

# **UNSW AI-Powered Career Guidance and Skill Mapping System**

## **Introduction**

UNSW Sydney is a leading global research and teaching institution committed to innovation and social impact. With a strong focus on equity, diversity, and inclusion, UNSW strives to provide transformative education and support for its diverse student body, empowering them to achieve academic and professional excellence. The UNSW 2030 Widening Participation Strategy highlights a commitment to fostering equity, access, and graduate success, particularly for underrepresented communities.

## **Problem Specification**

Navigating the transition from university to the workforce can be challenging for students. Despite UNSW's strong employability outcomes, there is a growing need for personalized career guidance and skill development to align educational outcomes with global job market trends.

The current career support systems rely heavily on static resources and generic advice, often falling short of addressing the unique profiles and aspirations of students from diverse backgrounds. With the rapid evolution of the global job market, UNSW students need access to dynamic, data-driven tools that provide personalized, actionable insights to enhance their employability and professional growth.

## **Solution**

The proposed solution is an AI-Powered Career Guidance and Skill Mapping System tailored for UNSW students. This platform will leverage artificial intelligence and machine learning to analyse global job market trends, identify in-demand skills, and match them with students' academic profiles, interests, and extracurricular achievements. By integrating UNSW's commitment to equity and inclusion, the system will also address the unique needs of students from historically underrepresented backgrounds.

## **Functional Requirements**

### **1. AI-Driven Analytics Engine**

- Integrate real-time labour market data (e.g., LinkedIn, Job Outlook) and UNSW student data (with privacy compliance).
- Use NLP to parse job descriptions and identify emerging skills.

### **2. Personalized Dashboard**

- Interactive interface displaying career recommendations, skill gaps, and tailored UNSW resources (courses, workshops, internships).

### 3. Personalized Career Guidance:

- Analyse individual academic achievements, extracurricular activities, and personal interests.
- Recommend career pathways based on global market trends and individual profiles.

### 4. Skill Mapping:

- Identify skill gaps and recommend tailored skill-building pathways, including UNSW courses, micro-credentials, and external resources.
- Highlight emerging skills aligned with industry demands.

### 5. Integration with UNSW Systems

- Single Sign-On (SSO) via UNSW's authentication system.
- API connections to Moodle, career services, and student support portals.

### 6. Equity-Focused Features

- Bias detection in AI recommendations to ensure fairness for underrepresented cohorts.
- Special resources for students from equity cohorts, leveraging the UNSW Widening Participation Strategy 2030 to support their specific challenges and opportunities.
- Multilingual support and accessibility compliance (WCAG 2.1).

## Non-Functional Requirements

- **Scalability:** Support high traffic volumes and dynamic updates for a growing student population.
- **Data Security:** Ensure compliance with UNSW's data protection standards, using secure encryption and authentication methods.
- **Performance:** <2-second response time for AI recommendations.
- **Reliability:** 99.9% uptime with cloud-based redundancy.
- **User Experience:** Intuitive design tested for accessibility (screen readers, keyboard navigation).

## Project priority matrix

|       | Constrain   | Optimise | Accept     |
|-------|-------------|----------|------------|
| Scope |             | ✓        |            |
| Time  |             |          | ✓ 9 months |
| Cost  | ✓ \$300,000 |          |            |

**Project Start Date:** 6<sup>th</sup> June 2025

## **Alignment with UNSW Strategy**

The AI-powered platform will directly support the [UNSW Widening Participation 2030](#) by enhancing employability and graduate outcomes for all students, particularly those from underrepresented backgrounds.

This project will incorporate:

- The **Gateway Equity Target**, emphasizing support for students from socio-educationally disadvantaged schools.
- A holistic approach to the student lifecycle, aligning with UNSW's Access, Equity & Inclusion goals.

### **NOTE:**

This project requires a focus on planning and management, not technical implementation. Each requirement must be thoroughly addressed, with flexibility in execution. It's important to align the project with UNSW's goals and ensure all deliverables meet the expectations.