



^ ADULT  
LEARNING  
SYMPOSIUM

# JobKred

## The Modern AI-Powered TAE: Leveraging AI and Data Science

Hector Lin  
Eddie Lim

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Supported by

**IAL** INSTITUTE FOR  
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AN INSTITUTE OF SKILLS *future* SG

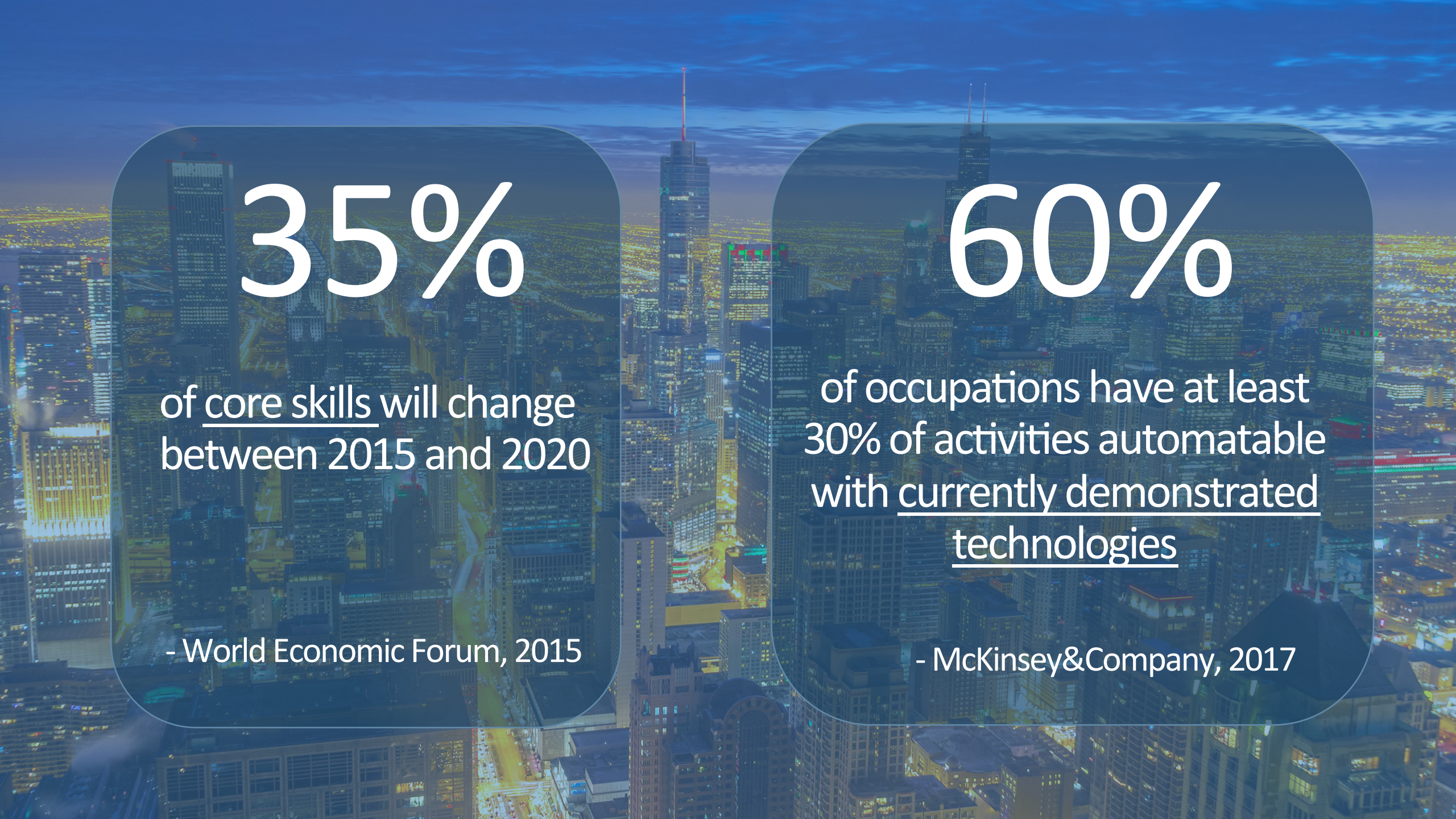


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35%

of core skills will change  
between 2015 and 2020

- World Economic Forum, 2015

60%

of occupations have at least  
30% of activities automatable  
with currently demonstrated  
technologies

- McKinsey&Company, 2017



An aerial night view of a city skyline, likely New York City, with numerous skyscrapers illuminated. A white rectangular box is centered over the image, containing the text "DNA" in a bold, blue, sans-serif font. The background is a dark blue sky with some light clouds and a cityscape filled with lights.

**DNA**



An aerial night view of a city skyline, likely New York City, with numerous skyscrapers illuminated. A white rectangular text box is centered over the image. The text inside the box is in a bold, blue, sans-serif font.


**ORGANISATION  
SKILLS DNA**



An aerial night view of a city skyline, likely New York City, with numerous skyscrapers illuminated. A white rectangular text box is centered over the image. The text is in a bold, blue, sans-serif font.

**ORGANISATION SKILLS DNA**

**What Skills Do You Have in Your  
Organisation?**

A woman with voluminous curly hair and glasses, wearing a white top and a dark blazer, is shown in a thoughtful pose, looking upwards and to the right. The image is semi-transparent and serves as a background for the text on the right.

**Without knowing what  
you have,**

**how do you effectively  
hire externally or  
train internally?**





**Using AI to Power  
Workforce Transformation  
With Personalised  
Training Recommendations**



**VALUE?**



**MANAGEMENT**

**VALUE?**



**HUMAN RESOURCE**

**VALUE?**



**LINE MANAGERS**

**VALUE?**



**STAFF**

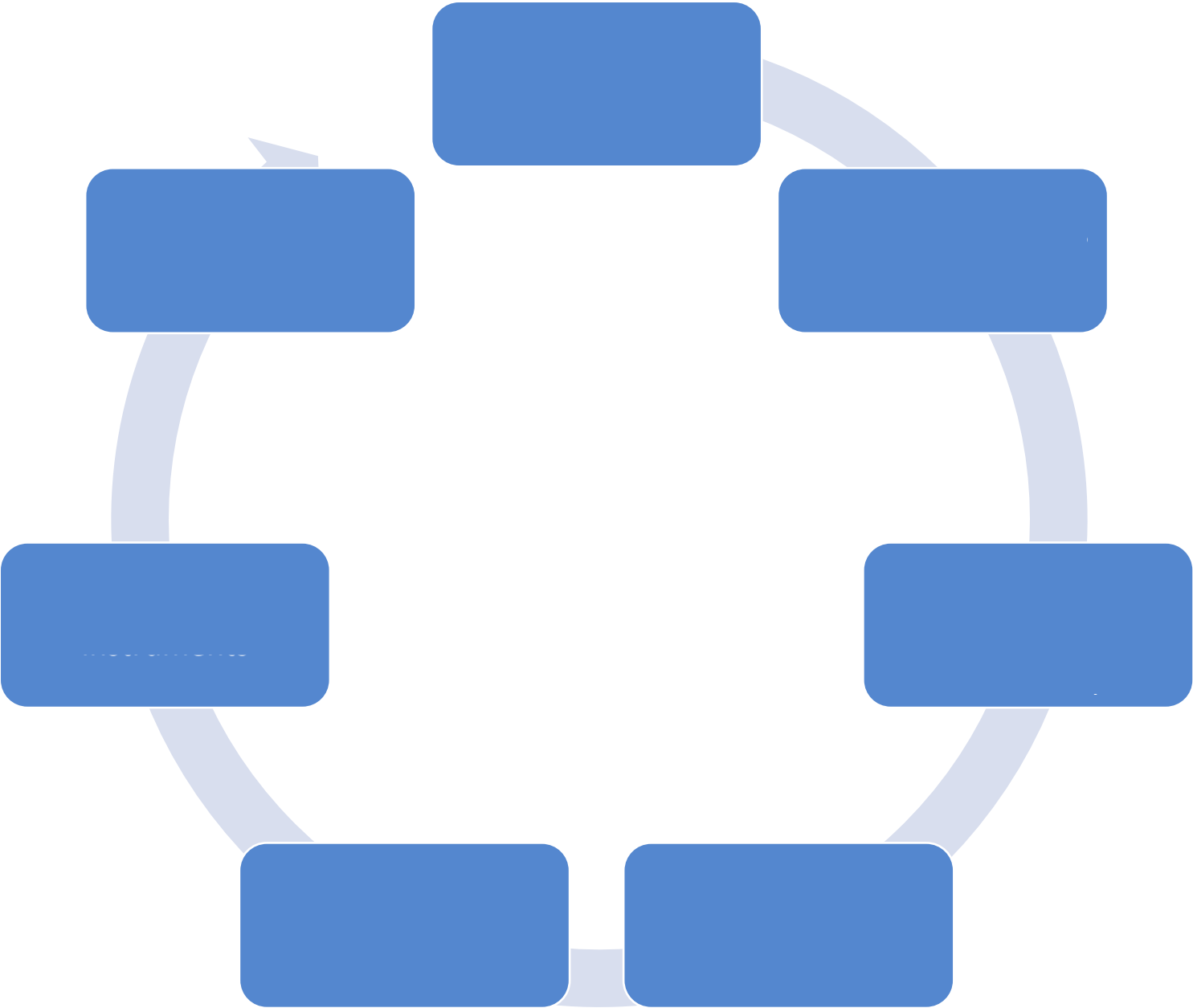




Question:

**How do we currently analyse the training needs of an organisation?**

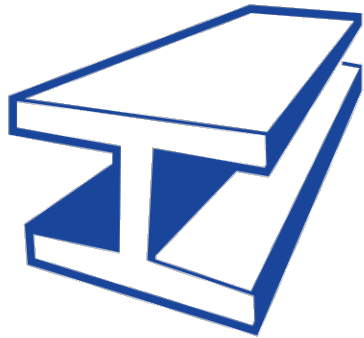






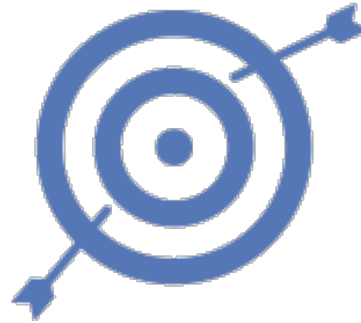
# ~~Limitations & Problems~~

## TECHNOLOGY INNOVATION



~~STATIC  
INFORMATION~~

REAL-TIME



~~IRRELEVANT  
OVER TIME~~

SUSTAINABLE



~~COSTLY  
TO REFRESH~~

COST-EFFECTIVE



3

**INNOVATIONS**



Qualitative  
Research Based  
on Sampling

**3 – 6 months**

**VS**

AI-Powered  
Skills Profiling  
For Entire Staff  
Population

**15 mins / staff**

# AI-Powered Skills Profiling

## Skills Portfolio

Identify and showcase your transferrable skills obtained from your work experience and education.

## Learning Portfolio

Understand your skills gaps and prioritise learning goals to better fit your target careers.



## Career Portfolio

Receive career recommendations matched to your skills and learn more about the details of each career.



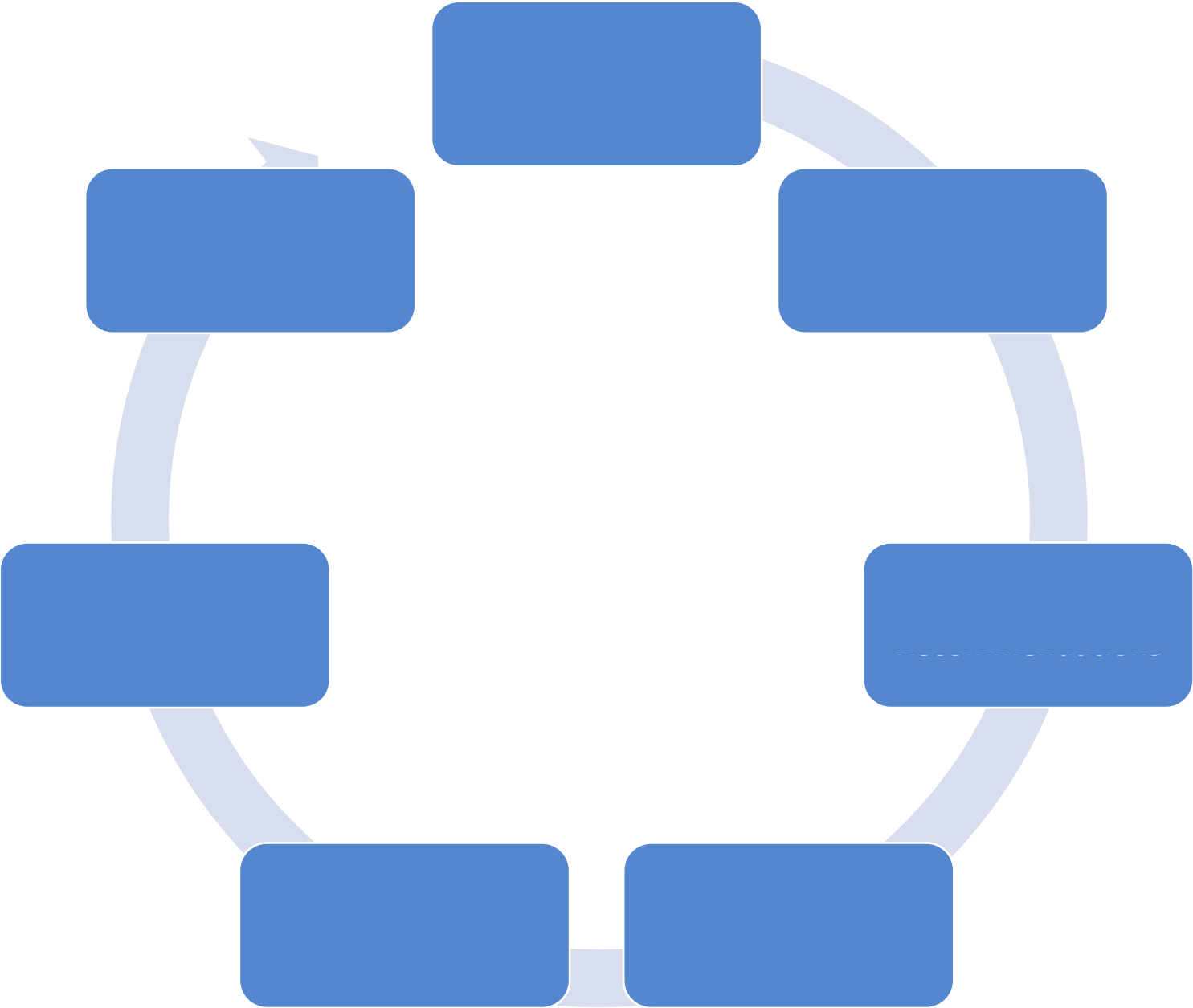
Measuring ROI:  
Attendance  
Sheet +  
Workshop  
Satisfaction

**Convinced?**

**VS**

Measuring ROI:  
Applied  
Learning At The  
Workplace

**Entire Process**





# Junior Process Technician

Junior Process Technician

DEPARTMENT	EXPERIENCE LEVEL	INDUSTRIES	JOB FUNCTIONS
Engineering	Entry Level	Chemicals	Engineering

ESSENTIAL SKILLS (RANKED BY IMPORTANCE)		
SKILL	IMPORTANCE (UPON 10)	MY SKILL PROFICIENCY (LEVEL 1 TO 6)
<input type="checkbox"/> ☆ Continuous Improvement Management	0	1 2 3 4 5 6
<input type="checkbox"/> ☆ Data and Statistical Analysis	0	1 2 3 4 5 6
<input type="checkbox"/> ☆ Emergency Response Management	0	1 2 3 4 5 6
<input type="checkbox"/> ☆ Engineering Drawing Interpretation and Management	0	1 2 3 4 5 6
<input type="checkbox"/> ☆ Environmental Management System Framework Development and implementation	0	1 2 3 4 5 6

Top-down Mass  
Training Needs  
Analysis

**6 – 12 Months**

**VS**

Bottom-up  
Personalised  
Training Needs  
Analysis

**4 – 8 Weeks**



Job

- Postings
- Applications

Company

- Edit Profile
- Skills Bank

Employees

- Approved Employees
- Pending Employees
- Rejected Employees

Peoples

- Relations

Groups

- Create Group

Events

- Public Events
- Company Events



























Tools

- Email Templates
- Resumes Manager

EMPLOYEES VERIFIED SKILLS

EMPLOYEES UNVERIFIED SKILLS

[CHANGE FILTERS](#)

SKILL NAME	NO. EMPLOYEES	SKILLS COMPARATOR						
Workplace Safety and Health Framework Development and Implementation	6 	1	2	3	4	5	6	Target Missed 
Process Unit and Utilities Operations Management	6 	1	2	3	4	5	6	Target Missed 
Feedstock and Product Transfer Operations Management	6 	1	2	3	4	5	6	Target Missed 
Workplace Safety and Health Hazard Identification and Risk Control Management	6 	1	2	3	4	5	6	Target Achieved 
Robotic and Automation Technology Application	6 	1	2	3	4	5	6	Target Missed 
Incident Investigation Management	6 	1	2	3	4	5	6	Target Achieved 
Teamwork	6 	1	2	3	4	5	6	Target Missed 
Safe System of Work Development and Implementation	6 	1	2	3	4	5	6	Target Missed 
Operations Reporting Protocol Application	6 	1	2	3	4	5	6	Target Missed 
Interpersonal Skills	6 	1	2	3	4	5	6	Target Missed 
Continuous Improvement Management	6 	1	2	3	4	5	6	Target Missed 
Sample Management	6 	1	2	3	4	5	6	Target Achieved 
Communication	6 	1	2	3	4	5	6	Target Missed 

# A Case Study

ICT Company, over 1000 staff,  
operating internationally in  
Singapore, India, and Malaysia



# Impact

1

Constant pulse on Organisation Skills DNA

Using Digital Career Guidance to empower staff to be self-directed in skill and career development

2

3

Skill-based Personalised Course Recommendations

# The Modern AI-powered TAE:

## Leveraging AI and Data Science To Enable and Enhance Personalization, Modularization and Effectiveness of Adult Training and Education

### **The Modern AI-powered TAE: Leveraging AI and Data Science**

*Leveraging AI and Data Science To Enable and Enhance Personalization, Modularization and Effectiveness of Adult Training and Education*

Authors:

*Hector Lin (Lead)*

*Eddie Lim*

#### **ABSTRACT**

Technological innovation, demographic shifts, evolving business models, and rapid changes to the nature of work are today significantly altering the skills demanded by the labour market. While skills were once enough to last a career, the short and decreasing shelf-life of today's skills places tremendous pressure on the Training and Adult Education (TAE) sector to manage the need for adult re-skilling and skill upgrading. A lack of adequate skills on the market will not only affect job-seekers, but also hold back companies that want to grow, and pose challenges to the economy.

The changing world of work urgently calls for a need for to develop highly personalized, modular, targeted, and most importantly, relevant methods in lifelong learning. In meeting this need, AI and Data Science have the potential to provide the solution to turbo-charge our approach to resolve both immediate challenges and create sustainable practices for the future.

There are however, several barriers to the effectiveness of adult lifelong learning programmes. They include:

- 1) the need to identify what skills are required for the digital economy through timely access to accurate Labour Market Information (LMI);
- 2) the need for personalized skills development based on skills-gap analysis that harnesses real-time data extracted from the VUCA world of work;
- 3) finally, to deliver timely, modular and targeted training of skills that fulfils both the personalized needs of the learner, as well as, skills demanded by the marketplace.

Given the right push, AI and Data Science have the potential to capably confront these barriers. Using millions of data points from diverse qualified sources, AI can carry out occupational skills mapping to identify skills required for different job titles that accurately reflect the dynamic nature of labour markets in the new digital economy. By making LMI readily accessible and accurate, AI opens up boundless possibilities and potential for the modern TAE.

Breaking the limits of conventional psychometric assessments, a data-driven approach using AI can help users to profile and distill their past work experiences and education background into skills. The result is a skills portfolio as unique as one's fingerprints. The skills portfolio forms the critical foundational piece to compute personalized learning development plans based on the users' interests and skill gaps. Equipped with real time LMI, the modern TAE is now capable of designing and delivering personalized training that is attuned to the changing pulse of the marketplace.

# JobKred

Hector Lin

[hector@jobkred.com](mailto:hector@jobkred.com)

+65 9781 0394