

# AI Jobs Market Analysis Project

## Introduction & Aim

Artificial Intelligence (AI) has become one of the fastest-growing fields worldwide, with demand for AI professionals spanning industries such as technology, finance, healthcare, media, and consulting. However, the job market for AI roles is highly diverse — salaries fluctuate across countries, skills evolve rapidly, and hiring practices differ depending on company size and employment type.

The aim of this project was to **analyze and visualize the global AI job market** by transforming raw job postings into structured, meaningful insights. The project provides a comprehensive view of the AI workforce landscape, answering critical questions about **skills, salaries, employment patterns, education requirements, and industry trends**.

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## Description of the Data

The dataset used in this project was sourced from **Kaggle** and contained around **30,000 AI-related job postings** from **different countries**. It included details such as job titles, salaries, company information, required skills, education, and employment types. Some of the most important attributes included:

- **Job Details:** job title, experience level, employment type, posting date, application deadline.
  - **Compensation:** salary (in multiple currencies, later standardized to USD).
  - **Company Information:** size (small, medium, large), location, industry, company name.
  - **Candidate Requirements:** required skills (multi-valued field), education level, years of experience.
  - **Other Factors:** employee residence, remote ratio, job description length, benefits score.
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## Key Questions & KPIs

To guide the analysis, the following **questions and performance indicators** were defined:

1. **Skills Demand**

- Which technical skills are most frequently required for AI roles?
- How do skill requirements vary across different job titles?

## 2. Salary Benchmarks

- What are the average salaries by role, country, company size, and industry?
- How do salaries differ across experience levels (entry, mid, senior)?

## 3. Employment Trends

- What is the distribution of employment types (full-time, part-time, contract, freelance)?
- How common are remote or hybrid roles compared to on-site jobs?

## 4. Company & Industry Insights

- Do small, medium, or large companies dominate AI hiring?
- Which industries show the highest demand for AI talent?

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### Analytical Path

Reaching the final structured shape of the project requires going through a clear **data preprocessing and modeling process**. The raw Kaggle dataset needed to be cleaned, standardized, and reshaped — for example, handling missing values, unifying salary currencies, and organizing multi-valued skills into a form that could be analyzed effectively. After that, **data modeling** was essential to connect jobs, skills, companies, and locations in a way that supports meaningful analysis.

The guiding element throughout this process was the set of **KPIs and key questions** we defined, such as identifying in-demand skills, comparing salaries across roles and countries, and understanding employment type distributions. These KPIs acted as the framework for the analysis, ensuring that the data was transformed into insights that directly addressed the project's objectives.

Different **data analysis tools** can be applied to achieve this. For example, **Power Query** is well-suited for cleaning and transforming raw data, while **Power Pivot** helps in building relationships and creating measures. **SQL** can be used to query and structure large datasets, **Python** provides flexibility for deeper exploration and visualization, and **Power BI or Tableau** are powerful options for presenting the results in interactive dashboards. Each tool contributes in its own way, ensuring accuracy, efficiency, and clarity in the analysis.

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## Outcomes & Insights

The final shape of the project shows what such a workflow can deliver: a **clean, structured dataset** and **interactive dashboards** that highlight the key dimensions of the AI job market. These dashboards provide answers to the guiding questions and KPIs, such as:

- The most in-demand skills across AI job roles.
- Salary benchmarks by experience level, company size, and country.
- Trends in remote and contract work compared to traditional full-time roles.
- Education and years of experience required for different roles.
- Industry and company-size patterns in AI hiring.

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## Value & Relevance

This project demonstrates the **end-to-end transformation of raw labor market data into actionable intelligence**. By combining data cleaning, structuring, and visualization, it should provide:

- **Job seekers** with guidance on the most valuable skills and realistic salary expectations.
- **Companies** with benchmarks for competitive hiring and workforce planning.
- **Educators and policymakers** with insights into skill gaps and training needs.

Beyond technical execution, the project reflects the ability to **ask the right questions, design meaningful KPIs, and tell a story through data** — turning thousands of job postings into a clear picture of the AI job market.