

# Case Study

## Strategic Analysis of the German Job Market 2025

This project is developed as part of a Data Analysis training, with the primary purpose of demonstrating and applying statistical, machine learning, and visualization techniques.



### Overview

This study utilizes Python-based data modeling to identify hidden patterns within the German labor market. By integrating time-series forecasting and K-Means clustering, the analysis delivers actionable insights on demand, salary expectations, and qualification requirements.

### Goal

The primary goal is to identify strategic career pathways and provide predictive context for stakeholders (job seekers, educators, and hiring managers).

## 1 DATA CLEANING & WRANGLING

- synthetic German job market dataset (Kaggle)
- German employment count 2010–2025 (Labour force survey)

**2 EDA** Generating descriptive statistics, correlation matrices, and specialized visualizations like heatmaps and geospatial plots.

## 3 PREDICTIVE MODELING

- Linear Regression
- K-Means Clustering

**4 TIME SERIES FORECASTING-  
SEASONAL DIFFERENCING** utilizing a 12-month lag to achieve stationarity necessary for robust long-term forecasting.



git@github.com:L-  
Bramasole/German\_2025\_Job  
\_Market\_Strategic\_Analysis.git

**STRATEGIC ANALYSIS FOR JOB  
SEEKERS TO ENTER THE GERMAN  
MARKET 2025 ON**

[Tableau](#) / Python Dashboard

[https://public.tableau.com/views/GermanJobMarket2025-AStrategicAnalysis/Story1?:language=en-GB&publish=yes&:sid=&:redirect=auth&:display\\_count=n&:origin=viz\\_share\\_link](https://public.tableau.com/views/GermanJobMarket2025-AStrategicAnalysis/Story1?:language=en-GB&publish=yes&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link)



# Primary Analytical Insights

## Employment Resilience

Time Series Forecasting shows a stable upward trend in employment rates reaching 46.1% by early 2025.



## Hiring Trends

Seasonal analysis reveals peaks in hiring volumes that correlate with historical quarterly shifts.



*"Experience level is the dominant predictor of salary, explaining approximately 57% of total market variation."*



## Education Weighting

Statistical testing indicates no major outlier effect from location or specific educational requirements compared to seniority.

**3** distinct structural clusters define the supply-demand balance in Germany

# K-Means Cluster Segmentation

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The model identified three distinct structural categories in the German market. This segmentation helps in understanding the type of available jobs and requirements.

- **Cluster 1: Modest but Abundant**

Lower salary entry points but significantly higher volume of open vacancies and demand.

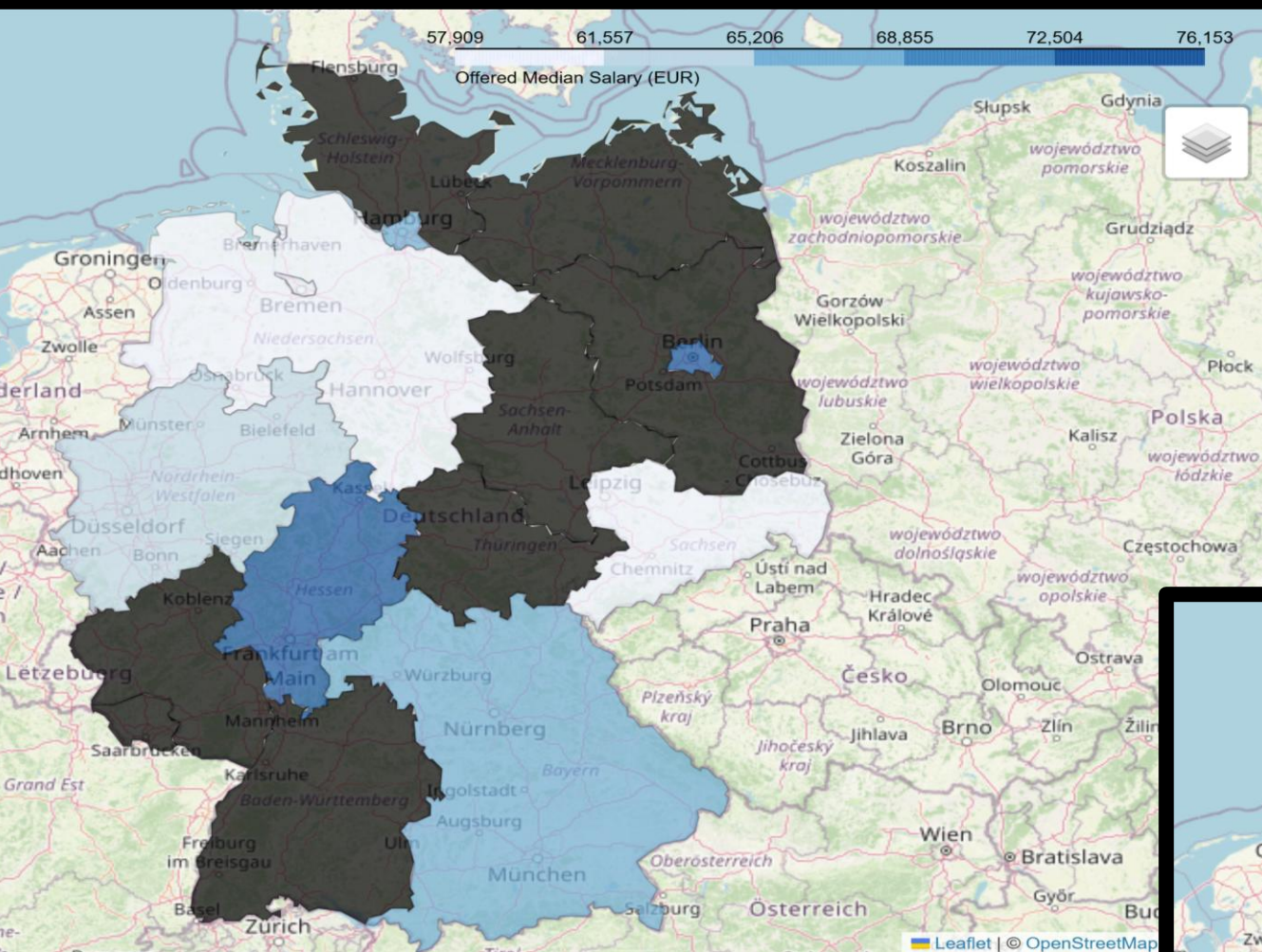
- **Cluster 2: Lucrative & Scarce**

The highest experience requirements, accompanied by extreme competitiveness, are required for high salaries

- **Cluster 3: Mid-Tier Stability**

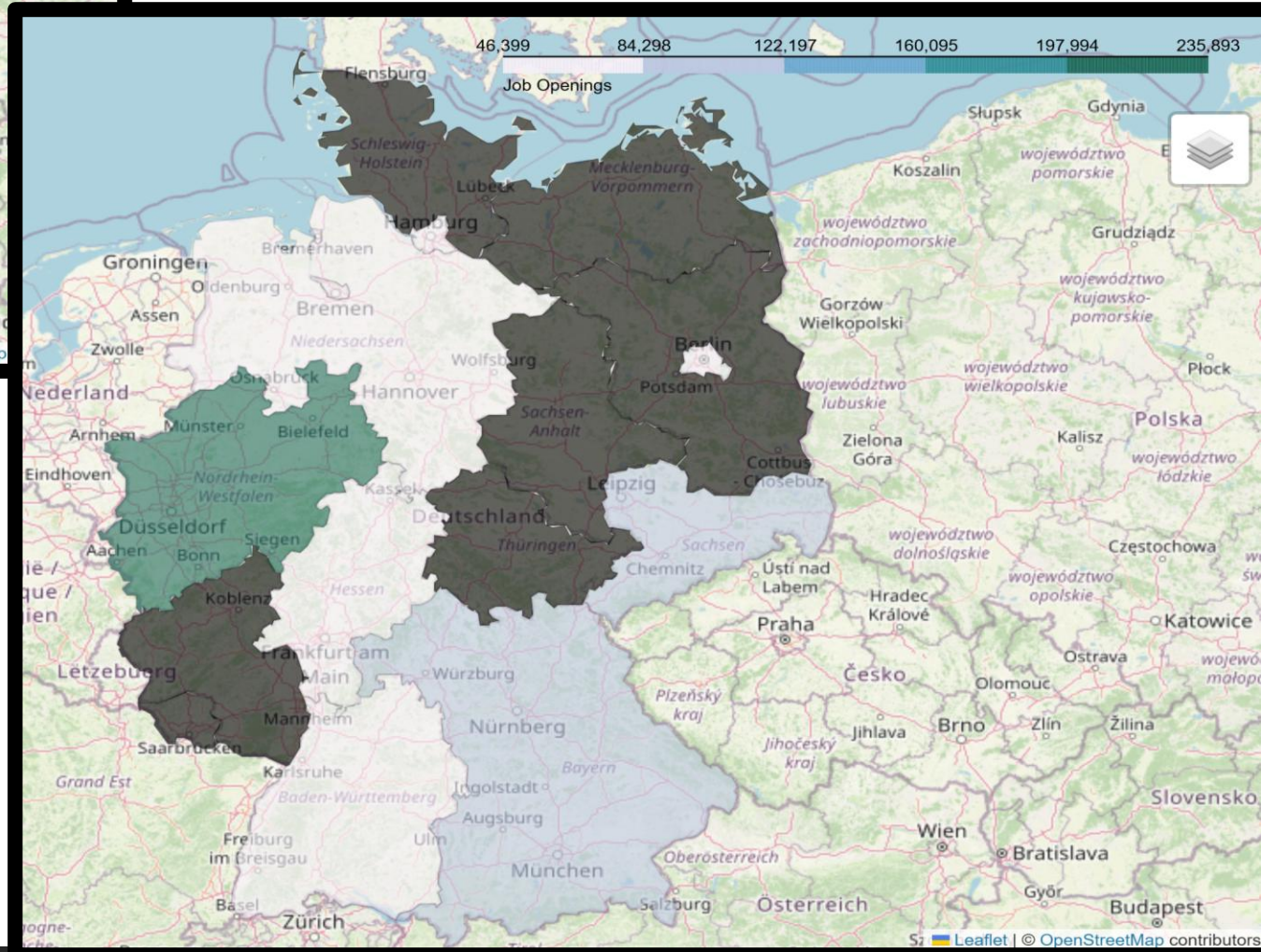
Balanced growth roles with moderate experience requirements and steady openings.



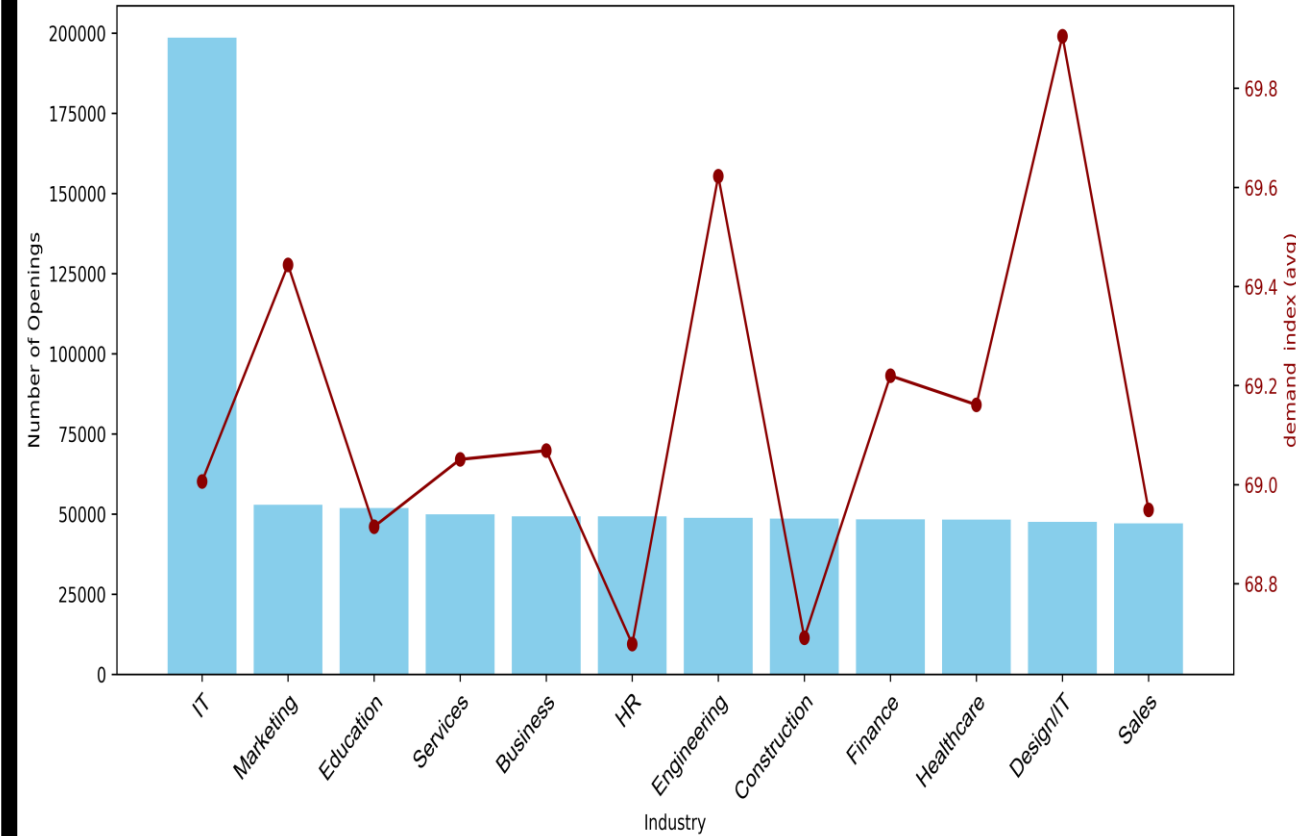


Job openings are concentrated in North Rhine–Westphalia, followed by Bavaria, meeting the high demographics in those states

Berlin, Hessen & Bavaria provide the most competitive salary packages



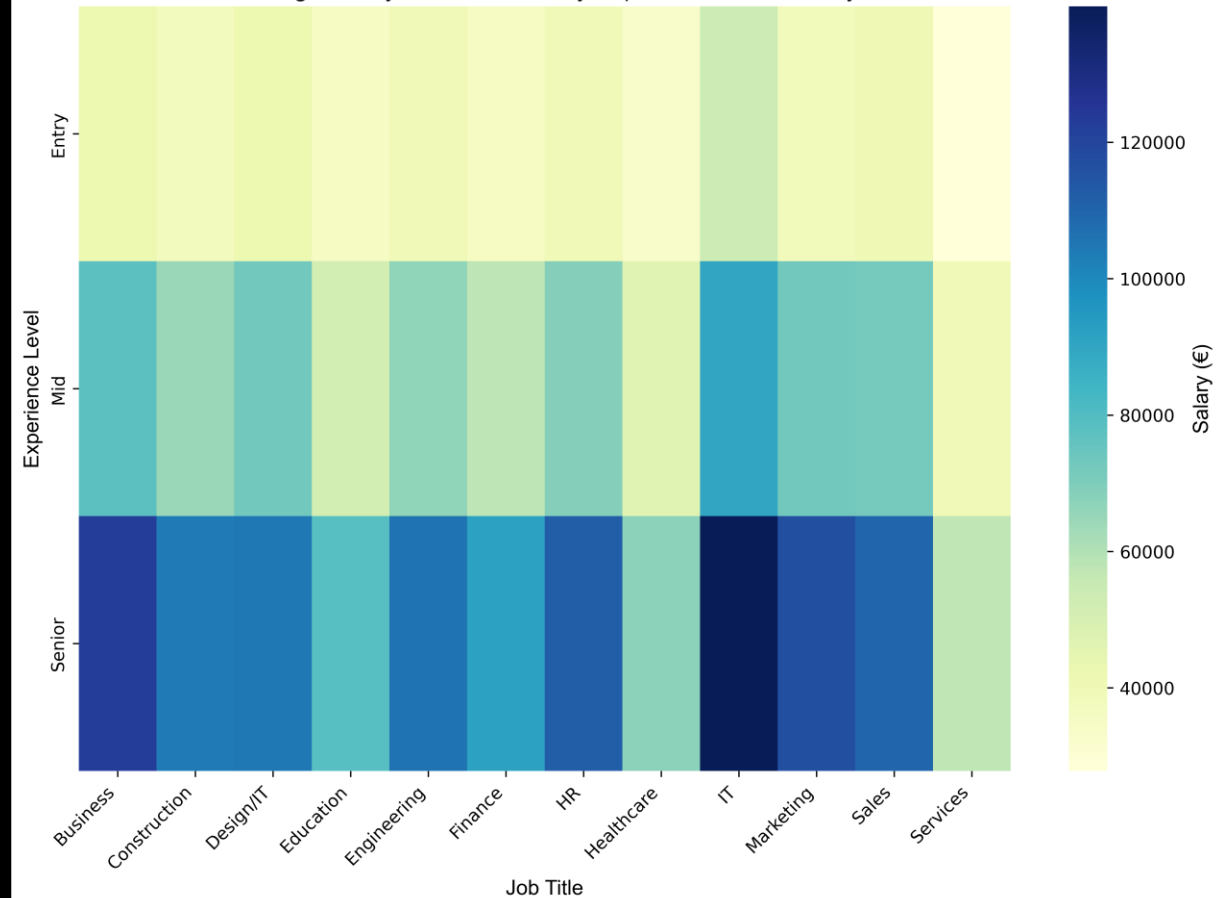
industry Openings and competitiveness\_score by Job Title-Germany Market 2025



IT Jobs are the most in demand

Work experience pushes the salary up mainly in IT and Business

Average Salary Median Offers by Experience and Industry







# Strategic Takeaways

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## Target IT/Engineering:

These industries lead in job openings and offer the highest salaries, making them strategic career targets



**Location:** Consider North Rhine-Westphalia/Bavaria: For the highest volume of opportunities.



**Education Foundation:** A Bachelor's or Master's degree is the standard requirement for most roles. But be prepared for high competition in specialized roles in terms of skills or higher education.



## Focus on Experience:

Given its status as the strongest salary predictor, job seekers should prioritize roles that offer clear career progression and maximize experience acquisition.

# Know me better...

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## Education

Ph.D. in Molecular Biology  
over 10+ years of experience  
applying rigorous analytical  
methods in complex data  
environments



## Core Strengths

Exceptional Analytical &  
Communication Skills.  
Expertise in deconstructing  
complex data and delivering  
clear, impactful visual  
presentations.



## Technical Toolkit

Python (Jupyter), SQL,  
Tableau, Excel, and advanced  
Statistical Modeling.







# Lylan Bramasole

DATA ANALYST  
(BIOLOGY PH.D)

[www.linkedin.com/in/lylan-bramasole-01031b157](https://www.linkedin.com/in/lylan-bramasole-01031b157)

[www.Github/L-Bramasole](https://www.Github/L-Bramasole)

[www.public.tableau.com/app/profile/lilly.br2051](https://www.public.tableau.com/app/profile/lilly.br2051)