

The Conference
Board of Canada

Skills Demand & Supply Analysis in Curriculum Planning

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conferenceboard.ca

Job Postings as a Source of Skill Requirements Insights

Benefits:

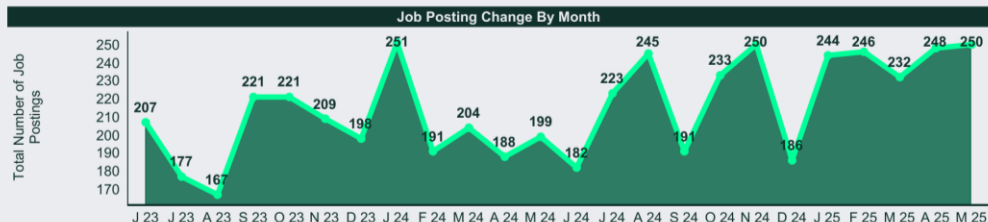
- A large share of all jobs are now advertised online
- A hyper-detailed dataset
- Job ads often list detailed job requirements
- Granular skills taxonomies
- Near real-time data
- Rich variety of data points



Example: Job Postings for Data Scientists

Job Posting Summary

DRILL INTO THE TABLES, CHANGE YOUR FILTERS, OR EXPORT YOUR FINDINGS



Top 25 Job Titles

scientist data	1,099
data engineer	1,057
data scientist	740
senior data engineer	328
architect	292
scientifique,données	157
architecte	91
lead data engineer	74
database developer	67

Top 25 Skills

Teamwork	3,444
Python	3,366
SQL (Structured query langua..	3,095
Communication skills	2,550
Artificial Intelligence (AI)	2,509
Cloud Computing	2,289
Data Analysis	2,170
Machine Learning	2,097
Leadership	1,777

Top 25 Requested CIPs

11.07 - Computer science	1,622
27.05 - Statistics	795
14.09 - Computer engineering	695
27.01 - Mathematics	672
30.08 - Mathematics and comput..	497
11.04 - Information science/studi..	293
11.10 - Computer/information tec..	245
52.01 - Business/commerce, gen..	216
52.13 - Management sciences a..	214

Top 25 Industries

522111 - Personal and Commer..	664
541514 - Computer systems de..	549
524210 - Insurance Agencies an..	172
454111 - Electronic Shopping	120
541611 - Administrative Manage..	92
622111 - General (except Paedi..	76
611310 - Universities	63
912910 - Other Provincial and T..	62
414510 - Pharmaceuticals and ..	62

Top 25 Employers

Royal Bank of Canada	195
Procom	194
TD Canada Trust	174
CGI, Information And Manageme..	142
Amazon Canada Fulfillment Serv..	120
Scotiabank	116
Manulife Financial Corp.	83
Desjardins Group	73
Sanofi	61

Top 25 Certifications

Driver's licence	48
The Open Group Architecture Fra..	18
Project Management Professional..	18
Certified Financial Analyst (CFA)	15
Professional Engineer	14
Certified Information Systems Se..	13
International Financial Reporting ..	12
Chartered Professional Account..	8
Scrum Certification	5

Viewing Data For:
Last 24 Months
Latest Date: 5/31/2025

of Job Postings
5,163

of Employers
399

Maximum Annual Wage
\$115,297.86

Minimum Annual Wage
\$85,581.78

Example: Job Postings for Data Scientists

Skill Trends				
REFINE FILTERS AND SORT THE TABLES TO FIND RELEVANT SKILL TRENDS 				
Skill Demand			Indicates a skill in high demand	
Skill	Last 13-24 Months	Last 12 Months	Demand Change (Last 12 Months)	
Teamwork	1,577 (61.7%)	1,944 (71.2%)		367
Communication skills	1,208 (47.3%)	1,409 (51.6%)		316
Customer Service	217 (8.5%)	191 (7.0%)		315
Flexibility	534 (20.9%)	673 (24.7%)		275
Organizational Skills	252 (9.9%)	198 (7.3%)		263
Leadership	872 (34.1%)	966 (35.4%)		214
Attention to Detail	290 (11.4%)	346 (12.7%)		201
Interpersonal Skills	387 (15.2%)	391 (14.3%)		197
Fast-paced Setting	325 (12.7%)	328 (12.0%)		189
English language	200 (7.8%)	335 (12.3%)		173
Decision-Making	629 (24.6%)	818 (30.0%)		166
Problem Solving	737 (28.9%)	1,012 (37.1%)		159
Planning	358 (14.0%)	371 (13.6%)		150
Time Management	179 (7.0%)	167 (6.1%)		144
Writing	423 (16.6%)	393 (14.4%)		139
French language	195 (7.6%)	215 (7.9%)		135
Supervisory Skills	163 (6.4%)	229 (8.4%)		135
Microsoft Office	98 (3.8%)	131 (4.8%)		127
Self-starter / Self-motivated	349 (13.7%)	351 (12.9%)		121
Microsoft Excel	118 (4.6%)	161 (5.9%)		121
Records management	26 (1.0%)	19 (0.7%)		107
Handling heavy loads	2 (0.1%)	4 (0.1%)		96
Microsoft Word	65 (2.5%)	59 (2.2%)		94
Inventory Management	14 (0.5%)	30 (1.1%)		79
Multi-tasking	106 (4.2%)	85 (3.1%)		79
Bilingual	158 (6.2%)	213 (7.8%)		69
Work under pressure	95 (3.7%)	55 (2.0%)		68
Occupational Health and Safety	33 (1.3%)	28 (1.0%)		66
Teaching and Training	72 (2.8%)	141 (5.2%)		65
Project Management	335 (13.1%)	403 (14.8%)		64
Teamwork				63
Data Analysis				316
Artificial Intelligence (AI)				315
Problem Solving				275
Python				263
R				214
Communication skills				201
Quality Assurance				197
Decision-Making				189
Machine Learning				173
Amazon Web Services (AWS)				166
SQL (Structured query language)				159
Cloud Computing				150
Process design				144
Flexibility				139
Microsoft Azure				135
English language				135
Mathematical skills				127
Analytical Skills				121
Coaching				121
ETL				107
Programming languages				96
Leadership				94
Git				79
Business Strategy				79
Teaching and Training				69
Project Management				68
Supervisory Skills				66
Risk Management				65
Natural Language Processing ..				64
Customer Service				63

Viewing Data For:
Last 12 Months
Latest Date: 5/31/2025

# of Job Postings	# of Employers	Maximum Annual Wage	Minimum Annual Wage
2,730	290	\$115,297.86	\$85,581.78

Skill Requirements from Job Postings

Limitations:

- May overlook emerging skills (rely on fixed skills taxonomies)
- Have a tendency to emphasize “generic” skills
- Favour certain occupations and industries
- Demand side only



Advanced Skills Analytics from Job Postings Data

- Early identification of **emerging skills** using **LLMs** in combination with more traditional **NLP** algorithms.
- Use **skill clustering scores** to measure:
 - How unique a skill requirements is to an occupation
 - Which skills tend to be required in combination with one another



Why we are modelling skills supply

The problem: Standard labour supply forecasts ignore past **education, work experience and skills development**.

Our goal: Provide a more career pathway-centric approach to skills supply modelling, answering the key questions:

- ✓ How to best model evolving skill sets over time to improve forecasts of skills shortages?
- ✓ What is the outlook for labour and skills supply when incorporating the complex and varied career pathways that individuals follow?
- ✓ What impacts on labour and skills shortages do different training, education and labour market policies have?



How we are modelling skills supply

- We are modeling skills supply using a **career-path-driven** approach.
- A career pathway model and a skills transformation framework distinctly underpin our measurement of skills supply at any given time.
 - **Career pathway model:** defines the system by which school leavers are initially sorted into buckets we call “profiles” and later distributed across different labour market outcomes
 - **Skill transformation framework:** sets the rules on how skills are maintained, enhanced, and atrophied along the career pathways

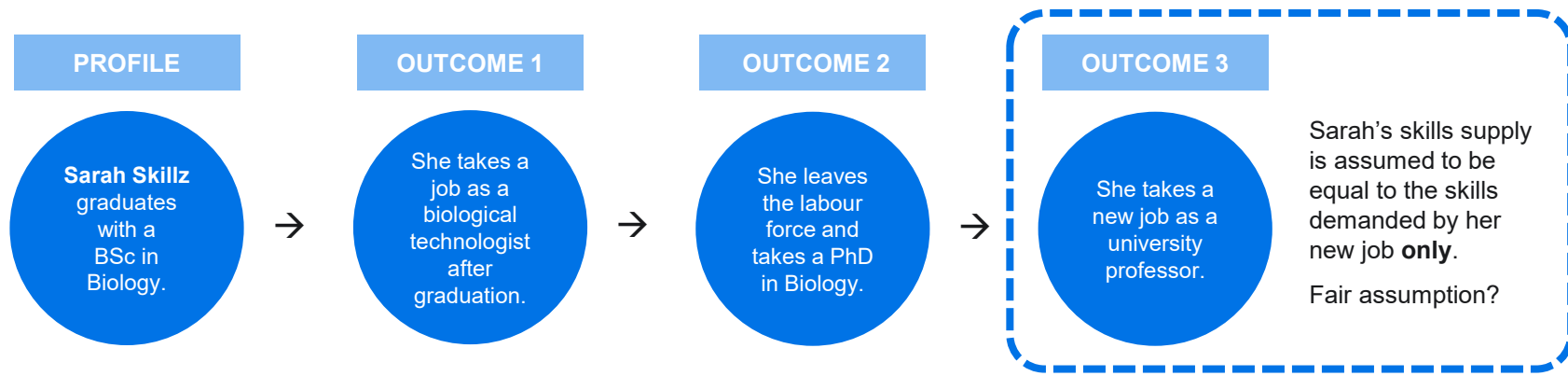


Check out our explainer at:

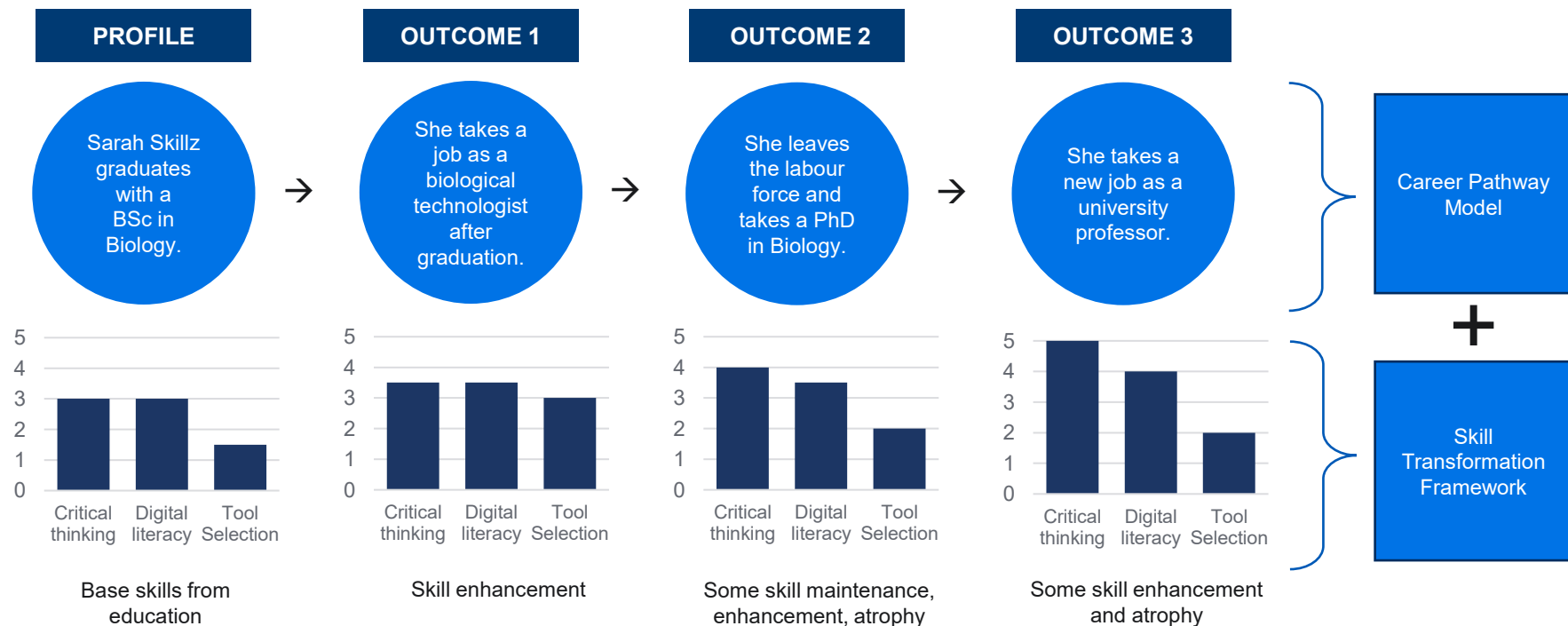
<https://www.conferenceboard.ca/product/beyond-forecasting-skills-supply-may2025/>

The Status Quo: An Occupation-driven Approach

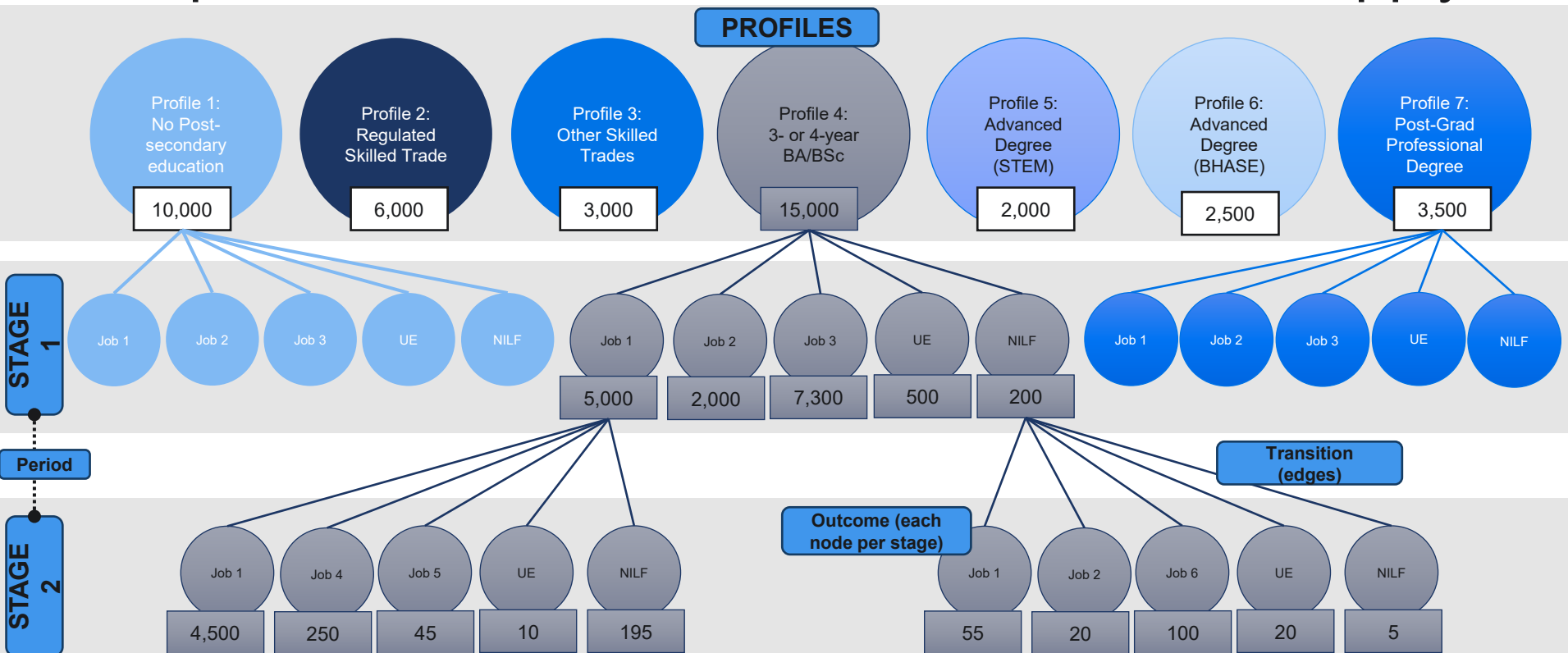
- The standard approach to measuring skills supply relies only on the skills required by an individuals' current occupation; thus, **occupation-driven**.
- As far as the standard methodology is concerned, when you enter a new job, your skills profile is identical to the skills profile of that job and nothing more.



What happens to Sarah Skillz's skills supply?

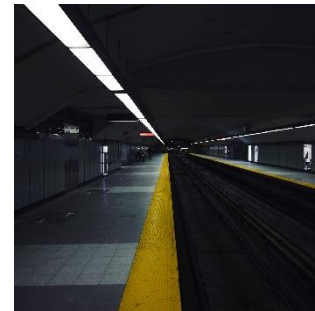


Sample structure: One cohort's labour & skill supply



Next steps

- Critical review of skill levels and distributions at each node/outcome
- Build and validate the skills transformation framework. To that end, we are engaging:
 - Focus groups of career development practitioners
 - A multidisciplinary research advisory board
- We are releasing the final model and results over the next 6 to 8 months.





Where insights
meet impact

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