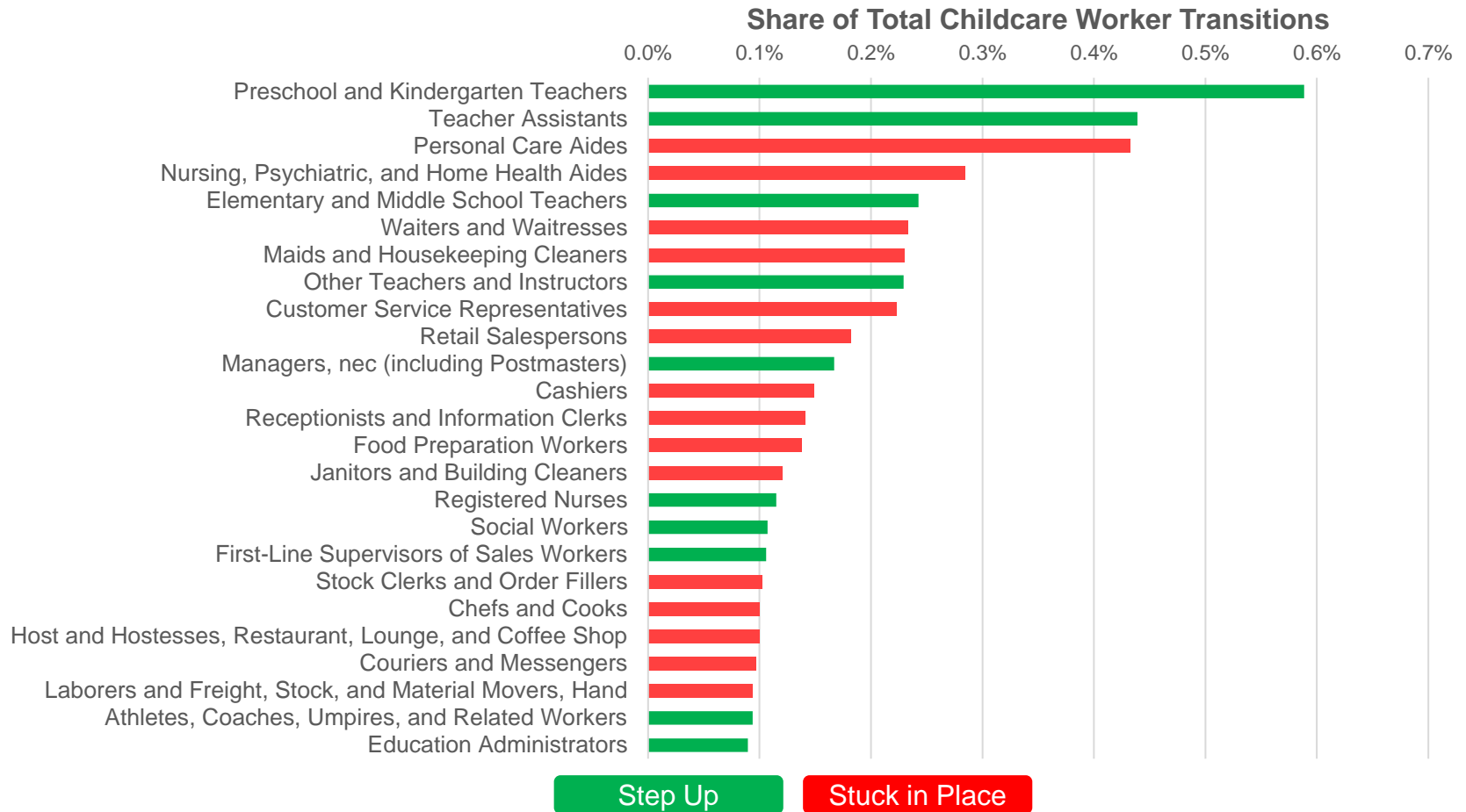


At 30 years old, what share of Americans earned more than their parents did at the same age? (inflation adjusted)

When People Move On, Are They Moving Ahead?

84% of transitioning childcare workers stayed in the occupation, and 9% exited the labor force. Of the rest, only some advanced into better jobs.

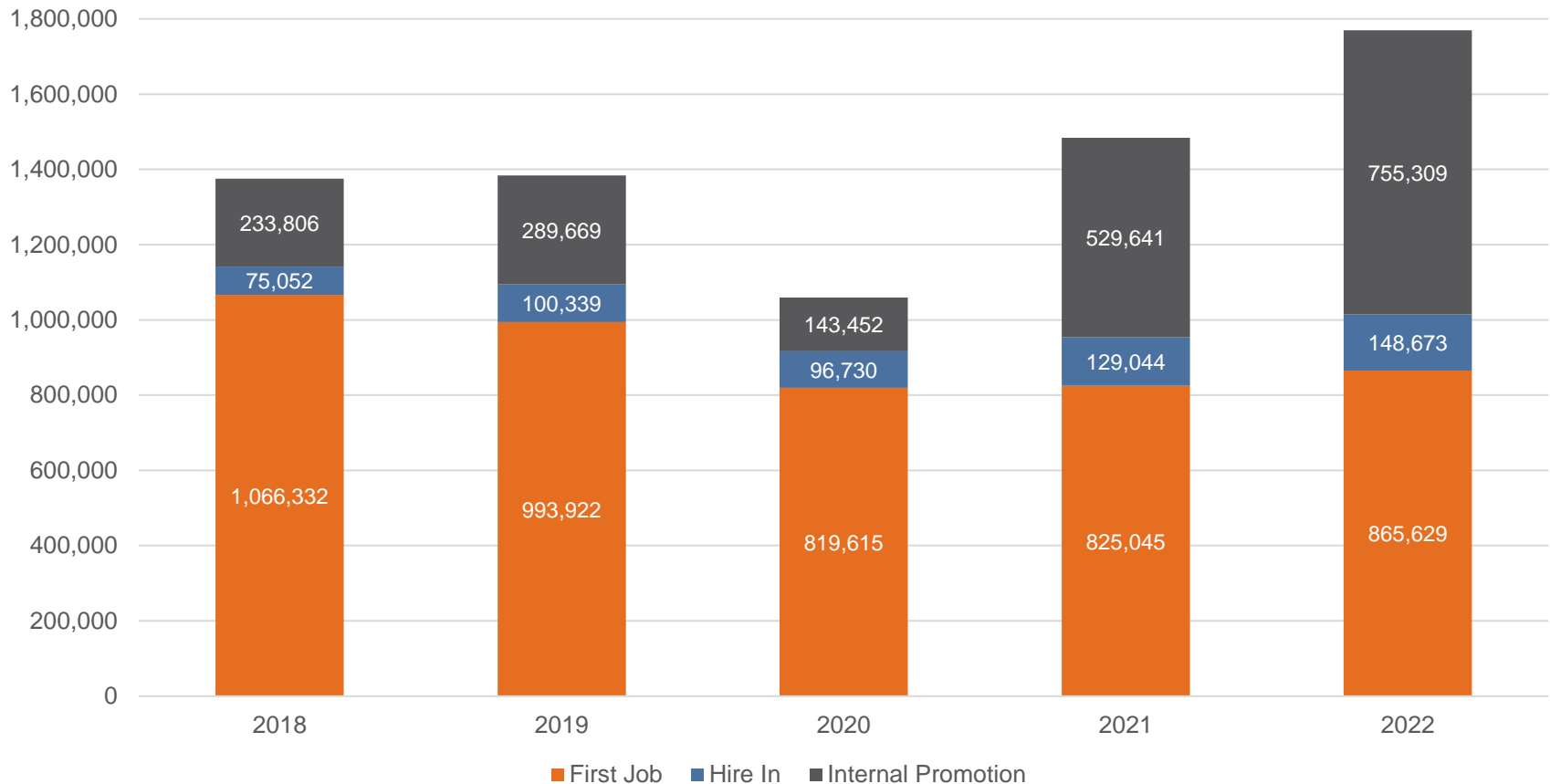
Top Destination Occupations for Childcare Workers



Yet Millions Continue to Enter the Middle Class

Almost 2 million big company employees moved into the middle class last year, increasingly through promotion

Movements Into Middle Class at Large Employers



How Do You Measure Career Outcomes?

We analyze the careers of 65 million workers across an array of metrics to track economic mobility

2024 AMERICAN OPPORTUNITY INDEX METRICS

Hiring

How well do companies hire people without degrees and those with little experience?

Hiring is comprised of:

- o **First jobs**, which assesses the percentage of starting jobs at a company with less than three years of prior experience.
- o **Degree barriers**, which measures the percentage of people starting a job within a given occupation at a company who do not have a bachelor's degree.

Pay

How well do companies pay their employees and increase their compensation over time?

Pay is comprised of:

- o **Wage**, which measures how well workers in the same occupation are paid at different employers.
- o **Wage growth**, which evaluates the degree of wage growth for workers who stayed at a given employer for three or more years.

Promotion

How well do companies move people up and prepare them for better jobs elsewhere?

Promotion is comprised of:

- o **Advancement within**, which measures the likelihood for workers to be promoted, how many further promotions can they expect over time, and how large of a raise they can expect with each promotion.
- o **Advancement beyond**, which measures how likely workers are to

Parity

How well do companies move all people up equally, regardless of race or gender?

Parity is comprised of:

- o **Gender parity**, which measures the consistency in the promotion rates of male employees and female employees.
- o **Racial parity**, which measures the consistency in the promotion rates of Black and Hispanic employees and all other employees.

Culture

How well do companies retain their employees and build their careers?

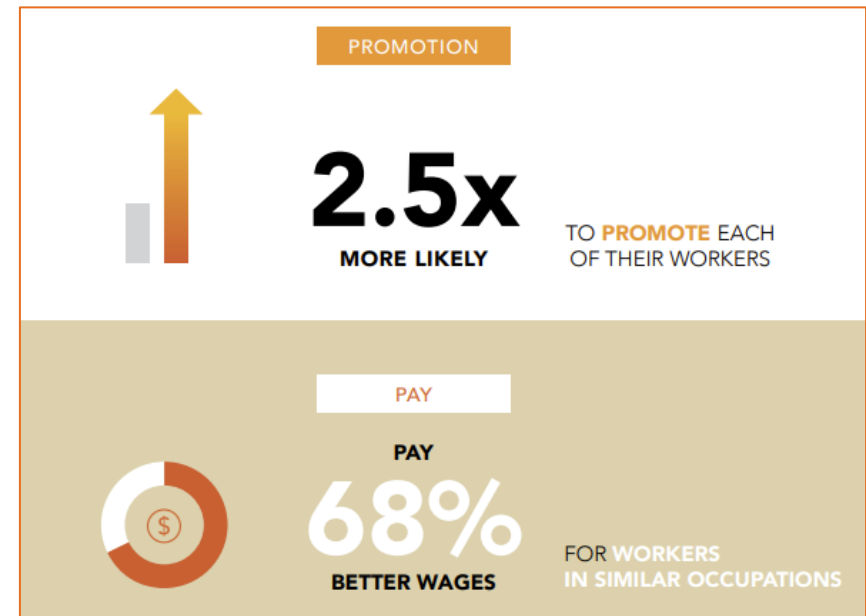
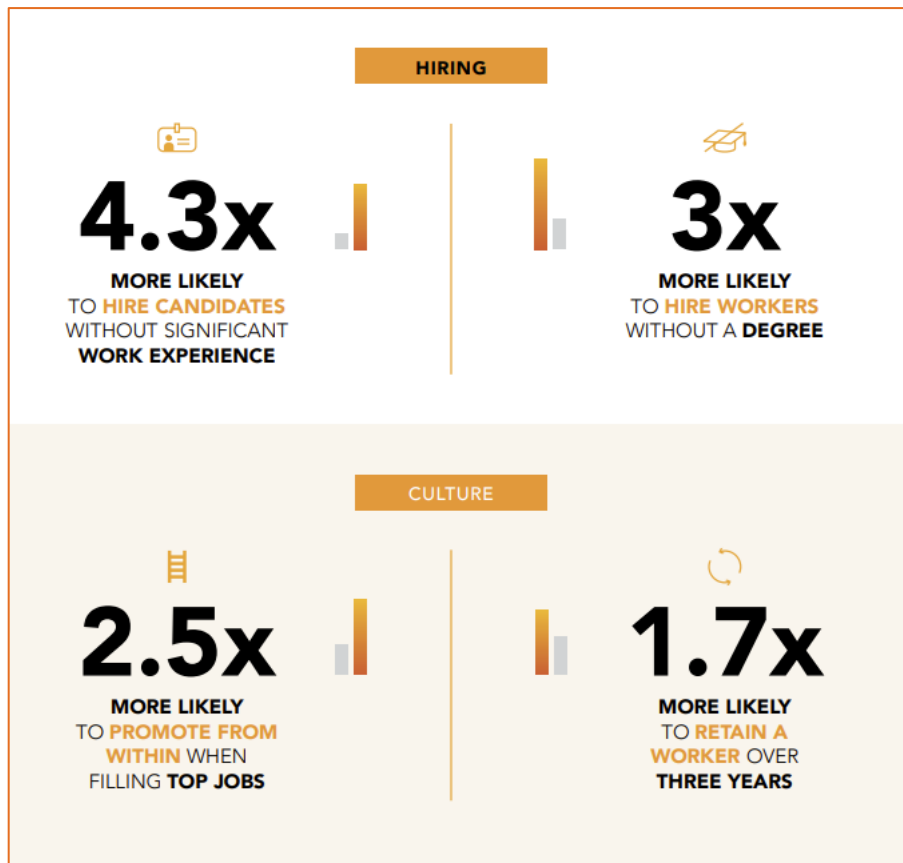
Culture is comprised of:

- o **Retention**, which measures how long employees stay with an employer.
- o **Leaders from within**, which measures the share of leadership-level employees who have climbed the ranks internally within the company.

Company Practice Matters

Some firms deliver far stronger opportunity for their workers than firms at the bottom

Compared to Bottom-Quartile Firms, Top-Quartile Firms Are



Education Matters

We studied career outcomes for a state higher education system. What we found: Wide gaps in economic mobility across majors and schools.

An accurate measure of long-term outcomes must measure incremental value vs. a realistic counterfactual

Some programs we studied offer 6x more economic mobility than others. Many majors with the most upward mobility aren't necessarily the highest earning.

Illustrative Example

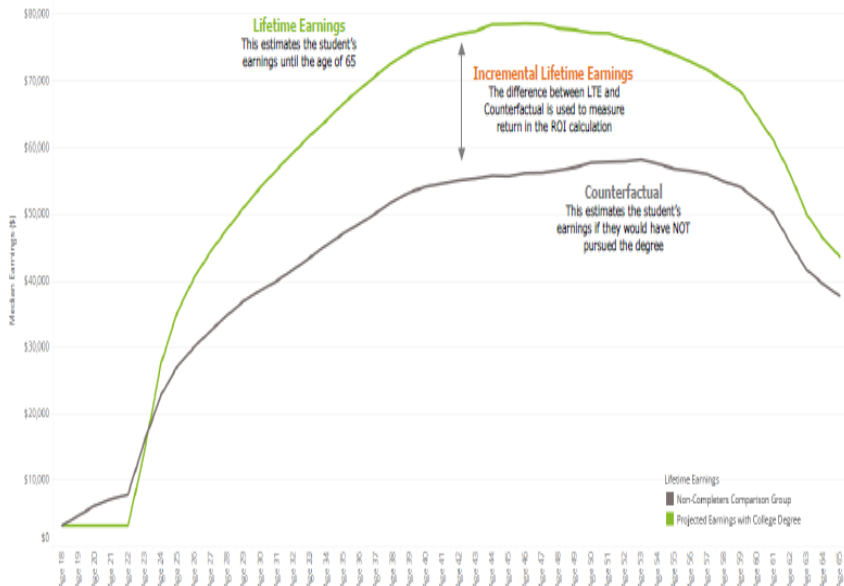
All Institutions Student Career Outcomes

Median Lifetime Earnings with College Degree
\$1,335,555

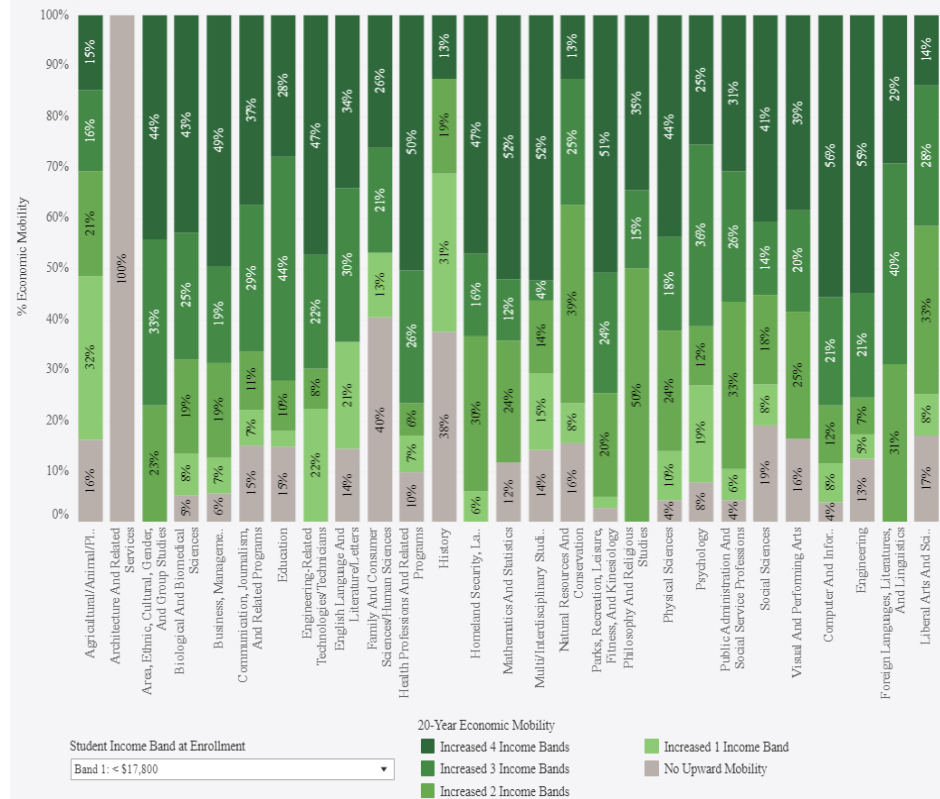
Median Lifetime Earnings without College Degree
\$1,012,455

Calculated Incremental Lifetime Earnings
\$323,100

Median Lifetime Earnings Trajectory

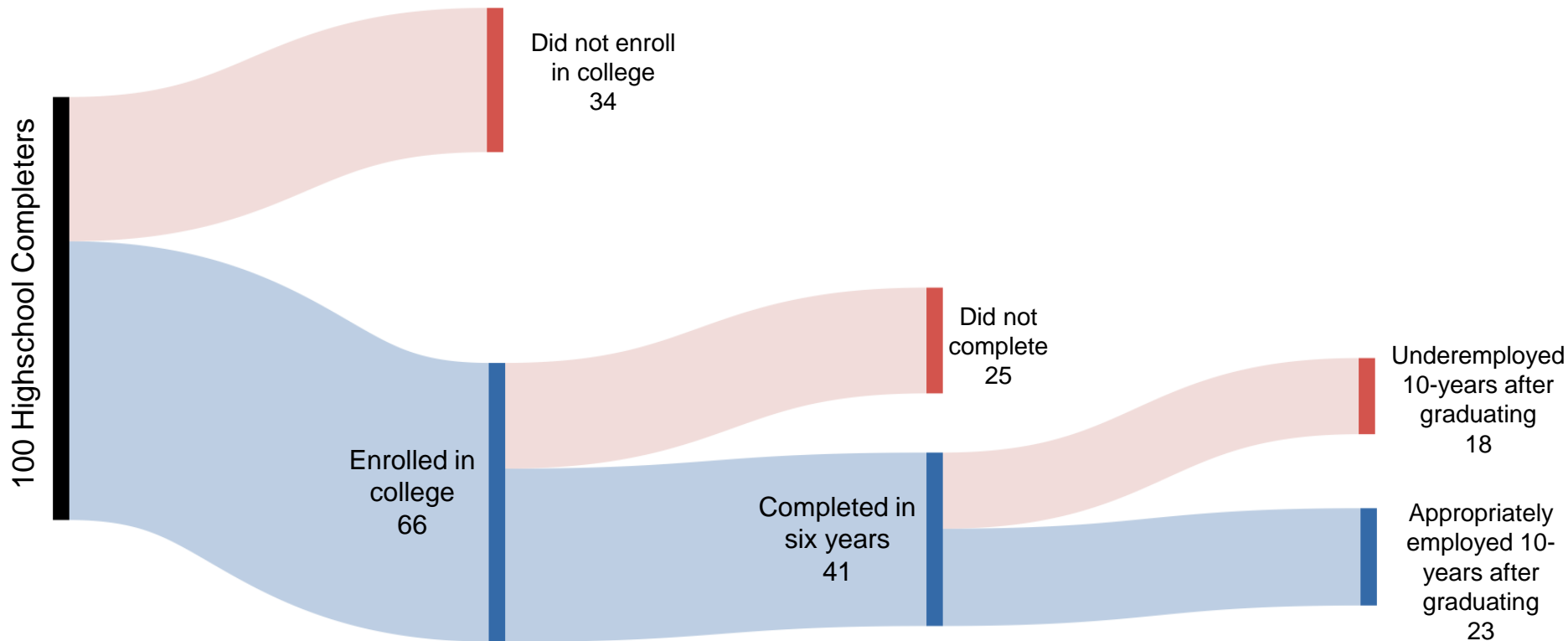


Economic Mobility of Graduates



Focusing on Attainment Alone Isn't Enough

Only 20-25% of HS grads will wind up in a job that requires a college degree. There's need for greater focus on outcomes all along the way.



Note: Figures may not sum to 100 due to rounding.

A Holistic View of Outcomes

New sources of data enable us to build a comprehensive view into worker and learner careers

Measure	How we track	Rationale
Lifetime Earnings / ROI	We identify the firm, title, and occupations students enter post-graduation to estimate each student's annual salary	The rising cost of college forces many students to consider what return they will generate on their educational investment
Underemployment	We assess whether the occupations students enter typically require a college-degree.	High rates of underemployment upon graduation may cause students and others to question the value of college
Economic Mobility	We compare the income bracket of a student's family before enrollment to the student's earnings post-enrollment	College has historically been a ladder for economic mobility, lifting students into higher paying work
Further Educational Attainment	We measure the share of graduates who go on to earn advanced degrees	Advanced degrees offer further pathways to upward mobility for students
Entrepreneurship & Leadership	Measuring how often students found firms and how long post-graduation it takes students to enter management occupations	Understanding how a school is preparing our next generation of leaders can help make the case for greater funding
Social Impact	We identify which students enter "social impact"-oriented professions or organizations	Students choosing social impact careers are putting their degrees to good use and enriching their communities

Jobs Matter

Some jobs offer a better pathway up than others – especially for those without a 4-year degree

FRB economists leveraged Burning Glass data to identify Opportunity Occupations – well paying jobs open to those without a college degree.

Rank	Occupation Code	Occupation Title	Opportunity Employment	Total Employment Analyzed	SHARE OF EMPLOYMENT		
					Opportunity Employment	Higher Wages, Bachelor's Degree Required	Lower Wages
1	29-1141	Registered Nurses	1,374,014	2,086,530	65.9%	34.1%	0.0%
2	53-3032	Heavy and Tractor-Trailer Truck Drivers	1,032,790	1,109,200	93.1%	0.0%	6.9%
3	43-3031	Bookkeeping, Accounting, and Auditing Clerks	581,455	1,100,950	52.8%	37.4%	9.8%
4	49-9071	Maintenance and Repair Workers, General	491,285	910,140	54.0%	0.0%	46.0%
5	47-2031	Carpenters	457,460	498,780	91.7%	0.0%	8.3%
6	47-2111	Electricians	453,790	453,790	100.0%	0.0%	0.0%
7	29-2061	Licensed Practical and Licensed Vocational Nurses	446,360	446,360	100.0%	0.0%	0.0%
8	43-1011	First-Line Supervisors of Office and Administrative Support Workers	433,025	1,097,410	39.5%	60.5%	0.0%
9	11-1021	General and Operations Managers	432,315	1,664,070	26.0%	74.0%	0.0%
10	41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	426,495	1,059,600	40.3%	59.5%	0.3%
11	33-3051	Police and Sheriff's Patrol Officers	405,652	461,450	87.9%	12.1%	0.0%
12	41-3099	Sales Representatives, Services, All Other	370,776	824,430	45.0%	53.8%	1.2%
13	41-1011	First-Line Supervisors of Retail Sales Workers	368,040	816,260	45.1%	21.3%	33.7%
14	49-3023	Automotive Service Technicians and Mechanics	338,550	440,280	76.9%	0.0%	23.1%
15	47-2152	Plumbers, Pipefitters, and Steamfitters	313,670	314,670	99.7%	0.0%	0.3%
16	43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	284,418	1,603,040	17.7%	5.1%	77.2%
17	47-2061	Construction Laborers	270,250	672,670	40.2%	0.0%	59.8%
18	15-1151	Computer User Support Specialists	262,827	499,570	52.6%	47.1%	0.3%

Source: Federal Reserve Banks of Philadelphia & Cleveland

Burning Glass and JFF analyzed the landscape of middle-skill employment to identify which occupations offer good pay and stability, which ones offer upward mobility – and which ones offer neither.

Career Areas: Percent of Employment by Opportunity Category

Career Area	LIFETIME JOBS	SPRINGBOARD JOBS	STATIC JOBS
HEALTH CARE	55%	5%	40%
BUSINESS	20%	80%	1%
IT	16%	84%	0%
MANUFACTURING	38%	0%	62%

Source: Burning Glass & JFF

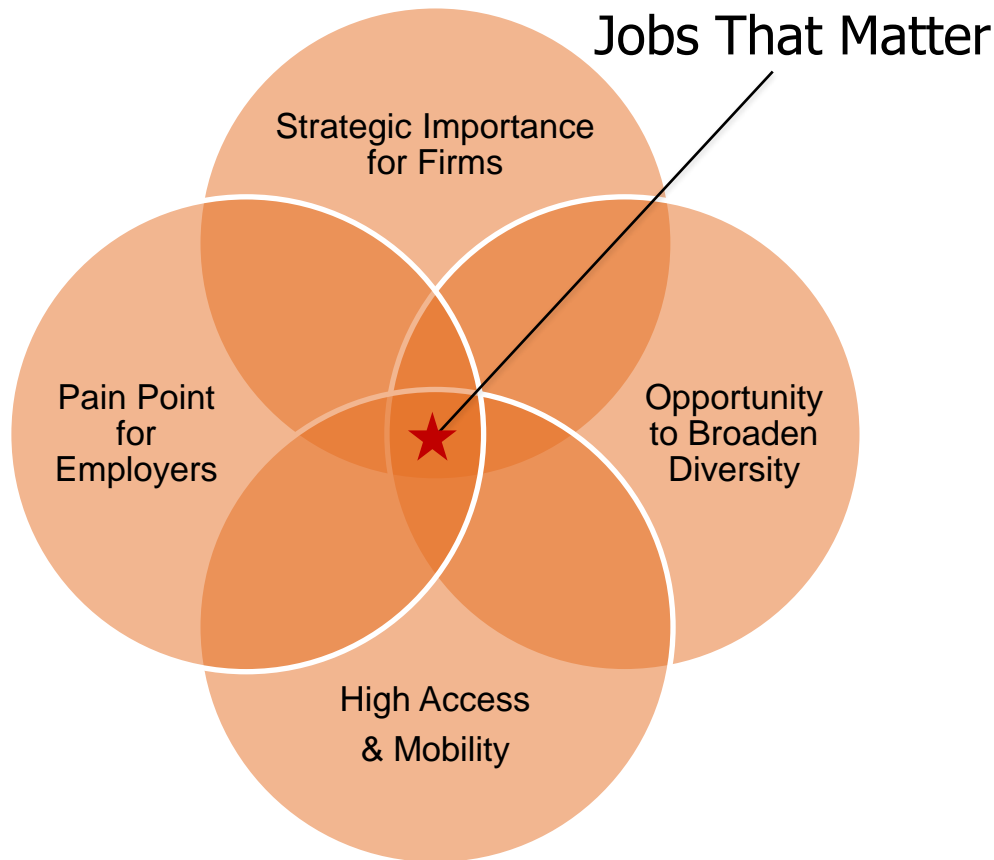
Landing a Top Quintile Job Pays Off

Across factors we rank, workers in top quintile jobs experience better outcomes, including 80% higher starting salaries, 69% greater likelihood of health coverage and 85% lower risk of automation-based displacement.

Outcome	Bottom 20%	Middle 20%	Top 20%
Initial Wages	\$22,500	\$29,600	\$40,500
Initial Health Insurance Rate	51.2%	73.4%	86.4%
Year 10 Wages	\$44,500	\$51,800	\$61,500
Year 10 Health Insurance Rate	68.9%	77.3%	81.7%
Promotion Rate	71.2%	75%	82.8%
Get Post-Secondary Credential	6%	6.4%	11.1%
AI Risk (Lower Better)	-0.9%	-0.5%	0%
Automation Risk (Lower Better)	0.7%	0.8%	0.1%
Union Percent	5.6%	10.5%	20.2%
Public Sector Percent	7.6%	12.6%	56.8%
Unemployment Risk (Lower Better)	4.9%	4.5%	3.5%

Prepare Students for the Jobs That Matter

In every community, there are jobs at the four-way intersection of opportunity



- Every community has a unique engine of growth & opportunity
- A set of jobs & skills are key to powering critical sectors
- Which of these also offer strong access & mobility to workers and broaden workforce diversity? These are the **Jobs That Matter**
- What are the pathways that ensure that **all workers have the chance to rise into these jobs** and benefit from regional growth?

Jobs in Shortage Offer a Pathway Up

Orlando lags on economic mobility even as shortages abound. To be a pull-up engine for the region, Valencia College focuses on market gaps where firms are most open to alternative talent & where payoffs to students are greatest

Careers key to Orlando growth sectors comprise a low share of the local workforce relative to the nation

Table 3: Career areas with higher, similar, and lower shares of employment in Orlando-The Villages compared to US employment

Higher	Similar Employment	Lower
<ul style="list-style-type: none"> Hospitality, Recreation & Personal Services Sales & Customer Service Installation & Repair Construction & Excavation 	<ul style="list-style-type: none"> Protective Services Art, Media & Entertainment Legal Office & Administrative Business & Finance Inspection, Health & Safety Architecture & Engineering 	<ul style="list-style-type: none"> Production & Manufacturing Healthcare Education, Curation & Library Services Agriculture & Forestry Transportation & Warehousing IT & Math Social Sciences & Services Natural Sciences

Source: Lightcast Skills & BLS employment

In many career areas, talent supply is well below demand, driving up wages

Table 4: Job postings in Orlando-The Villages by career area with supply-demand ratio and median annual earnings

Career Area	Job Postings	Supply-Demand Ratio	Annual Earnings
Hospitality, Recreation, & Personal Services	62,015	2.56	\$23,850
Production & Manufacturing	8,357	1.99	\$33,200
Sales & Customer Service	74,701	1.94	\$28,960
Office & Administrative Services	31,378	1.75	\$36,320
Inspection, Health, & Safety	1,354	1.70	\$41,790
Protective Services	10,743	1.61	\$35,710
Transportation & Warehousing	47,797	1.59	\$32,150
Installation & Repair	50,277	1.47	\$31,500
Construction & Excavation	27,268	1.44	\$40,070
Natural Sciences	1,366	1.36	\$52,070
Healthcare	43,899	1.15	\$45,700
Education, Curation, & Library Services	20,842	0.92	\$45,310
Business & Finance	81,226	0.91	\$58,490
IT & Math	14,476	0.90	\$82,940
Architecture & Engineering	6,227	0.88	\$76,710
Legal	6,095	0.81	\$59,700
Social Sciences & Services	10,948	0.72	\$44,410
Art, Media, & Entertainment	14,254	0.46	\$47,850

What Makes a Launchpad Role Is More Than Just High Wages

Young workers also care about factors like healthcare access, promotion potential, stability, and automation risk.

FACTORS USED IN THIS PROJECT:

1. **Estimated wages:** from starting wages to, 1-, 5-, 10-, 15-, and 20-years onward
2. **Likelihood of access to employer healthcare** based on occupation distribution and ACS (Same years)
3. **Promotion rate** and **months to promotion** for 18-yr-olds
4. Monthly **transit rate to unemployment/out of labor force** for 18-19-yr-olds
5. **Unemployment rate of occupation during Great Recession** as indicator of resilience from significant economic downturns (from CPS)
6. Percent of **workers eventually earning certificate/AA or a BA**
7. **Wage premium** of worker's skills in their current occupation
8. Occupation's exposure **risk to automation and AI**

Top Launchpad Roles Involve Skilled Work

Maintenance and manufacturing jobs stand out, along with some healthcare jobs, but retail sales managers are notable exceptions.

SOC Name	Overall Job Score
Electrical Power-Line Installers and Repairers	77
Aircraft Mechanics and Service Technicians	72
Millwrights	72
Telecommunications Line Installers and Repairers	72
Commercial Divers	71
Captains, Mates, and Pilots of Water Vessels	68
Control and Valve Installers and Repairers, Except Mechanical Door	67
Ship Engineers	67
Health Technologists and Technicians, All Other	66
Medical Equipment Repairers	66
Mobile Heavy Equipment Mechanics, Except Engines	62
Industrial Machinery Mechanics	62
Licensed Practical and Licensed Vocational Nurses	61
First-Line Supervisors of Retail Sales Workers	61

Making it to the Top

In which non-college jobs did top earners start out?


SOC Name	Share Who Go On to Be in the Top 10% of All Earners
Inspectors, Testers, Sorters, Samplers, and Weighers	17%
Command and Control Center Specialists	17%
Patternmakers, Wood	13%
Aircraft Launch and Recovery Specialists	13%
New Accounts Clerks	12%
Semiconductor Processing Technicians	10%
Flight Attendants	10%
Procurement Clerks	9%
Insurance Sales Agents	9%
Military Enlisted Tactical Operations and Air/Weapons Specialists and Crew Members	8%
Tellers	8%
Infantry	8%
Rock Splitters, Quarry	8%
Refractory Materials Repairers, Except Brickmasons	8%
Computer Network Support Specialists	7%
Helpers, Construction Trades, All Other	7%
Petroleum Pump System Operators, Refinery Operators, and Gaugers	7%
Commercial Divers	7%
Elevator and Escalator Installers and Repairers	7%
Chemical Equipment Operators and Tenders	7%

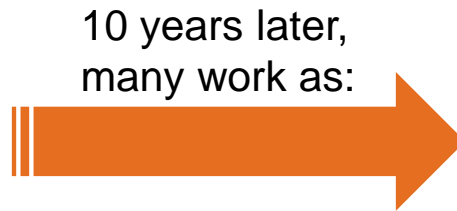
The Effect of a Great Launch: More Options to Move Up

Within 10 years, almost 1 in 5 oil and gas operators are in diverse supervisory jobs paying upwards of 2x to 3x more than starting wages.

Oil and Gas Service
Unit Operators



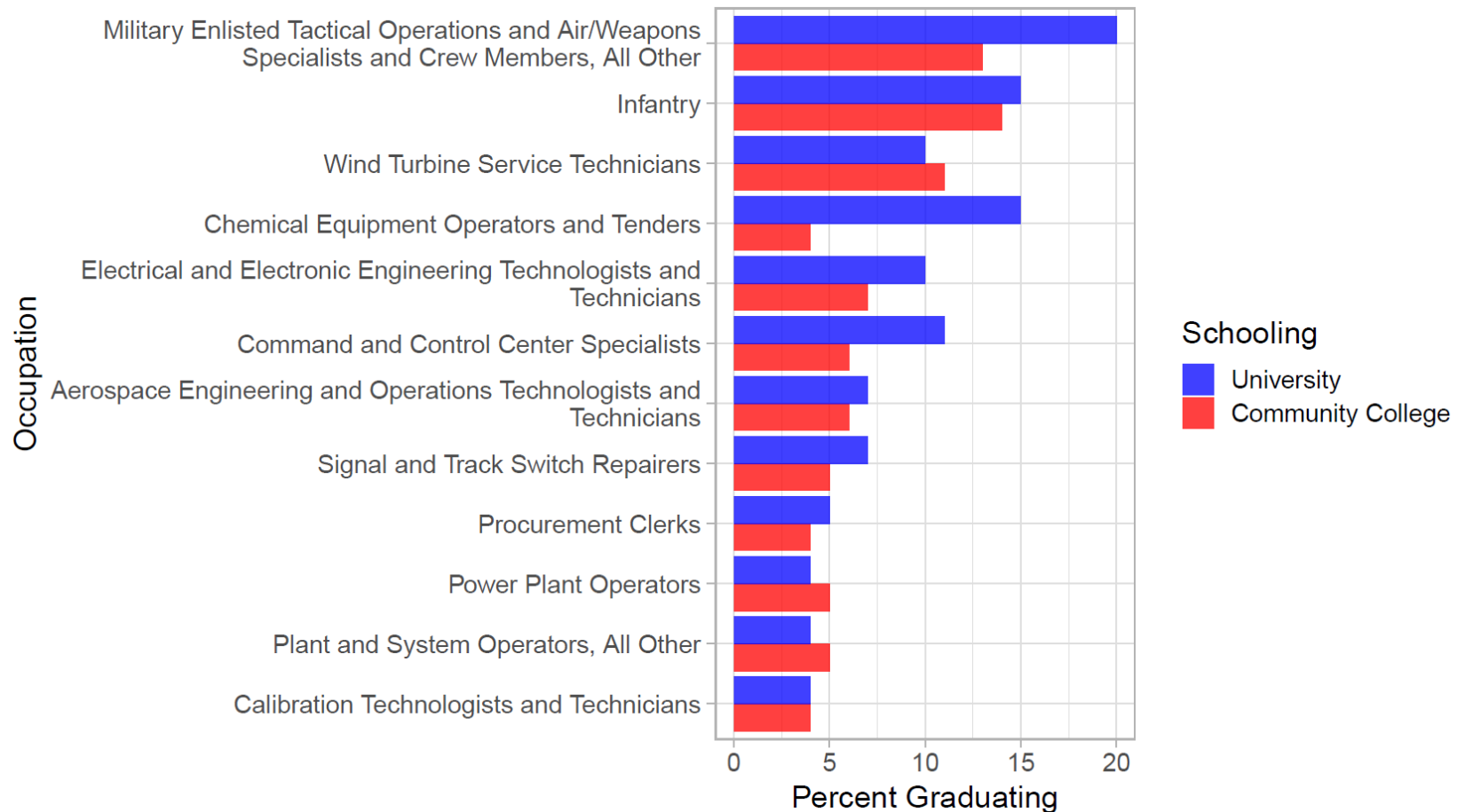
Starting Salary -
\$35k/year 



	Share in Role
Oil and gas service unit operators \$50k - \$65k	11%
First-line supervisor – office and administrative workers \$61k - \$77k	10%
First-line supervisor – production and operating workers \$64k - \$81k	6%
First-line supervisor – construction and extraction workers \$74k - \$94k	4%

Launchpads to College

Workers in some jobs are far more likely than their peers to go on eventually to earn a degree



AI will be a Double-Edged Sword

AI will open new career avenues by unlocking expertise & shortening learning curves. In others, it will raise the bar. What does it take to train students for more advanced levels of proficiency?

In many roles, GenAI will automate entry-level work, **pulling out the bottom rungs of career ladders**

On the other hand, GenAI will also drive **new levels of accessibility into jobs with high expertise barriers**



Example: Marketing Specialists



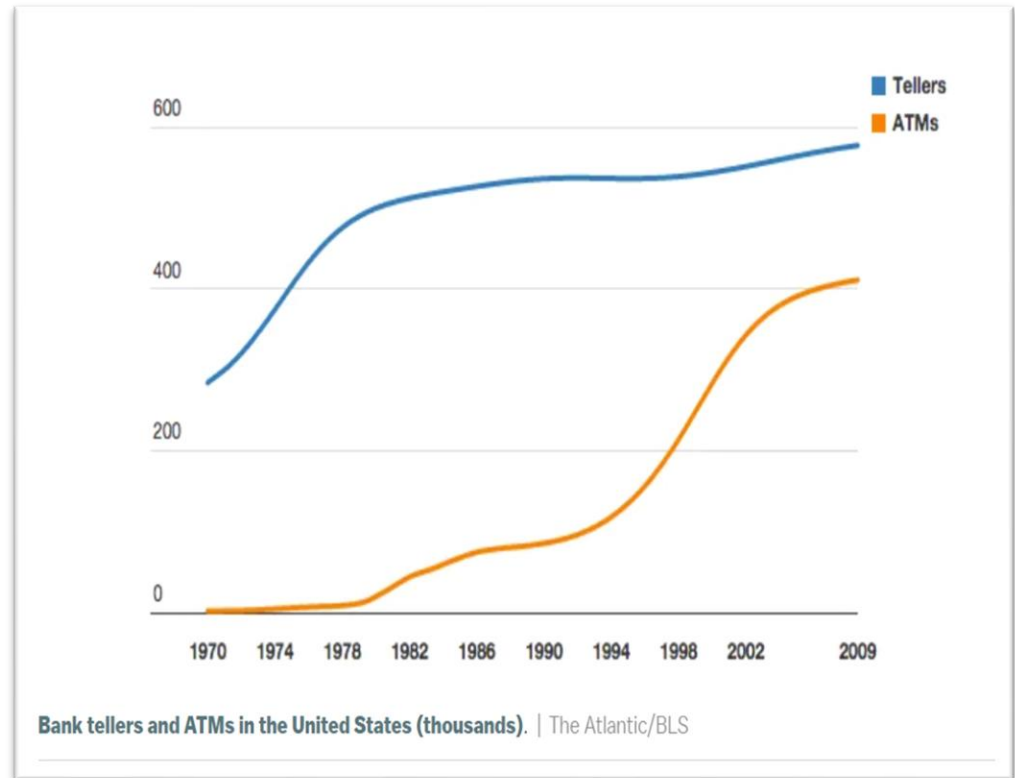
Example: Database Architects

Not All Doom and Gloom

In previous automation waves, demand for some impacted roles – but not all – increased as technology drove new efficiencies

In theory, the invention of ATMs threatened the jobs of bank tellers

In practice, ATMs drove heightened demand for banking – increasing the total number of tellers



What Works

Moving to models of continuous learning will Help Learners Over Time, Not ‘Once & Done’

Career Area	% of Workers in Career Area after 5 Years	% of Workers in Occupations with Low to Moderate Probability of Automation	How much safer or at risk than the nation?
Core Retail (e.g. Retail Sales)	33.5%	35%	0.95
Administrative	15.7%	13%	0.35
Customer Service	12.3%	8%	0.22
Food	6.2%	0%	NA
General Sales	5.9%	95%	2.57
Finance	5.5%	18%	0.49
Health Care	4.2%	40%	1.08
Hospitality	3.7%	19%	0.51
Restaurant Management	3.4%	14%	0.38
Retail Operations: Logistics	3.0%	20%	0.54
IT	2.4%	100%	2.70
Call Center	1.1%	4%	0.11
Retail Operations: Merchandising	1.1%	100%	2.70
Real Estate	0.9%	0%	NA
Retail Operations: Buyers	0.6%	0%	NA
Hospitality Management	0.3%	100%	2.70
Auto	0.2%	0%	NA
Total	100%	38%	1.02

Build Skills to Help Workers Rise

Identify the Specific Skills That Will Help Advance Careers

Administrative Assistant Transition Pathways



Customer Service Management

Operations Leadership

Office Management

Problem Solving

Coaching

Office Manager
+ \$22,710 annual salary



Adjuster License

Subrogation

Claims Resolution

Medical Insurance Claims

Claims Investigations

Insurance Claims Clerk
+ \$7,640 annual salary



Supply Chain Planning

Primavera (Software)

Earned Value Management

Material Handling Equipment

Logistics

Production & Planning Clerk
+ \$10,160 annual salary

Skills Launch Careers

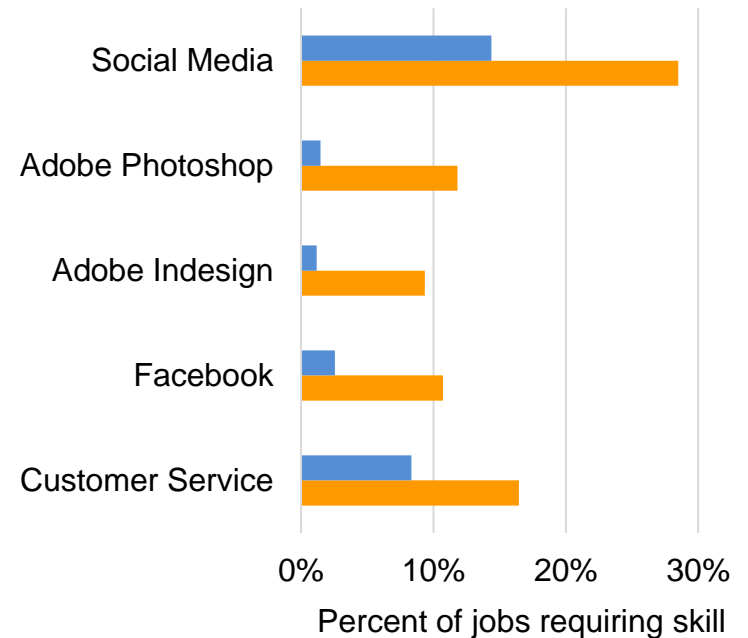
Help Learners Acquire Skills Associated with Better Paying Jobs & Higher Mobility

High-Paying Skills for Marketing Managers



■ Top Salary Quartile ■ Bottom Salary Quartile

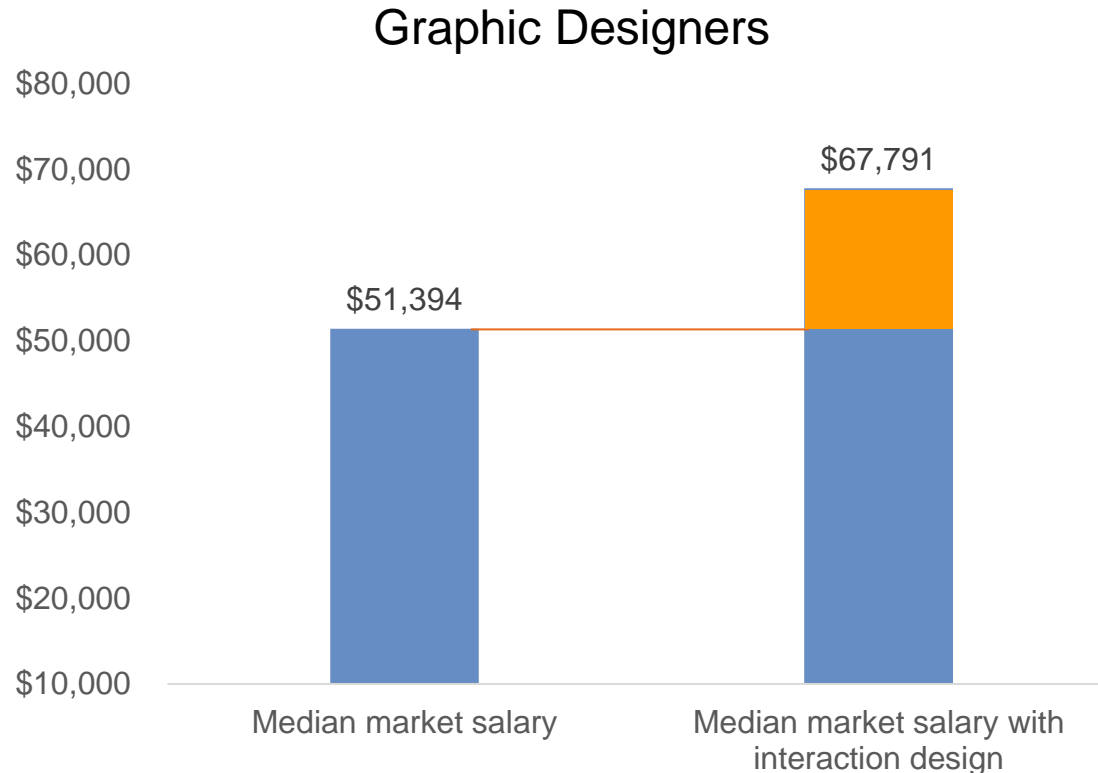
Low-Paying Skills for Marketing Managers



■ Top Salary Quartile ■ Bottom Salary Quartile

Skills Arbitrage Careers

It doesn't cost \$16,000 to learn interaction design

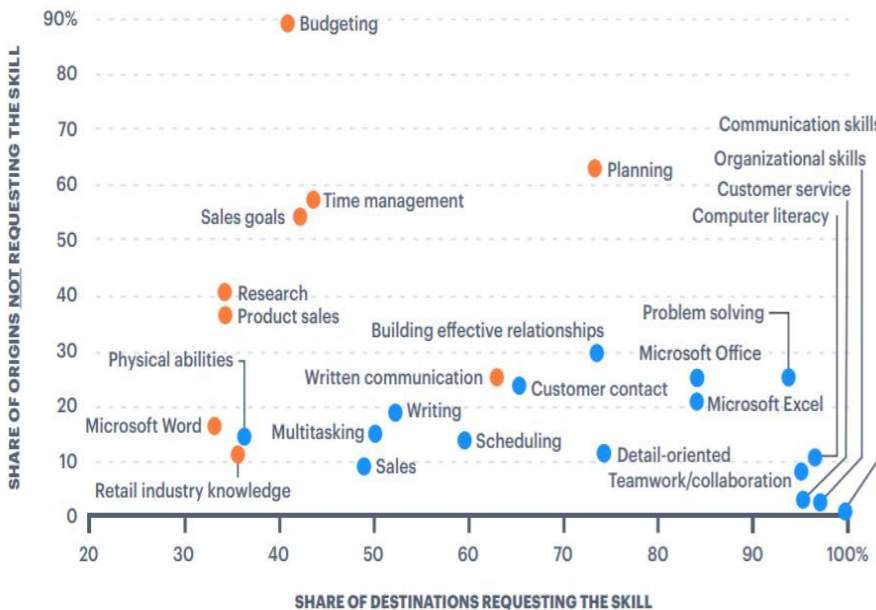


Not All Skills Are Created Equal

Build skills that close the gap between low- and high-value work...

...and dramatically increase the likelihood that workers will move up

Skills Gaps for Top Transitions from Lower-Wage to Opportunity Occupations



Customer Service & Support Workers

Skill/Certification(*)	% Increase in Mobility Rate
Project Management	390%
Certified A+ Technician*	430%
Budgeting	280%
Hardware Experience	250%
Social Media	240%
Adobe Photoshop	200%
Quality Assurance and Control	180%

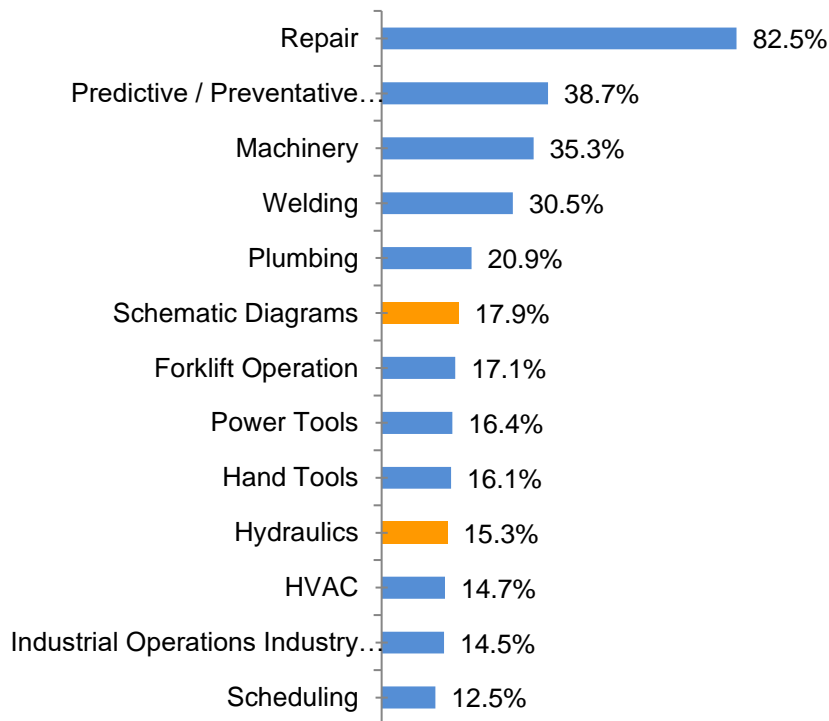
Note: The share of destinations requesting a skill is weighted by the employment of the destination occupations. The y-axis reflects the share of top transitions for which the skill ranks among the destination occupation's top 25 skills but not the origin's.

Source: Federal Reserve Banks of Cleveland & Philadelphia based on Burning Glass data

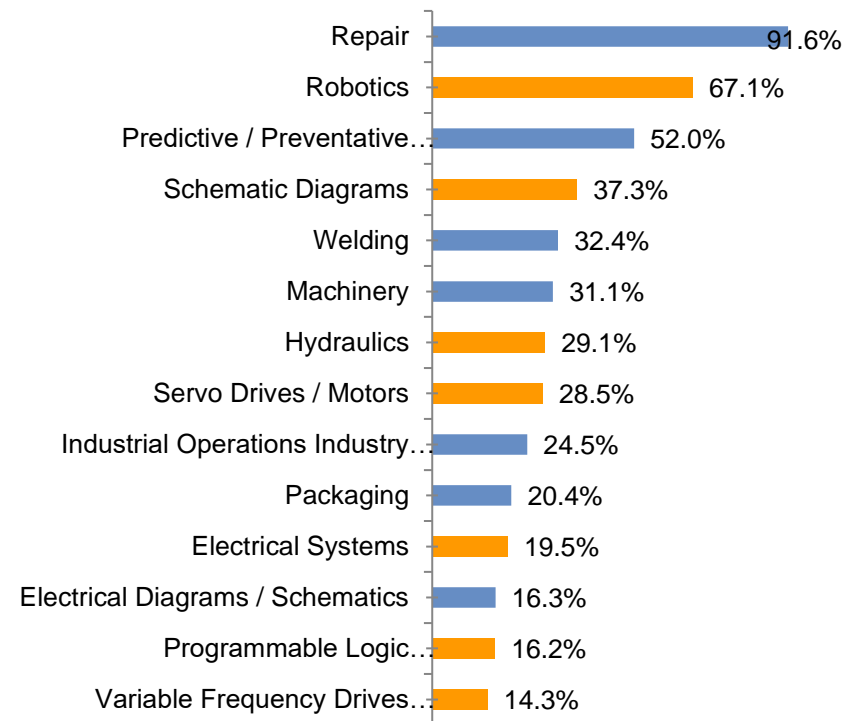
Amidst Rising Wages & Short Supply, Some Skills Make Workers More Valuable

To offset rising wages and to make do with fewer workers, companies will need to boost productivity. **But automation isn't the only tool for increasing productivity. Specific skills can make workers more productive and more valuable.**

Skills for Maintenance Technicians,
Overall



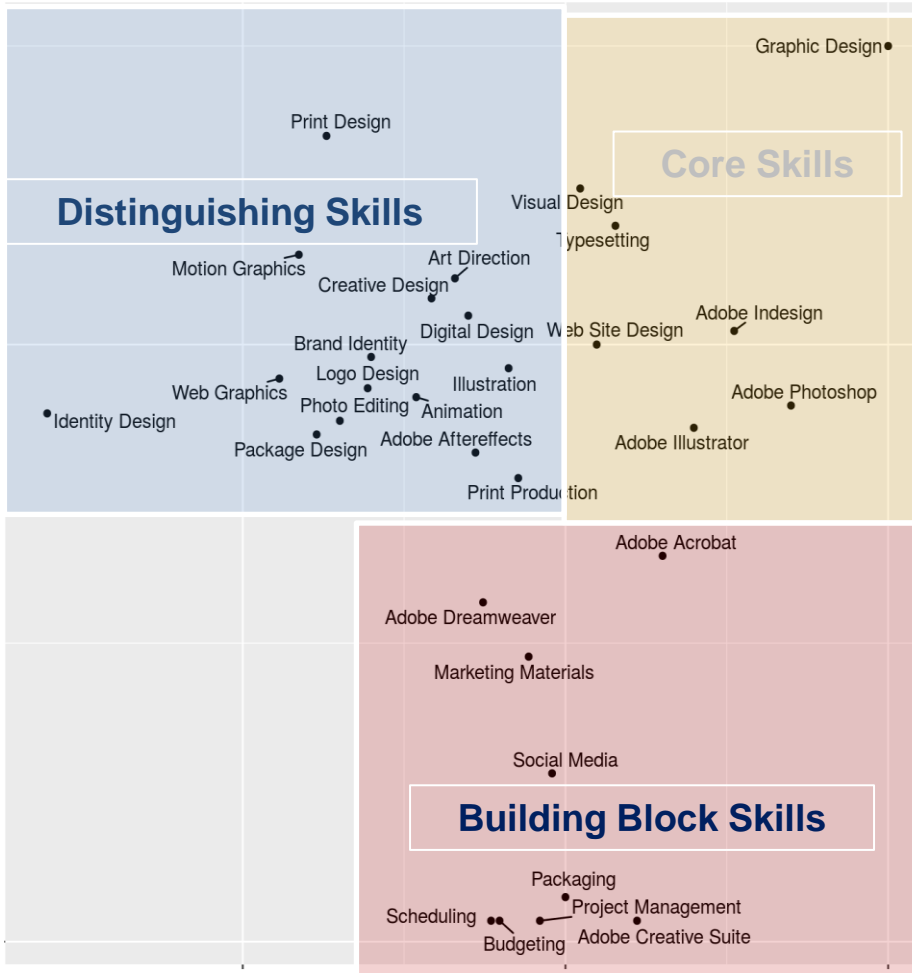
Skills for Maintenance Technicians,
Robotics



Source: Burning Glass Institute analysis of Lightcast data

In Aligning School & Work, Rethink Curricula to Teach the Skills That Matter

Graphic Designer / Desktop Publisher (BGTOcc)



Core Skills: Definitional skills to each occupation which students will need in order to contribute

Building Block Skills: Although these are required and relevant across many roles, **they aren't always included in curriculum, putting graduates at a disadvantage**

Distinguishing Skills: These are emerging, fast-growth skills or core opportunities for specialization that **enable students to differentiate themselves – and often command significant salary premiums**

AI will Reshape the Key Skills for Each Career

To understand AI impacts, the right unit of analysis is skills. As skills shift in importance, students may need very different training to be career ready.

In some jobs, Gen AI automation of routine tasks will lead to new emphasis on higher value work

As AI augments some skills and automates others, the nature of occupations will change radically



Example: Human Resource Officers

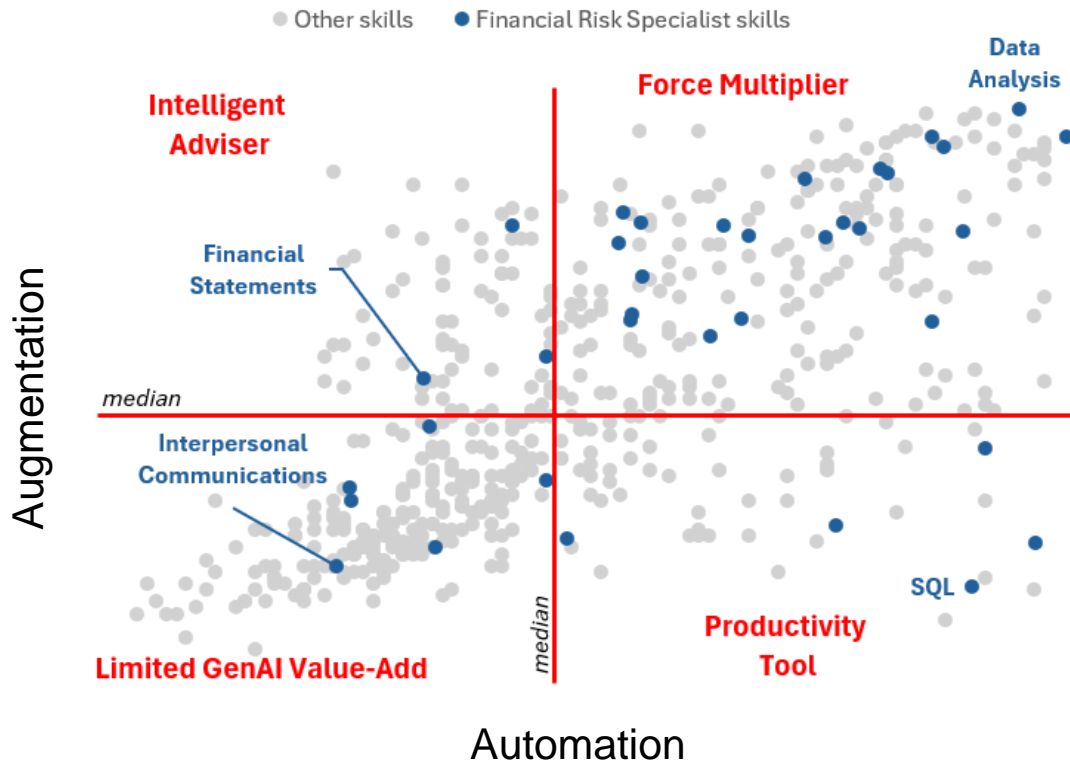
Technical Writer: Top 10 Skills Before GenAI	Technical Writer: Top 10 Skills After GenAI
Technical Writing	Technical Writing
Technical Documentation	Technical Documentation
Editing	Editing
Technical Communication	Technical Communication
Software Documentation	Project Management
Proofreading	Analytical Skills
Grammar	Coordinating
Content Creation	Critical Thinking
Writing	Problem Solving
Adobe Illustrator	Time Management

Example: Technical Writer

GenAI Will Transform The Skills Landscape

The interplay of automation and augmentation mean that some skills will take on new importance in students' careers

While some skills may simply be automated – the impacts on most skills is more nuanced, with AI acting as a force multiplier



Skills will rise in importance

- Creative and judgment skills
- Skill insulated from digitalization
- Skills used to build AI tools or optimize outputs from LLMs
- Cybersecurity

Skills that will fall in importance

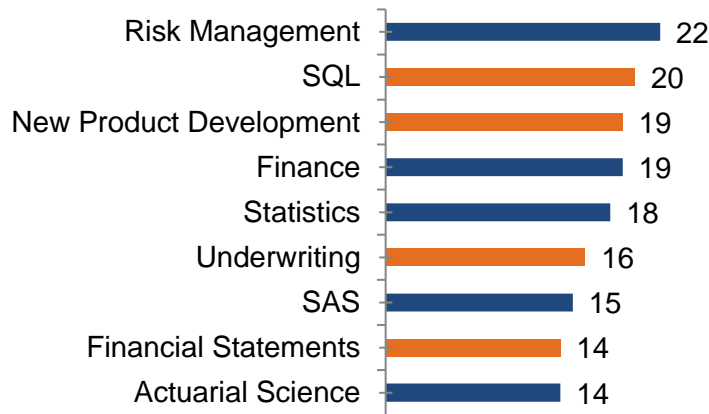
- Copywriting
- Simple coding
- Web development
- Simple data analysis
- Familiarity with business related software

Emerging Skills Aren't Just Cut and Paste

How emerging technologies like GenAI disrupt roles more broadly

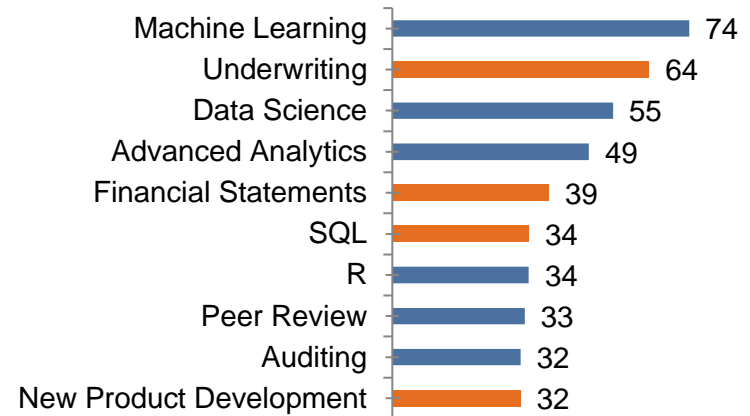
ML skills transform the role of the actuary

Skills for Actuaries (All)



% of Job Postings Requesting Skill

Skills for Actuaries with ML Skills



% of Job Postings Requesting Skill

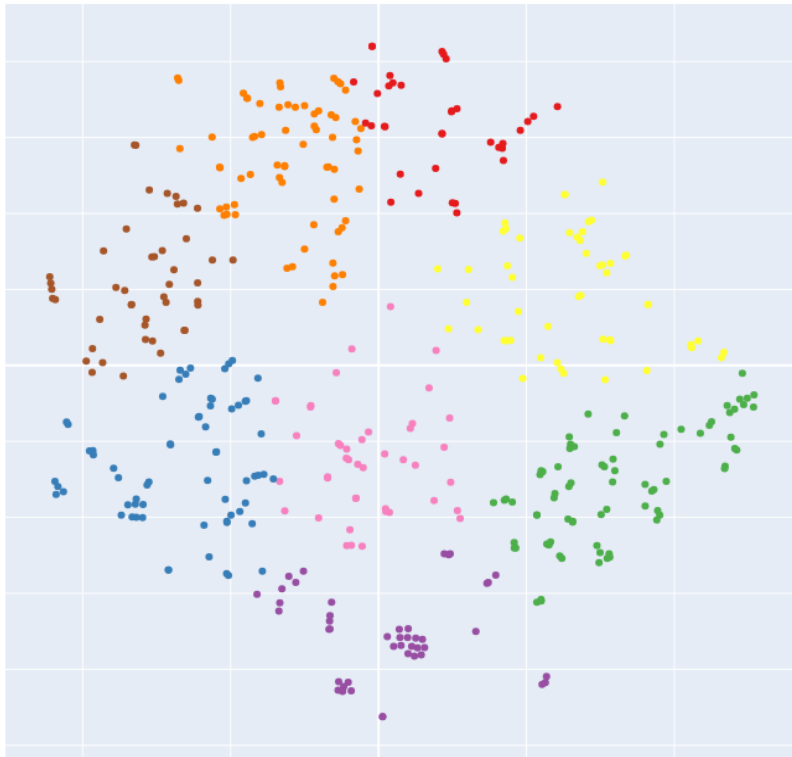
Several skills needed by Actuaries without ML skills – risk management, finance, statistics, and actuarial science – are no longer even sought from those with ML skills.

In their place are brand new skills – data science, advanced analytics, advanced programming languages like R, and peer review – that point to a transformation of the job itself for actuaries with ML skills

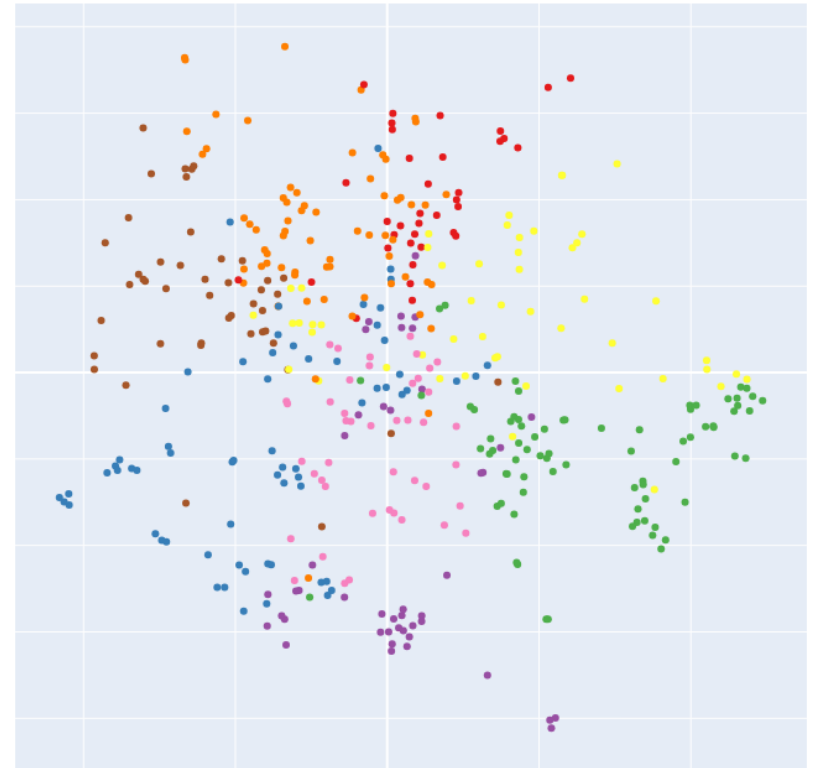
The Career Map Will Be Re-Wired

A larger community of learners needs support – but serving them will take new models

Jobs have an underlying DNA, determined by their skills. Just like commonalities in DNA across species, jobs can be arranged based on commonalities in underlying skills



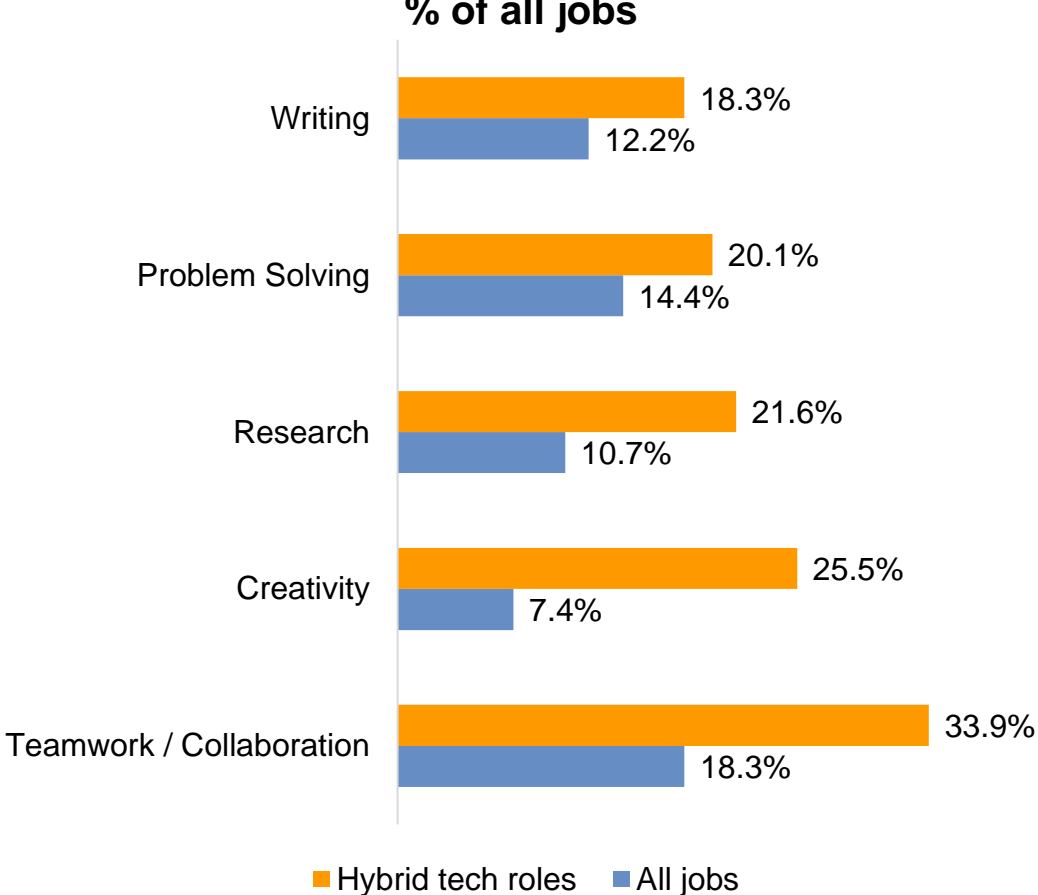
GenAI's impact on the relative importance of skills will re-wire the career map, closing off some talent supply chains and opening new opportunities



Foundational Skills are Increasingly Important

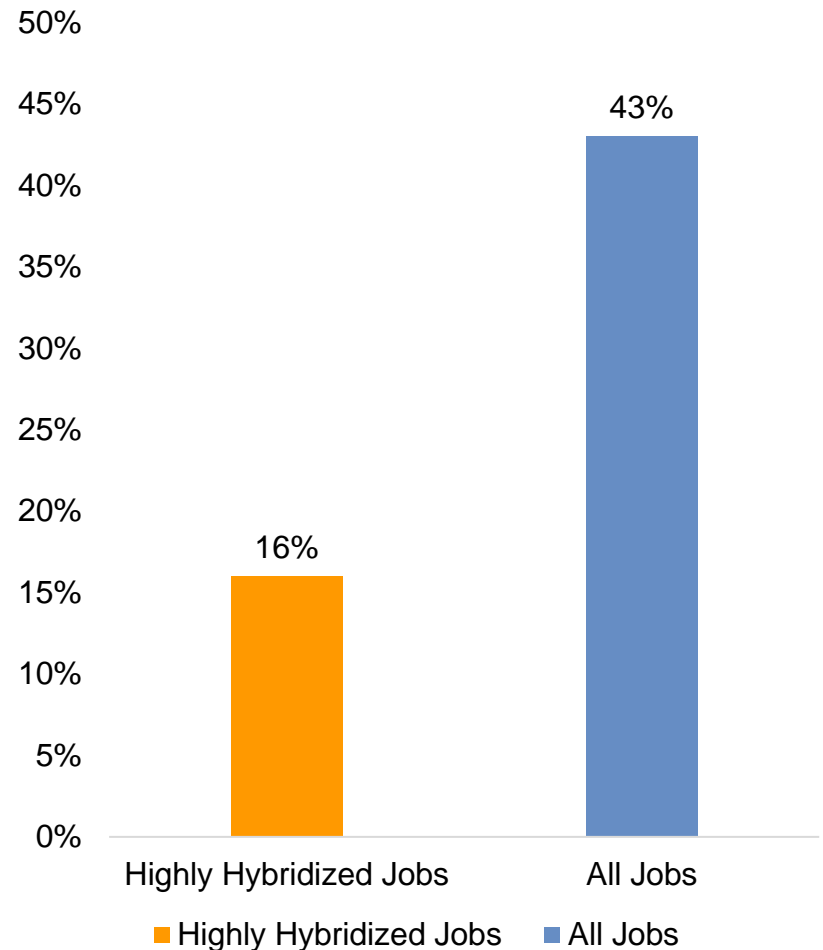
Even among tech-economy jobs, human skills matter more than ever

% of hybrid jobs requesting key soft skills vs. % of all jobs



Source: Burning Glass Technologies

Vulnerability to Automation



The New Foundational Skills

Even as we double down on the core of our liberal arts heritage, the set of skills in common across high-value careers is broader than just the 3 R's

Foundational Skill Group	Foundational Skill Area	Total Openings in Entry-Level Postings in BA-plus SOCs: March 2019 - Feb 2020	Growth in Number of Postings: 2017-2019	Share of Openings Outside IT and Analysis Job Families	Average Salary Premium
Business Enablers	Business Process	370,883	29%	67%	12%
	Project Management	281,999	51%	69%	14%
	Digital Design	152,960	44%	64%	-
	Communicating Data	39,897	101%	34%	27%
Digital Building Blocks	Managing Data	292,817	49%	28%	34%
	Analyzing Data	217,623	48%	55%	21%
	Software Development	263,261	48%	17%	43%
	Computer Programming	203,328	56%	13%	45%
	Digital Security and Privacy	67,879	30%	29%	38%
Human Skills	Communication	1,264,535	48%	81%	-
	Collaboration	595,402	58%	79%	2%
	Critical Thinking	587,966	52%	66%	0%
	Analytical Skills	490,311	44%	76%	1%
	Creativity	276,003	60%	82%	-

Source: Burning Glass Technologies

Skills Make Degrees More Valuable

The value of a degree isn't just about the school and major. Much of the value is in the skills students learn along the way.

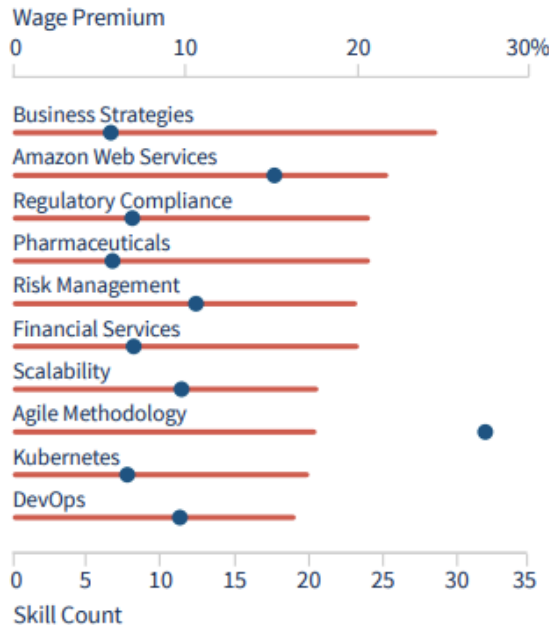
Highest-Earning Skills Commonly Used by...

— Wage Premium
● Skill Count (in thousands) Per Million Postings

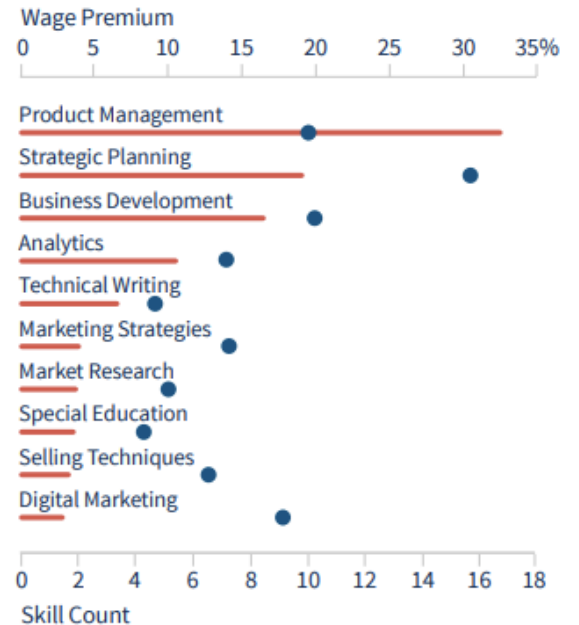
Business, Communications, and Legal Studies Majors



Math and Science Majors



Liberal Arts Majors



Foundational Skills

These skills are common across majors, but still carry huge value

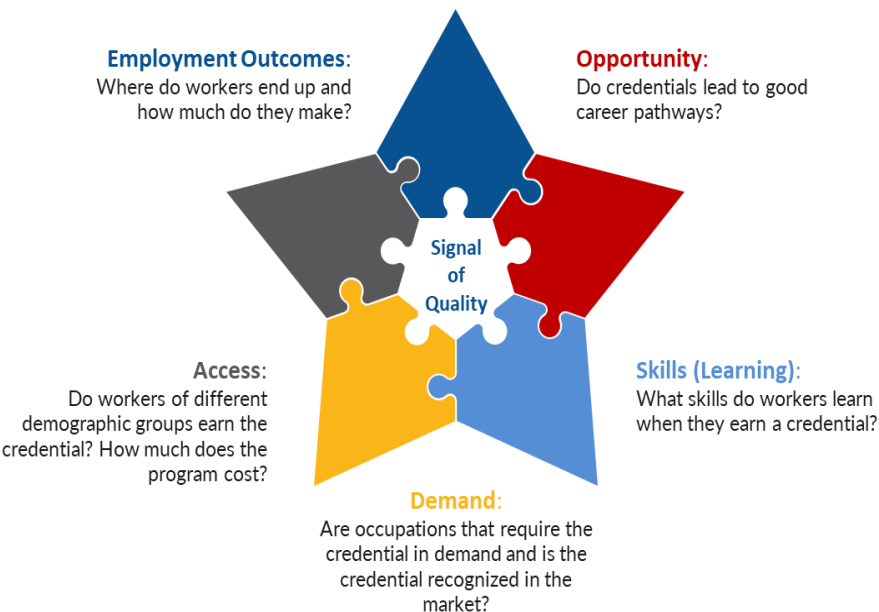


Credentials As A Signal Of Quality

It's now possible to measure learner outcomes across a range of non-degree programs and certifications

The **EQOS** framework brings together ~50 models to measure outcomes for non-degree credentials

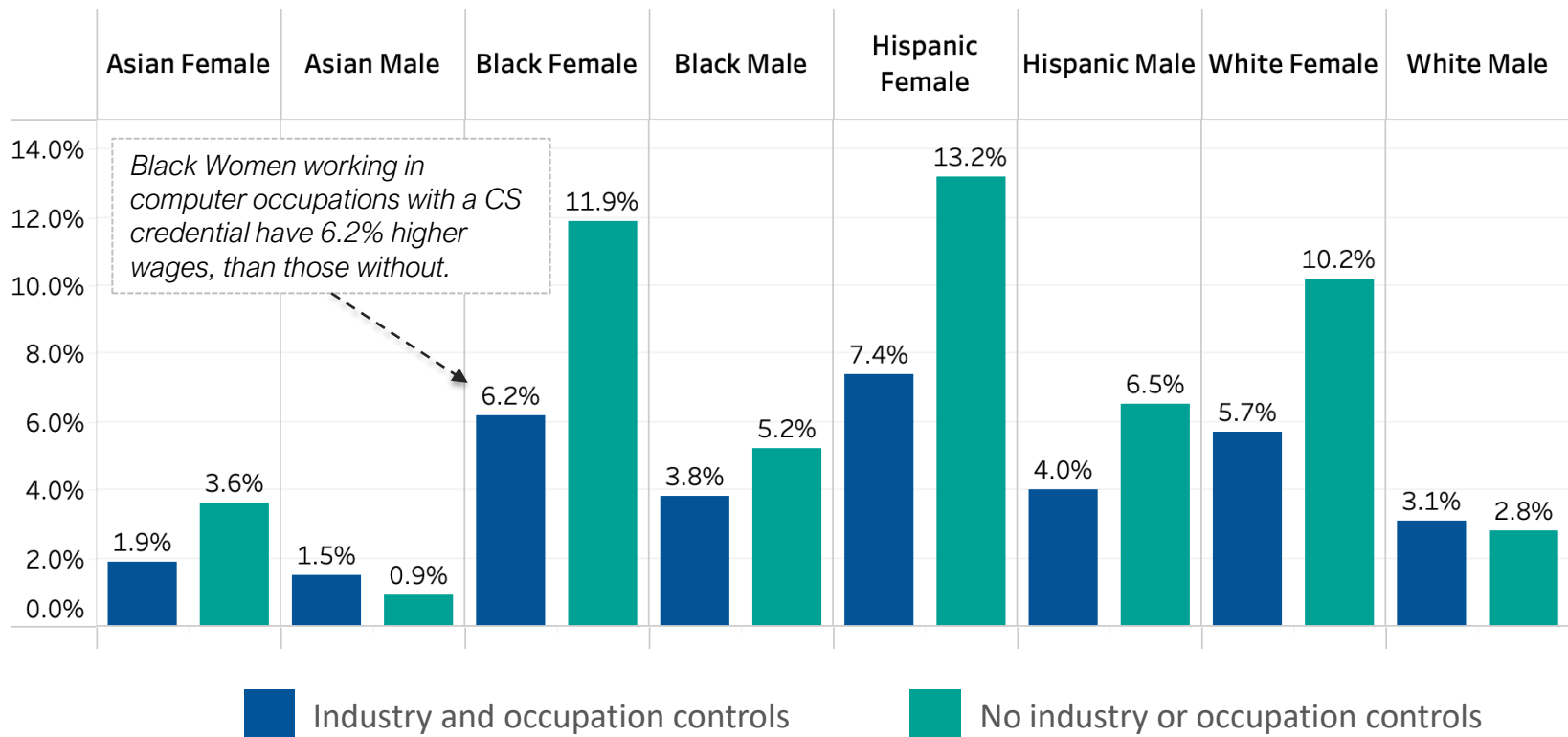
Example: Measurement of Placement & Wages for OSHA30 Certification Across Providers



	Provider A	Provider B	Provider C	Provider D	Provider E
In a new job by one year	67%	68%	70%	40%	58%
Moved into an aligned occupation by one year	18%	18%	19%	12%	22%
Wages after one year	\$63,000	\$65,000	\$61,000	\$46,000	\$40,000
Percent change in wages after one year	10%	9%	13%	3%	8%
Absolute wage changes after one year	\$4,000	\$3,100	\$4,500	\$2,300	\$4,300
Percent of workers with wage increases after one year	44%	45%	46%	41%	44%
Percent change in wages after three years	13%	14%	16%	-6%	17%
Percent change in wages after five years	15%	13%	19%	0%	28%
Employment Outcomes Grade	B	B	A-	F	C+

Credentials Can Shrink Wage Disparities

Black and Hispanic women who earn computer science credentials see significant wage gains



Source: Authors' calculations using 2010-2022 Lightcast and Burning Glass Institute data.











Note: Excludes Data Entry or Microcomputer applications credentials, or credentials that are missing a graduation date. Other controls include years of experience, job state, job year, college study program, school type, school Pell grant recipient level.

To End the False Choice of College or Career,

Make Career & Technical Education Work

A 50-state analysis of CTE programs found that, overall, only 19% of the credentials earned in CTE programs are in demand with employers while many certifications that hold the keys to good careers go undersupplied.

Rank	Credential	Credential Type	Credentials Earned	Percent Oversupplied	Supply/Demand Category	State Count
1	Microsoft Office Specialist		129,895	--		19
2	WISE Financial Literacy Certification		67,208	100%		7
3	NCCER - Core Curriculum		60,350	100%		12
4	Adobe Certified Associate		52,189	78%		19
5	Virginia Workplace Readiness Skills for the Commonwealth		42,313	100%		1
6	Basic First Aid		36,102	100%		11
7	NCCER - Carpentry		33,392	100%		14
8	IC3 Certification		22,840	100%		13
9	Automotive Service Excellence Certification		22,726	16%		24
10	ServSafe Certification (Manager/Food Handler/Allergens/Alcohol)		21,634	47%		20

Rank	Credential	National Demand	Percent Undersupplied	Supply/Demand Category	Median Salary
1	Certified Medical Assistant	181,281	100%		\$31,235
2	Automotive Service Excellence Certification	170,866	34%		\$44,269
3	Certified Pharmacy Technician	142,835	100%		\$32,344
4	ServSafe Certification (Manager/Food Handler/Allergens/Alcohol)	92,757	41%		\$31,617
5	CompTIA Security+	76,409	100%		\$82,296
6	Cisco Certified Network Associate	70,466	100%		\$81,480
7	CompTIA A+	70,101	100%		\$43,226
8	Certified EEG/EKG/ECG Technician	40,956	100%		\$50,132
9	AWS Certified Welder	26,143	57%		\$42,652
10	NCCT Medical Assistant	17,247	28%		\$31,330

Source: Burning Glass Technologies

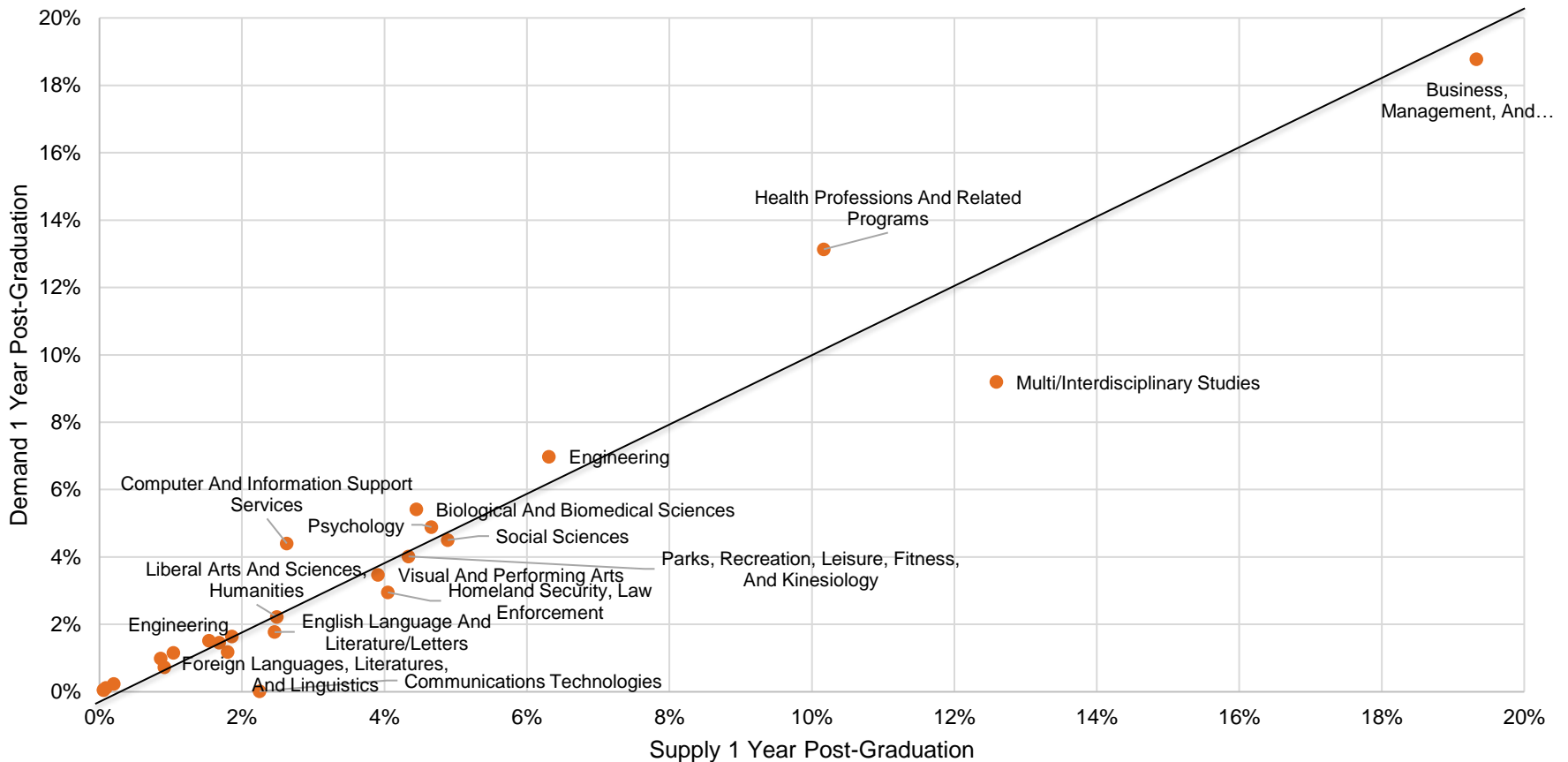


Note: This table is limited to credentials demanded in at least two states. For data specific to a state, see [CredentialsMatter.org](https://www.credentialsmatter.org). Percent Undersupplied and Supply/Demand Category are based on comparing credentials earned to demand data from just those states that provided data.

Aligning Programs of Study with Demand

Credentials gain value when they are clearly aligned to market needs

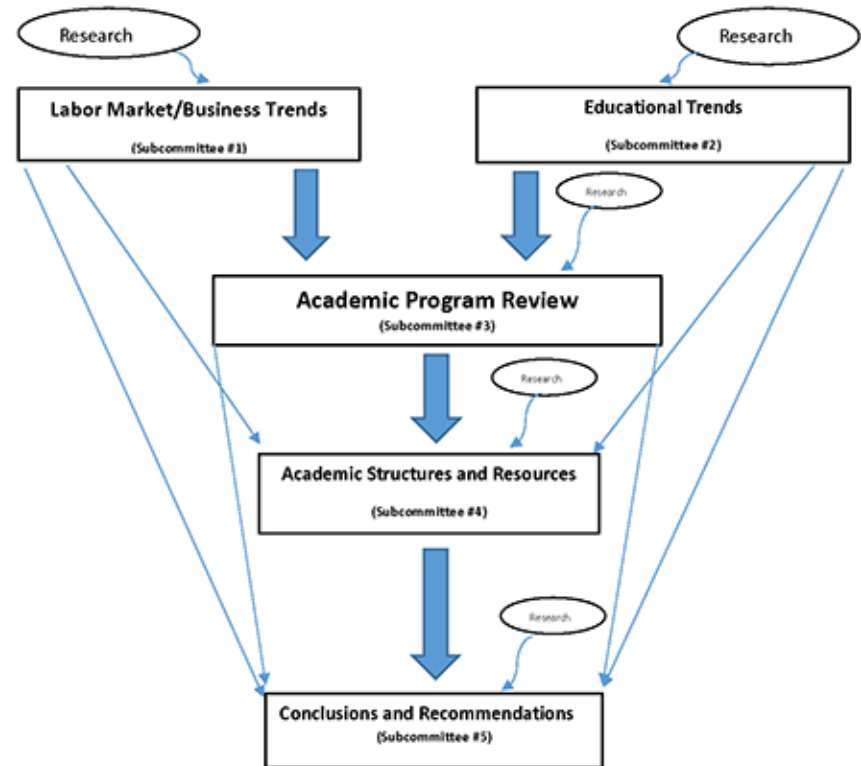
Supply/Demand for Workers by Major



Case Study: Making Tough Calls

A Data-Driven Academic Master Plan

- As part of its Academic Master Plan process, **BCC reviewed over 60 associate's programs, program options, and certificate programs to ensure their alignment with high demand, high value careers**
- The college created a job scorecard for each program and identified areas for additional educational pathways (e.g. Human Resource Assistant and Customer Service Representative)
- The analysis also **recommended the closure of programs designed around careers that aren't in demand or that lead to low-wage jobs**



Case Study: How WGU Undertakes Program Review That Is Ongoing, Data-Driven & Dynamic



Data Science Occupations



Data Analysis Occupations

Skill Name	Percent of Job Postings Calling for Skill	Skill Name	Percent of Job Postings Calling for Skill
Data Science	75%	Data Analysis	53%
Python	72%	SQL	46%
Machine Learning	62%	SAS	34%
SQL	47%	Python	30%
Apache Hadoop	36%	Statistics	25%
Big Data	34%	Data Science	21%
Java	34%	Economics	20%
R	24%	Tableau	20%
Data Analysis	24%	Statistical Analysis	19%
Data Mining	22%	Project Management	18%
Apache Hive	20%	R	18%
SAS	20%	Machine Learning	16%
Predictive Models	20%	Data Management	15%
Scala	18%	Data Mining	12%
C++	17%	Data Visualization	12%

Legend

Bubble Shading

Alignment with labor-market skill demand: the more in-demand skills taught by the MA in Data Analytics program, the darker the bubble shading. The shading therefore reflects the number of skills in bold in the list of top skills beneath each occupation group.

Skill %

A skill is in bold if it is mapped to the Competencies

Skill %

A skill is grayed out if it represents a gap between labor market demand and the MA in Data Analytics (skill not mapped to WGU competencies)

- A >100K student public online university, WGU is using postings data to:
- **Assess the alignment** between the skills taught in their programs and the skills employers require of students;
- **Identify curricular blind spots;**
- Highlight opportunities to **incorporate new skills** that would enhance market alignment

Case Study:

Mapping Course Pathways

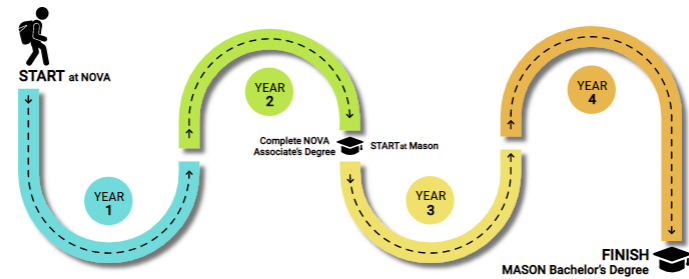
To Build Programs & Ensure Student Success



The ADVANCE Career Accelerator partnership between George Mason University and NoVA Community College was built to create direct pathways between community college, Mason degrees, and placement into high value careers.

At the core is:

- The ability to understand the specific skill requirements of local employers for high-demand fields;
- The ability to map courses to skills in order to plot a high-efficiency learning sequence; and
- Clear pathway maps for students and advisors.



You are on your way to the career of
Green Marketers.
Make sure to gain relevant experience to complement your academics.

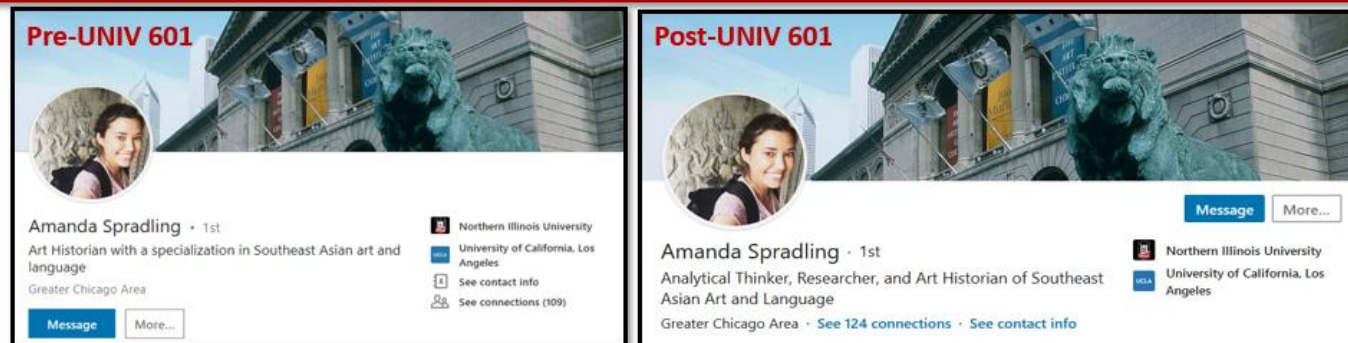
YEAR 1	YEAR 2	YEAR 3	YEAR 4
Communication Skills	Problem Solving	Financial Statements	Microsoft Excel
Planning	Financial Reporting	Written Communication	Writing
Budgeting	Oral Communication	Customer Relationship Management (CRM)	Business Process
Research	Leadership	Technical Writing / Editing	Data Analysis
Data Entry	Biology	Statistical Analysis	Presentation Skills
Editing	Production Management	Leadership Development	Data Collection
Critical Thinking	Accounting Systems	Variance Analysis	Process Improvement
Time Management	Bank Reconciliation	Decision Making	Survey Research
Public Speaking	Business Operations	Linear Regression	Research Design
Differential Equations	Analytical Skills	Statistical Methods	Business Planning

Case Study: How Northern Illinois Univ. Empowers Students to Speak the Language of Careers

- NIU developed a gen-ed course to help students acquire key career planning & development skills
- NIU took a data-driven approach to helping students develop their LinkedIn profiles.

3

An example from an Art History Student



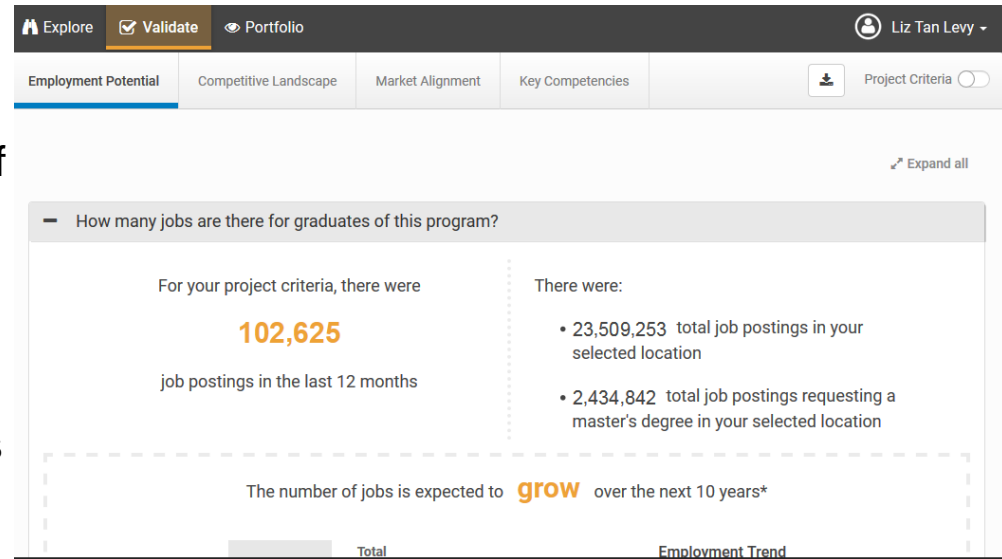
- In contrast to the IT and ENG students, this student approached the IDP without knowing exactly what she wanted to do.
- Reflection, along with a variety of resources (which included the **Skills Explorer** and **ImaginePhD**), were needed to explore career options.
- Adding skills (e.g. fundraising, grant writing) in her IDP and LinkedIn profile that extended her existing skills increased the student's career options.

Case Study:

Empowering Faculty

To Unlock the Full Value of Courses

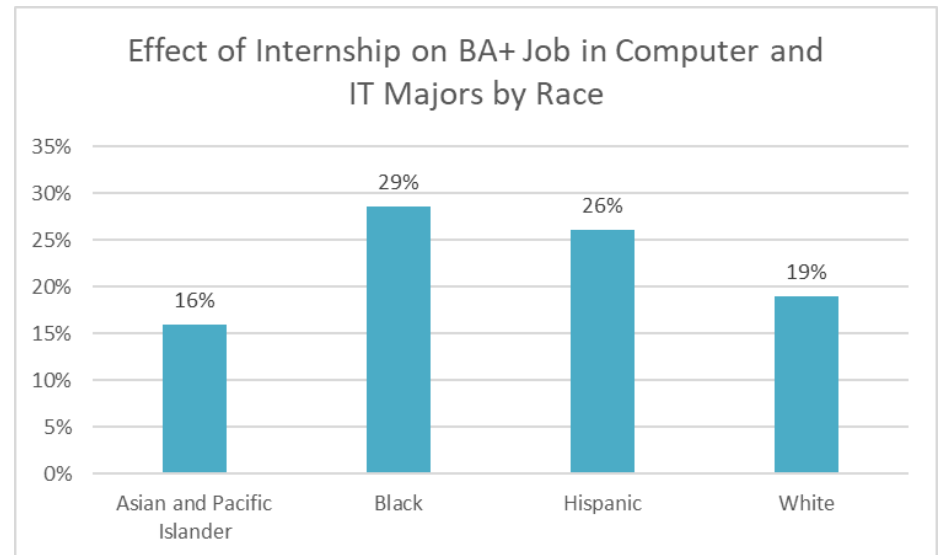
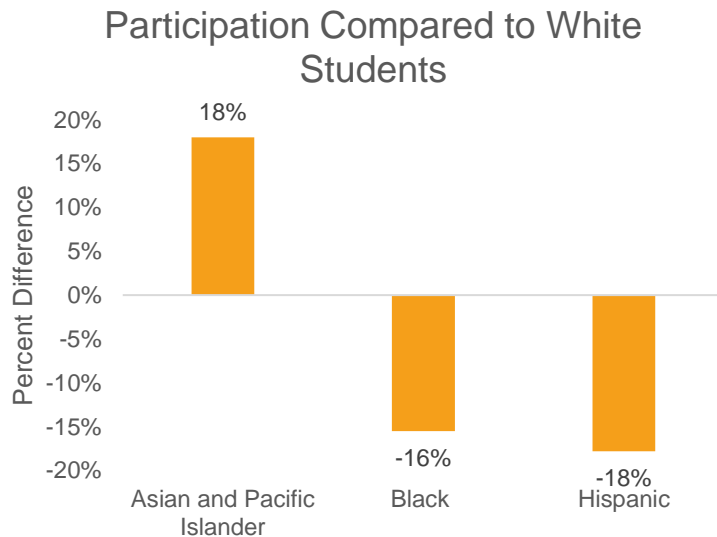
- USF's Provost initiated a curricular review of 65 undergraduate programs across 34 departments to determine if they were aligned to the labor market and if they were preparing students for their careers
- Faculty gained robust understanding of the skills their students would need to launch successfully in their careers
- Curricula revised to ensure courses emphasized high value skills.
- Departments building course pathways to ensure students know how to acquire high value skills
- Departments feel empowered to talk to local employers about their students



Rethink Curricular Structures & Format:

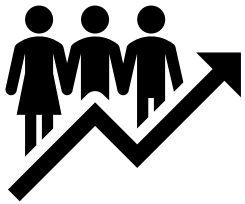
All Students Deserve Access to Internships

Students of color have less opportunity to pursue internships but, for those who do, the impact is huge. Integrating such experiences into the curriculum – particularly for working learners – could change the game.



Refocusing Our Equity Compass on Outcomes

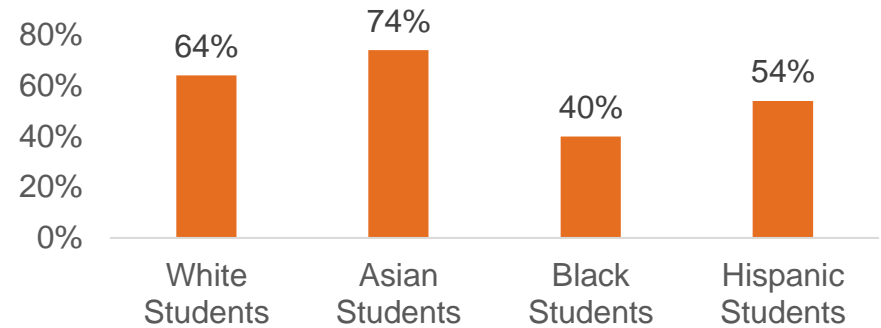
Colleges need to focus on outcomes, not just representation to live up to their equity mandates



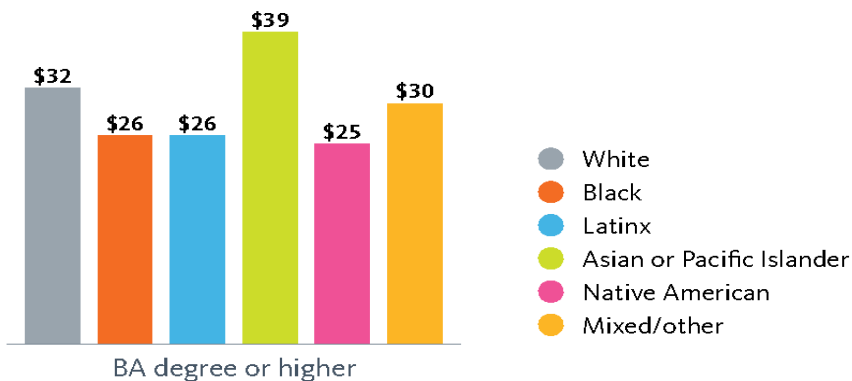
55% increase in the share of Black and Hispanic undergrad enrollments in the past two decades

Thanks to race-conscious admissions policies, Black and Hispanic enrollments now roughly mirror their share of the US population. **The achievement gap now lies with outcomes.**

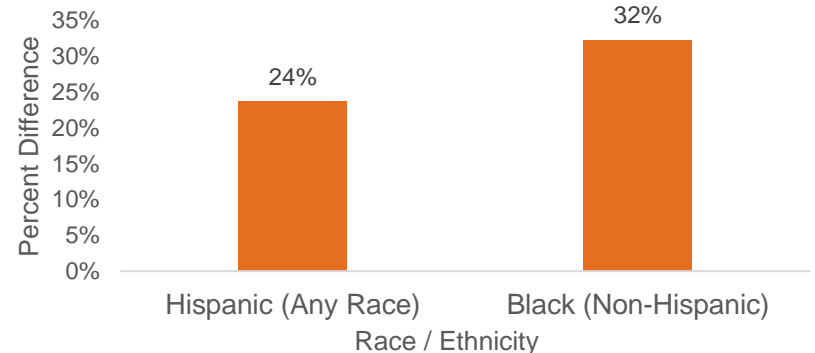
Share of Workers With Good Jobs With Upward Prospects



Black students earn 81 cents on the dollar



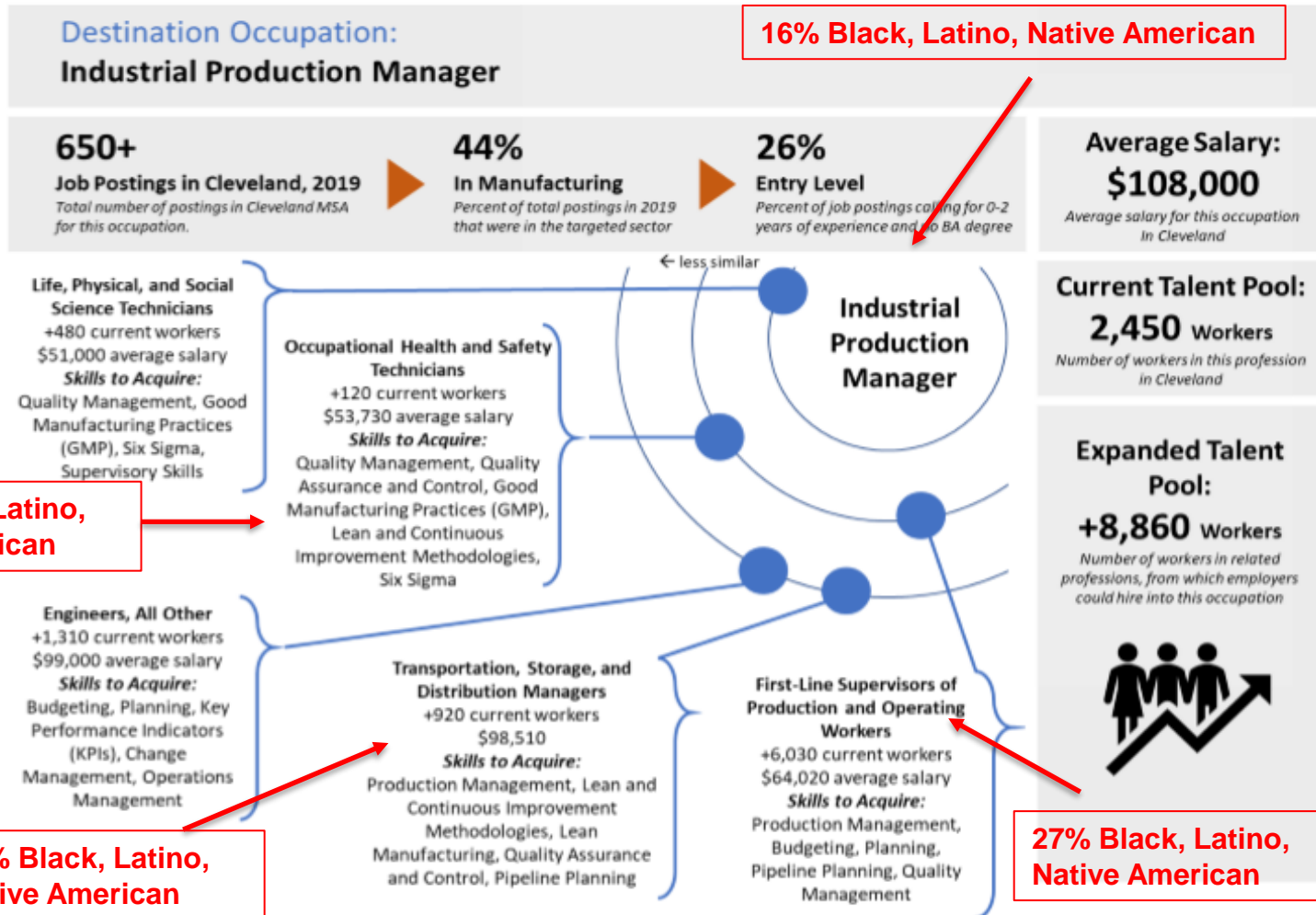
Underemployment Compared to White Graduates



Upskilling Underleveraged Talent Communities: The Key to Equitable Growth



Cleveland officials saw the need to triple the pool of Industrial Production Managers to fulfill the city's growth targets. Pulling talent in from more diverse, skill adjacent talent pools was key not only to building the workforce for the future but also to ensuring that all Clevelanders could participate in the city's growth.



Questions For Discussion

- How would college look different if it were shaped around economic mobility?
- What support do students need in navigating toward careers of greatest opportunity? How should we rethink the supports we offer at enrollment, at graduation, and at each stop along the way?
- The skills people need in their work are changing fast – and AI will only accelerate the trend. That means that almost all workers will need support to acquire new skills on the fly. What would it take for community colleges to reorient themselves to address this continuous learning imperative?
- How do you select, design, and evaluate your programs today? How should that change to build greater responsiveness and agility? What challenges are you facing and what data or insights do you wish you had?

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