



JobKred

Using AI to Match Skills Supply to Skills Demand for Industry 4.0

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The world of work is changing rapidly



10%
Annual Skills
Obsolescence



> 33%
Obsolescence
Of Jobs



> 60%
Employers
report lack of
skills in hires

Current Methods of Skills Demand Assessment



Direct Industry Consultation

- Not standardized
- Slow
- Small sample
- Subjective



Surveys and Focus Groups

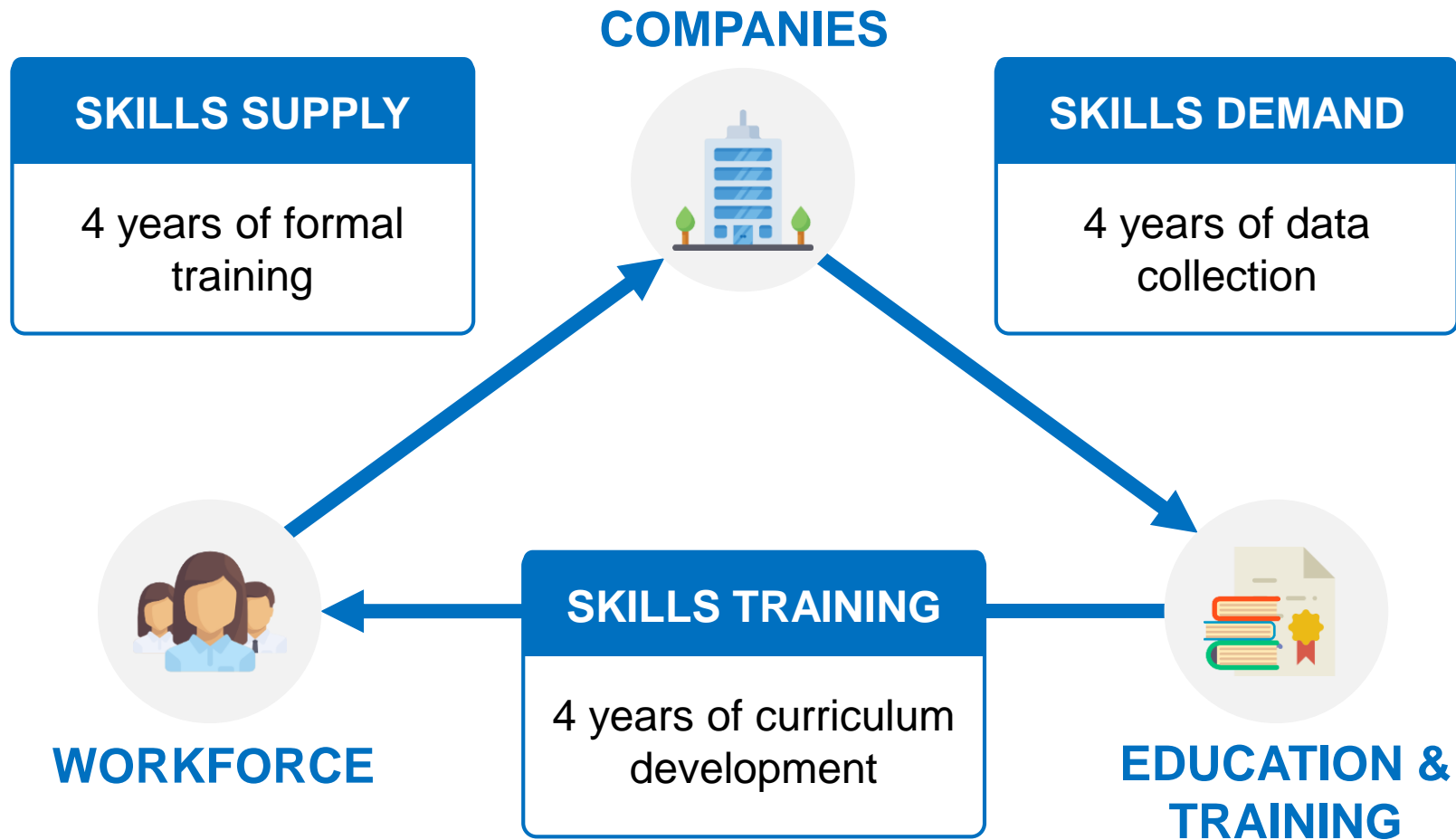
- Not Skills based
- Slow
- Expensive
- Outdated quickly



National Skills Frameworks

- Not Granular
- Slow
- Expensive
- Outdated quickly

Past – Slow & Unfocused



New Technologies



Big Data Analytics
to decode
employer demand
and predict **future
skill requirements**



**Intelligent skill-
gap analysis** and
personalised
digital career
guidance



Automatic mapping
of curriculum to
granular skills and
modular education
for youth and adults

Workforce Transformation

GLOBAL



Labour Market Information Research

Online labour market data & skills demand analysis

Bangladesh Myanmar
Sri Lanka Malawi

GOVERNMENT



Singapore's National Jobs Portal

Personalised career and training recommendations

**>200,000
Weekly Users**

EMPLOYERS

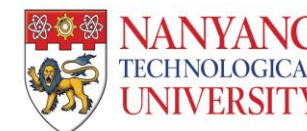


Global IT Company

Developing talent transformation frameworks & providing personalised learning to employees

**>3,000 Skills
Tracked
20x Courses Taken**

UNIVERSITIES



Student Career and Skills Guidance

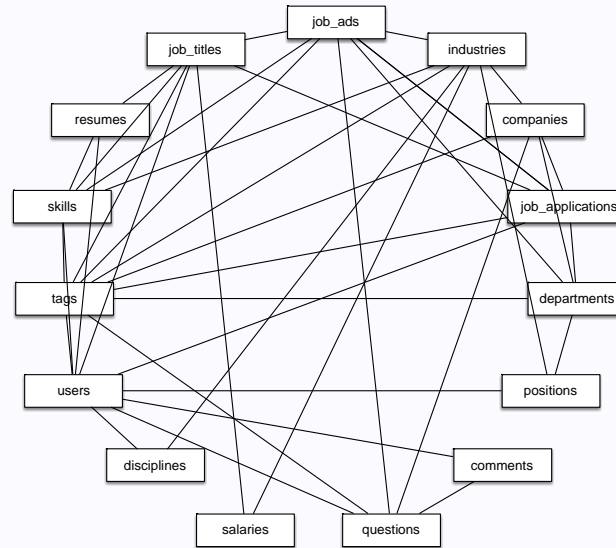
Scalable personalised career guidance and skills gap analysis

**>33,000 Skills
Reported
12,000 Careers
Favoured**

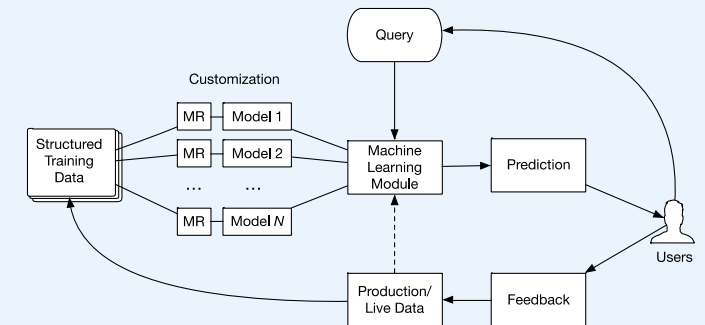
LMI - Top 20 Job Titles by Demand



Data Collection
Indexing data given to
us by BDJobs

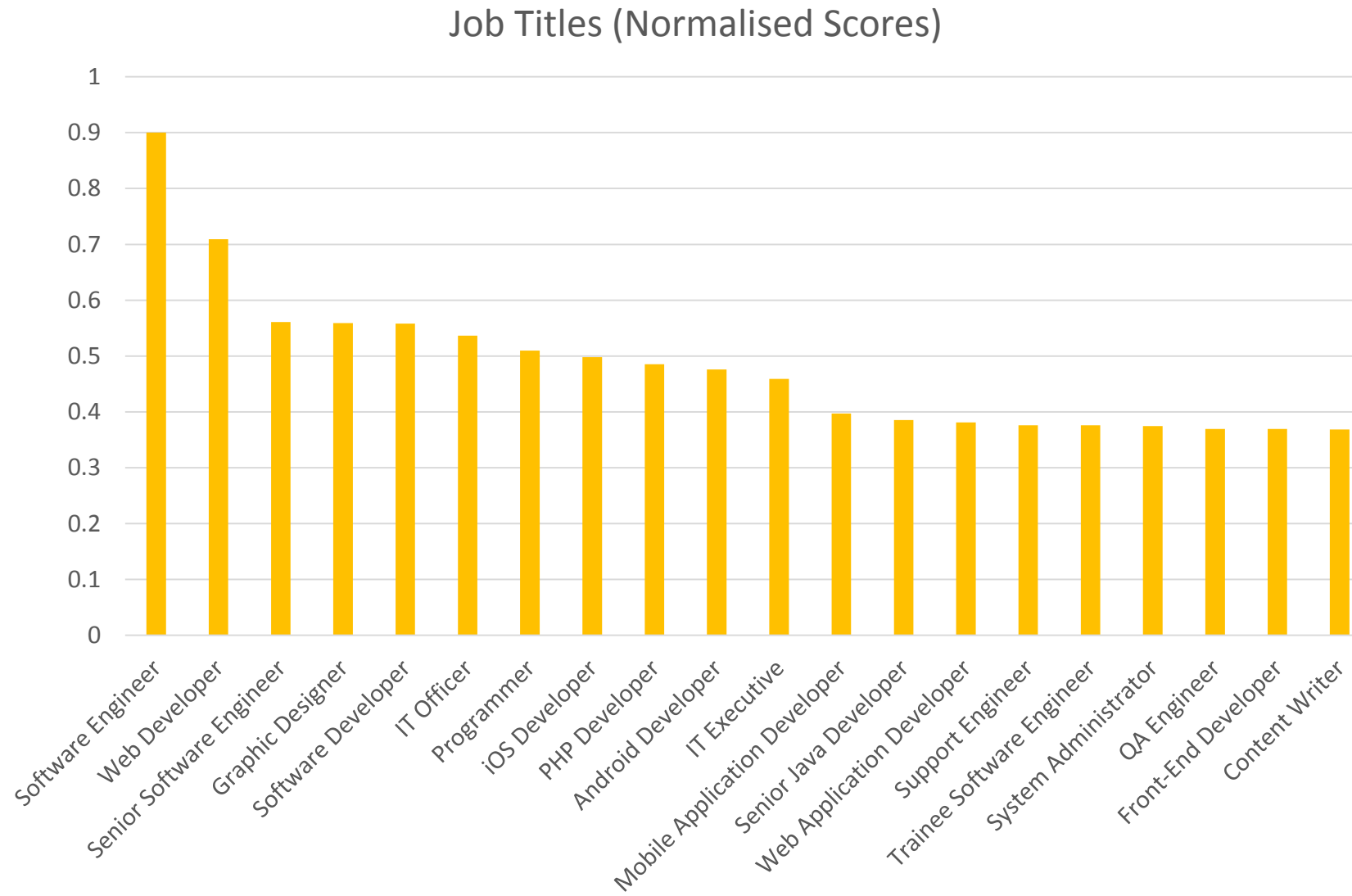


Statistical Analysis
Data cleansing and
relational extraction



Predictive Modelling
Customized model based
on required context

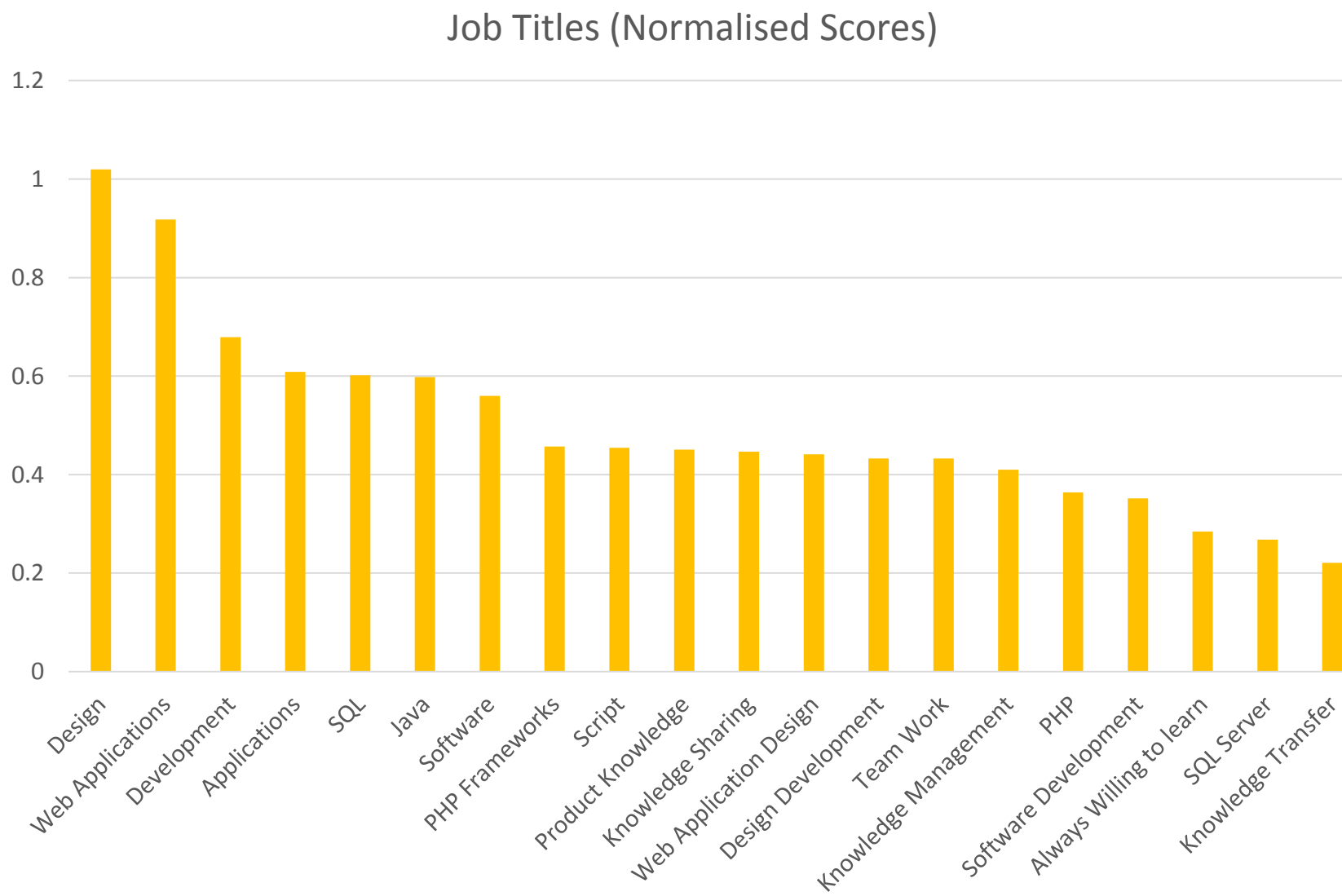
LMI - Top 20 Job Titles by Demand



Top 100 Job Titles by Demand (Cont'd)

21	Project Manager	37	Junior Software Engineer	53	Software Programmer	69	SAS Programmer	85	Senior Manager, Digital Marketing
22	IT Support Engineer	38	Senior Developer	54	Hardware Engineer	70	Network Support Engineer	86	System Admin
23	Digital Marketing Executive	39	Marketing Executive	55	Application Developer	71	Sales Support Engineer	87	.NET Software Developer
24	Assistant Engineer	40	Assistant Manager	56	Customer Support Executive	72	IT Assistant	88	Business Development Executive
25	Senior Web Developer	41	Systems Analyst	57	Senior Graphic Designer	73	Software Test Engineer	89	Senior .NET Developer
26	Web Designer	42	Website Developer	58	IT Engineer	74	Senior Software Developer	90	Senior Support Engineer
27	Database Administrator	43	Java Programmer	59	Front-End Web Developer	75	Senior Front-End Developer	91	Software QA Engineer
28	.NET Developer	44	Senior iOS Developer	60	Lead Web Developer	76	Software Architect	92	Developer
29	UI Designer	45	Executive	61	Senior Programmer	77	Software Developer Engineer	93	Game Developer
30	Network Engineer	46	Technical Writer	62	Online Marketing Executive	78	Python Developer	94	Digital Marketing Manager
31	Assistant Producer	47	SEO Specialist	63	Assistant IT Manager	79	Assistant Systems Engineer	95	Data Analyst
32	Systems Engineer	48	Senior Application Developer	64	Sales Executive	80	Senior Executive	96	Creative Designer
33	Mobile Developer	49	Web Programmer	65	Vice President, Information Technology	81	Product Manager	97	Software Quality Assurance Analyst
34	Network Administrator	50	Software Quality Assurance Manager	66	Junior Web Developer	82	Senior QA Engineer	98	Junior Officer
35	IT Manager	51	Senior Android Developer	67	Trainer	83	Junior Executive	99	Project Coordinator
36	Business Analyst	52	Head of IT	68	Software Engineer Consultant	84	Computer Operator	100	Computer Programmer

Top 20 Skills in Demand



Top 100 Skills in Demand

21	Java Software Development	37	Knowledge Discovery	53	Concept Design	69	Object Oriented Modeling	85	Computer Hardware
22	Web Technologies	38	Software Development Methodologies	54	jQuery UI	70	Design Patterns	86	Oracle SQL
23	Work Well Independently	39	Software Design	55	Technology	71	iPhone Application Development	87	Team Development
24	Web Knowledge	40	System Requirements	56	Requirements Analysis	72	Agile Application Development	88	Software Design Patterns
25	Able to Work under Pressure	41	Projects	57	HTML + CSS	73	Zend Framework	89	Java Web Services
26	Knowledge Engineering	42	Software Requirements	58	Application Design	74	Functional Requirements	90	Programming
27	Web	43	Documentation	59	J2EE Application Development	75	Best Practices	91	OA Framework
28	Problem Solving	44	Technical Support	60	Object Oriented Design	76	Software Documentation	92	Maintenance
29	Application Development	45	Technical Documentation	61	SQL Database Design	77	jQuery	93	Software Development Life Cycle
30	Applications Software Development	46	Java Application Development	62	Work Ethic	78	Introducing New Products	94	AJAX Frameworks
31	CSS JavaScript	47	Web Services	63	Web Development	79	Business Requirements	95	Android
32	Mobile Applications	48	Product Requirements	64	Computer Hardware Troubleshooting	80	Troubleshooting	96	Android Development
33	Lean Software Development	49	Emerging Technologies	65	Code Review	81	Analytic Problem Solving	97	Network Infrastructure
34	GIS Applications	50	Knowledge Representation	66	New Product Ideas	82	Mobile Application Design	98	Core Java
35	Requirement Specifications	51	Scalable Web Applications	67	Angular JS	83	Computer Hardware Installation	99	Design Specifications
36	Permit to Work	52	Web Services API	68	SQL DB2	84	Project Development	100	Databases

Top 10 Skills for Software Engineer

01	Web Applications
02	Design
03	Software Development
04	SQL
05	Development
06	Applications
07	Software
08	Web Application Design
09	Knowledge Management
10	SQL Server

Top 10 Skills for Web Developer

01	Java
02	PHP
03	Script
04	SQL
05	PHP Frameworks
06	Web Applications
07	CSS JavaScript
08	Product Knowledge
09	Web Application Design
10	Development

Top 10 Skills for iOS Developer

01	Applications
02	GIS Applications
03	Design
04	Web Applications
05	Mobile Applications
06	Development
07	Mac OS
08	Always Willing to learn
09	Mobile Phone Apps
10	Mac OS X

National Portal - Job and Career Matching

mycareersfuture.sg

Adapt & Grow

Search Jobs

Careers Toolkit

Match your skills. Find more jobs.

Search Job by Title or Keyword

Minimum Salary

All Employment T.

[Search jobs with government support](#)

In-demand

Popular

Software Developer

642 jobs

Business Analyst

345 jobs

Project Manager

Business Analyst

Boost your job search with skills

The more skills you have, the better your job match.

0% skills matched

Add these skills if you have them

- + Java
- + JavaScript
- + Software Development
- + SQL
- + C#
- + XML
- + MySQL
- + C++
- + Linux
- + HTML
- + Agile Methodologies
- + jQuery
- + CSS
- + .NET
- + PHP
- + Microsoft SQL Server
- + Web Services
- + Python
- + C
- + Software Engineering

Workforce Transformation for Enterprises



Develop your Organisation
Skills DNA profile



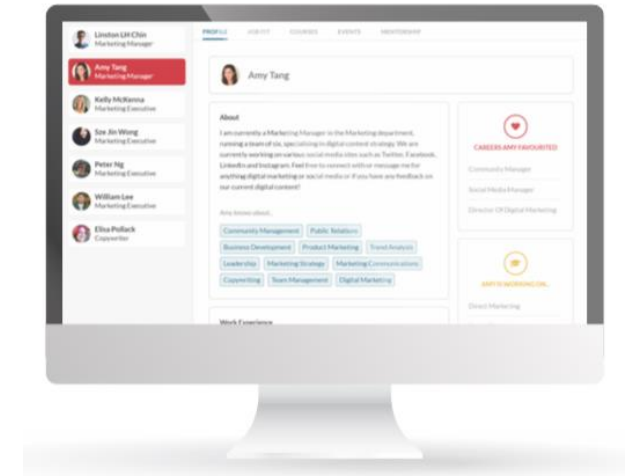
Empower employees to self-help
and become self-directed



Access Big Data analytics to
do global benchmarking



Map the skill roadmap that
leads to your business goals



Data trains AI Recommendations for Upskilling & Talent Development

Labour Market Info



Skills Frameworks and LMI Data

Training Content



HRMS & LMS



Staff Data and Records

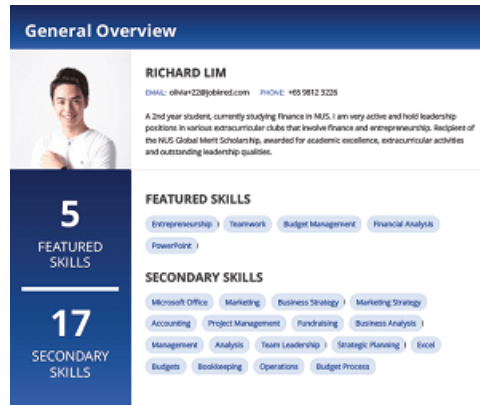
JobKred

90% Cost & Time Savings
for Talent Transformation

Talent Recommendations

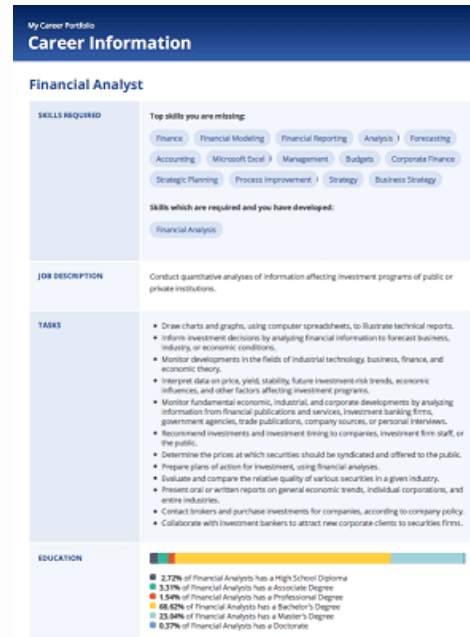


Skills Profiling Report Individual (SPRI)



Skills Portfolio

Identify and showcase portfolio of skills obtained from work experience and education.



Career Portfolio

Gain career recommendations matched to their skills and learn more about the details of each career pathway.



Learning Portfolio

Understand skill gaps and prioritise learning goals to work towards aspirations.

Skills Profiling

AI-ASSISTED SKILLS PROFILING

Users of the tool break down their education and professional experiences into skills using suggested skills offered by the AI capabilities of the tool. These smart suggestions (skills) are generated from JobKred's proprietary skills taxonomy, which has been tested and is currently under use by MNCs and governments.

TIME:

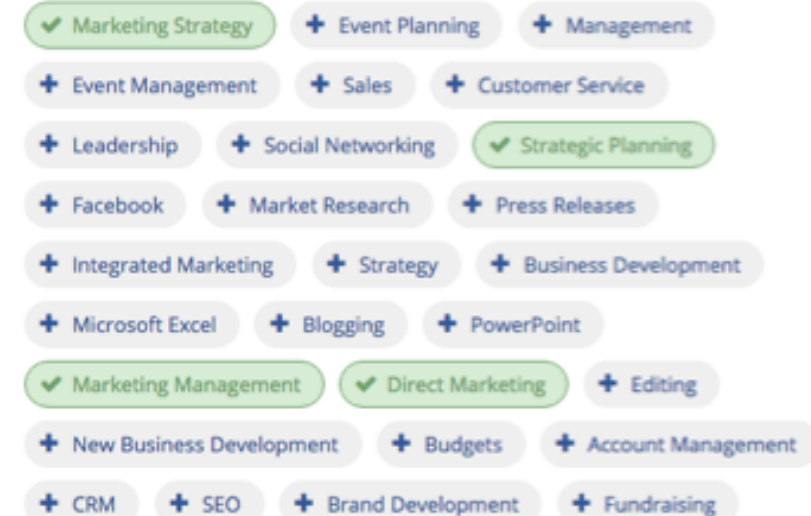
~10 mins per individual

RESOURCES:

Access to Internet

MARKETING COORDINATOR SPCA (JAN 2015 - PRESENT)

🔍 How do I select or input skills?



Digital Career Guidance

DIGITAL CAREER GUIDANCE (DCG)

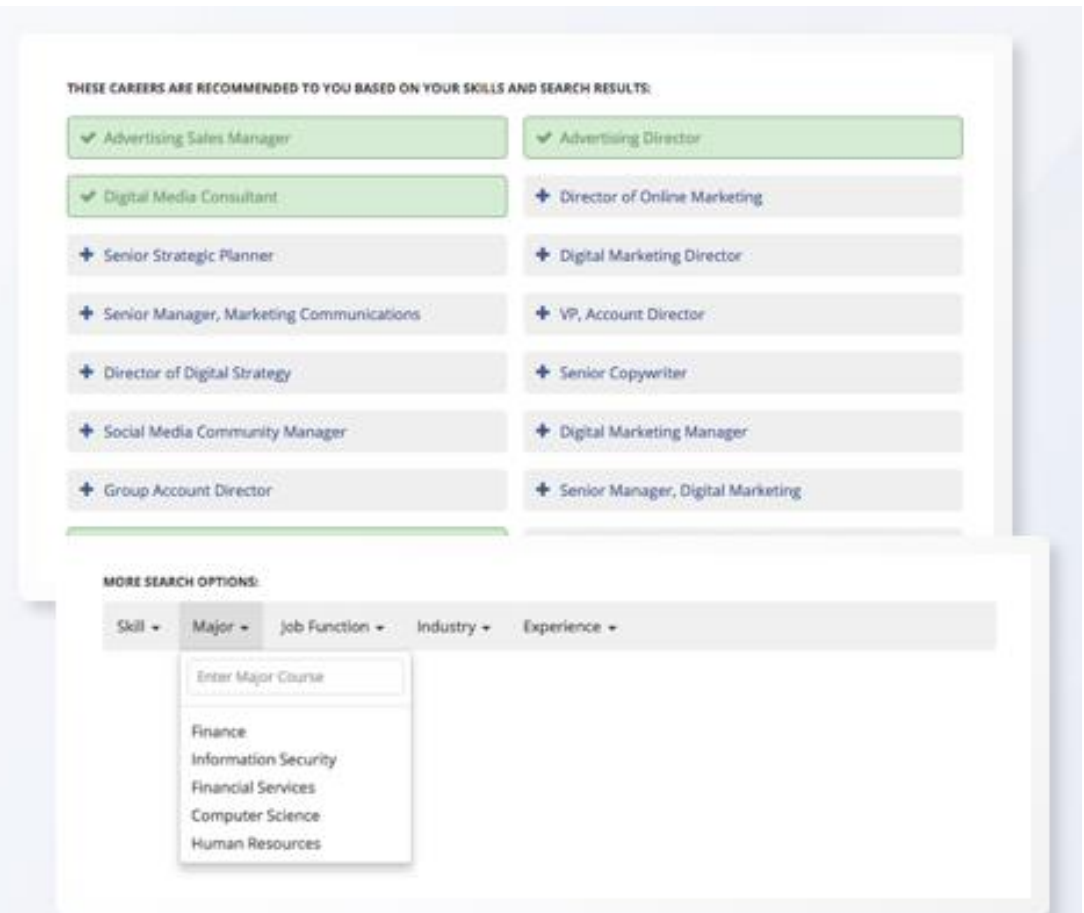
Students proceed to access the DCG section of the tool, which allows them to both receive smart career recommendations from the AI, and to explore careers that they are interested in. The careers selected by the students are then used to perform a skill-gap analysis to provide courses recommendations and to help students plan their learning goals.

TIME:

~10 mins per individual

RESOURCES:

Access to Internet



Data Insights

ENABLING BIG DATA INSIGHTS

The institution (NTU) then obtains a report of their skills profile which enables them to employ a data-driven and scalable approach to understand the value of education, evaluate job readiness, and to make critical decisions. On a larger level, this means the ability to inform and influence policy making within the institution or make strategic decisions to help enhance students' employability, reduce skills leakage and cultivate self-directed behaviour for students to own their careers and skills-development.

TIME:

Real-time
Access

RESOURCES:

Access to Internet



School of
Computer Science
& Engineering

190
students

267
careers selected

236
skills reported

Top 20 Skills Reported

01. Java	11. MySQL
02. Programming	12. SQL
03. Software Engineering	13. C++
04. Python	14. PHP
05. Software Development	15. C#
06. Computer Science	16. CSS
07. JavaScript	17. C
08. HTML	18. Machine Learning
09. Databases	19. Eclipse
10. Algorithms	20. Web Applications

Top 10 Careers Selected

01. Web Developer
02. Android Developer
03. Software Developer
04. Python Developer
05. Web Software Developer
06. Web Application Developer
07. Software Development Engineer
08. UI Developer
09. Software Engineer
10. Data Scientist

JobKred

Sample Analysis

SAMPLE ANALYSIS

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

TOP 20 SKILLS REPORTED

01	Java
02	Programming
03	Software Engineering
04	Python
05	Software Development
06	Computer Science
07	JavaScript
08	HTML
09	Databases
10	Algorithms

11	MySQL
12	SQL
13	C++
14	PHP
15	C#
16	CSS
17	C
18	Machine Learning
19	Eclipse
20	Web Applications

TOP 10 CAREERS REPORTED

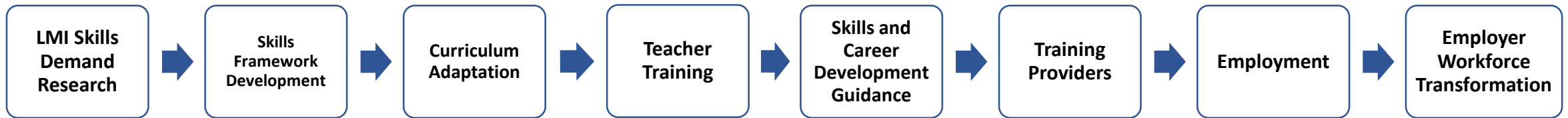
01	Web Developer
02	Android Developer
03	Software Developer
04	Python Developer
05	Web Software Developer
06	Web Application Developer
07	Software Development Engineer
08	UI Developer
09	Software Engineer
10	Data Scientist

Sample Analysis

No	Skill	Global Ranking	Presence of Skill-Gap?
1	Python	1	No
2	Django	2	High
3	MySQL	3	No
4	Linux	4	No
5	Git	5	No
6	jQuery	6	Low
7	JavaScript	7	No
8	PostgreSQL	8	High
9	Apache	9	High
10	CSS	10	No

No	Skill	Global Ranking	Presence of Skill-Gap?
1	JavaScript	1	No
2	CSS	2	No
3	jQuery	3	Low
4	PHP	4	No
5	MySQL	5	No
6	HTML	6	No
7	Web Development	7	No
8	HTML 5	8	Low
9	AJAX	9	High
10	XML	10	High

Workforce Transformation Value Chain



- Essential to quickly and effectively match skills supply to skills demand
- AI can learn from real-time LMI to recommend careers, training and jobs
- Existing case studies from other countries already utilizing such technology
- AI technology can be utilized in both developing and developed nations

An aerial photograph of a city skyline at night, featuring numerous illuminated skyscrapers and buildings. A semi-transparent blue rectangular overlay covers the center of the image, serving as a background for the text.

JobKred Thank You

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