CHAPTER 5

Discussion and Strategic Recommendations

5.1 Introduction

In this chapter, results of the study are presented, comparing job advertisements of prominent online platforms using machine learning methodologies. The findings reveal a great gap between the curriculum taught in universities and colleges and the job requirements of employers, particularly in technical and digital domains. New skills like AI, Cloud Computing, and Cybersecurity are expanding tremendously, while conventional programming languages and manual approaches are contracting.

The chapter also presents strategic suggestions to higher educational institutions, policy makers, and business leaders to fill the skill gap and convert academic production in terms of the needs of the labor market.

5.2 Key Findings Discussion

5.2.1 Incongruence between Market and Education Requirements

There is a highly discernible disparity in the skills of graduates and those of the employers. For example:

Python and C# are so much needed but seldom taught.

Java dominates university courses even though demand is falling.

Soft skills such as communication and teamwork are found to be adequate by students but not by employers.

5.2.2 Development of Digital Skills

Saudi labor market is a perfect example of rapid growth in digital competence due to Vision 2030 and digitalization programs:

Skill	Growth Rate (2020–2024)
Cloud Computing	45%
Cybersecurity	40%
Data Analytics / AI	38%

Table 5.1: Development of Digital Skills

These trends are attributed to heightened investment in digital infrastructure and smart technology.

5.2.3 Declining Skills

Certain traditional competencies are becoming outmoded:

Skill	Decline Rate (%)
Java Programming	-15%
Manual Testing	-10%
Paper-based Documentation	-12%

Table 5.2 Declining Skills

Graduates without experience of new tools will be unable to hold ground in the changing labor market.

5.2.4 Variation in Regional Demand for Skills

Demand for skills is region-dependent:

Region	Top Demanded Skills
Riyadh	Data Analytics, AI, Cybersecurity
Jeddah	E-commerce, Digital Marketing, Software Development
Eastern Province	Oil & Gas IT, Industrial Automation, Project Management

Table 5.3 : Skills demand in different regions

This implies localized training and curriculum development programs must take place.

5.3 Strategic Suggestions

For Higher Education Institutions:

Periodically update curricula to incorporate AI, cybersecurity, and data analytics.

Enhance hands-on practice with internships, projects, and labs.

Co-design courses and certificate programs with industry partners.

For Policymakers:

Scale up national upskilling programs such as Misk Institute's Future Skills Program.

Fund sector-based training in high-growth areas such as FinTech and e-health.

Encourage lifelong learning through micro-credentials and online learning platforms.

For Employers:

Implement formal on-the-job training to keep stay employees current.

Engage in course curriculum planning and provide recommendations on skill needs.

Use AI-driven recruitment platforms to assess candidate skill more accurately.

5.4 Limitations of the Study

Some job postings were not available due to website constraints.

Limited historic data limited analysis of long-term patterns.

Spoken Arabic colloquialisms influenced NLP extraction accuracy.

Emerging or rare skills were sometimes missed due to insufficient training data.

5.5 Future Research Agenda

Develop real-time dashboards for constant tracking of in-demand skills.

Expand the analysis to other industries such as tourism, farming, and renewable energy.

Draw on longitudinal studies to monitor skills development over time.

Interleave job advertising analysis with employer and graduate surveys.

Develop a single national skill ontology for more effective labor market monitoring.

5.6 Conclusion

This study underscores the necessity of machine learning to study trends in the labor market and create spaces of skill lacking in Saudi Arabia. It underlines the necessity for an immediate bridging of the gap between education and the needs of the marketplace, especially in rapidly evolving sectors. Saudi Arabia can create a future-proofed workforce that meets Vision 2030 goals by proper policy intervention and institutional collaboration.