

The Next Normal: AI-Driven Analytics in Action

Trends in Data Science and
Business Analytics

Presented By:

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About us



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Overview

- **Job Market Disruption & Growth:**
 - 22% of today's jobs are expected to change by 2030, with major job creation in AI, analytics, and sustainability roles (based on Future of Jobs 2025 report).

Why it Matters

- **Shaping the Future of Work:**
 - AI and data analytics are fundamentally changing how businesses operate, creating demand for new roles and skillsets
- **Career Competitiveness:**
 - Professionals who adapt to these emerging trends by upskilling in AI, data science, and analytics will have a significant advantage in the evolving job market

Executive Summary

This project explores how Business Analytics, Data Science, and Machine Learning roles are evolving in 2025. As industries embrace AI, understanding hiring trends and in-demand skills is crucial for future career success.

Technology and Finance industries are leading the growth

Strong demand for data scientists, business analysts, and AI specialists to drive innovation and efficiency.

Key takeaways

AI and data skills are no longer optional, they are becoming essential across industries for career growth and opportunity.

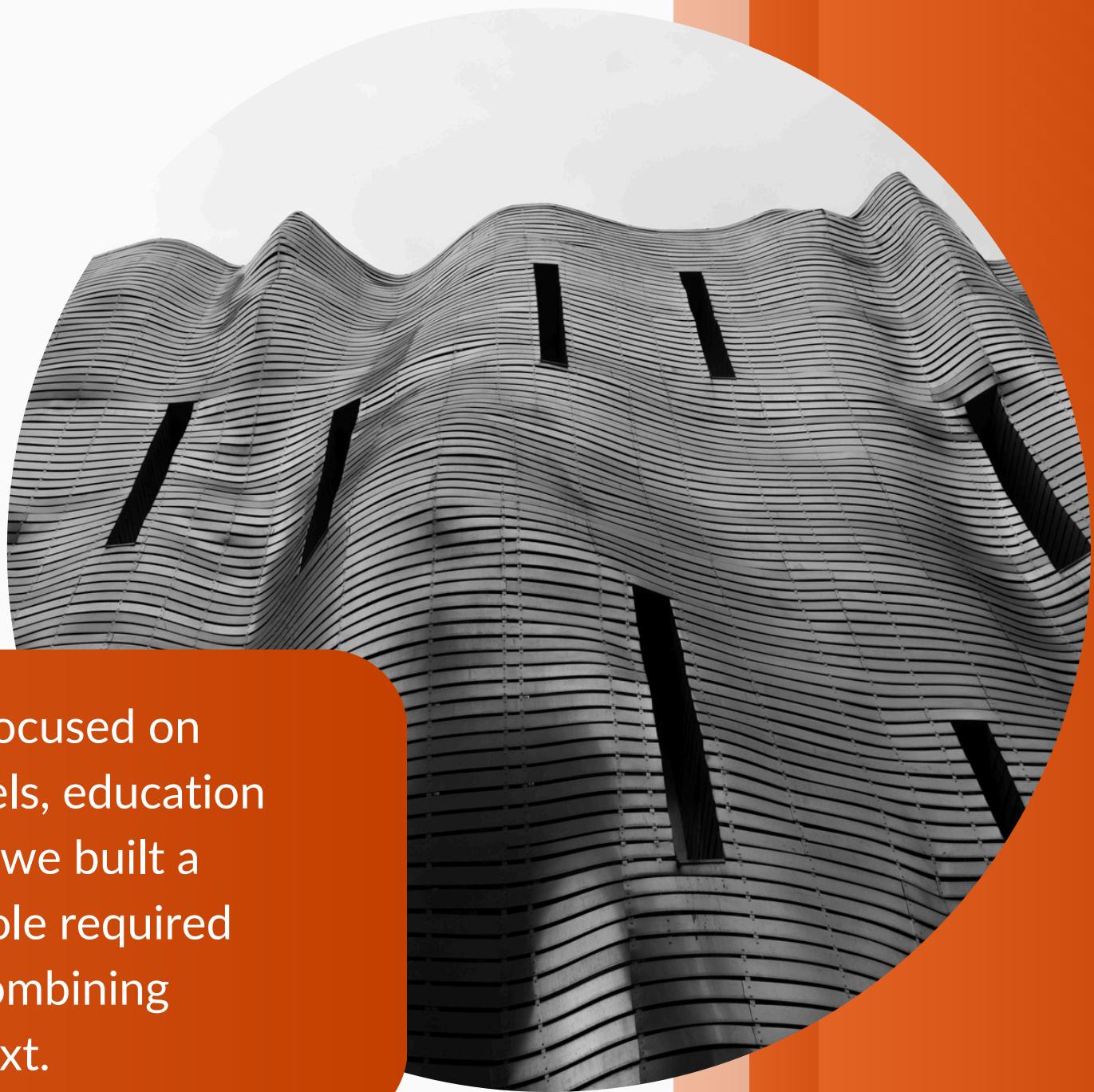
Methodology: Lightcast Dataset Analysis

Cleaning, filtering, skill extraction

Random Forest Model

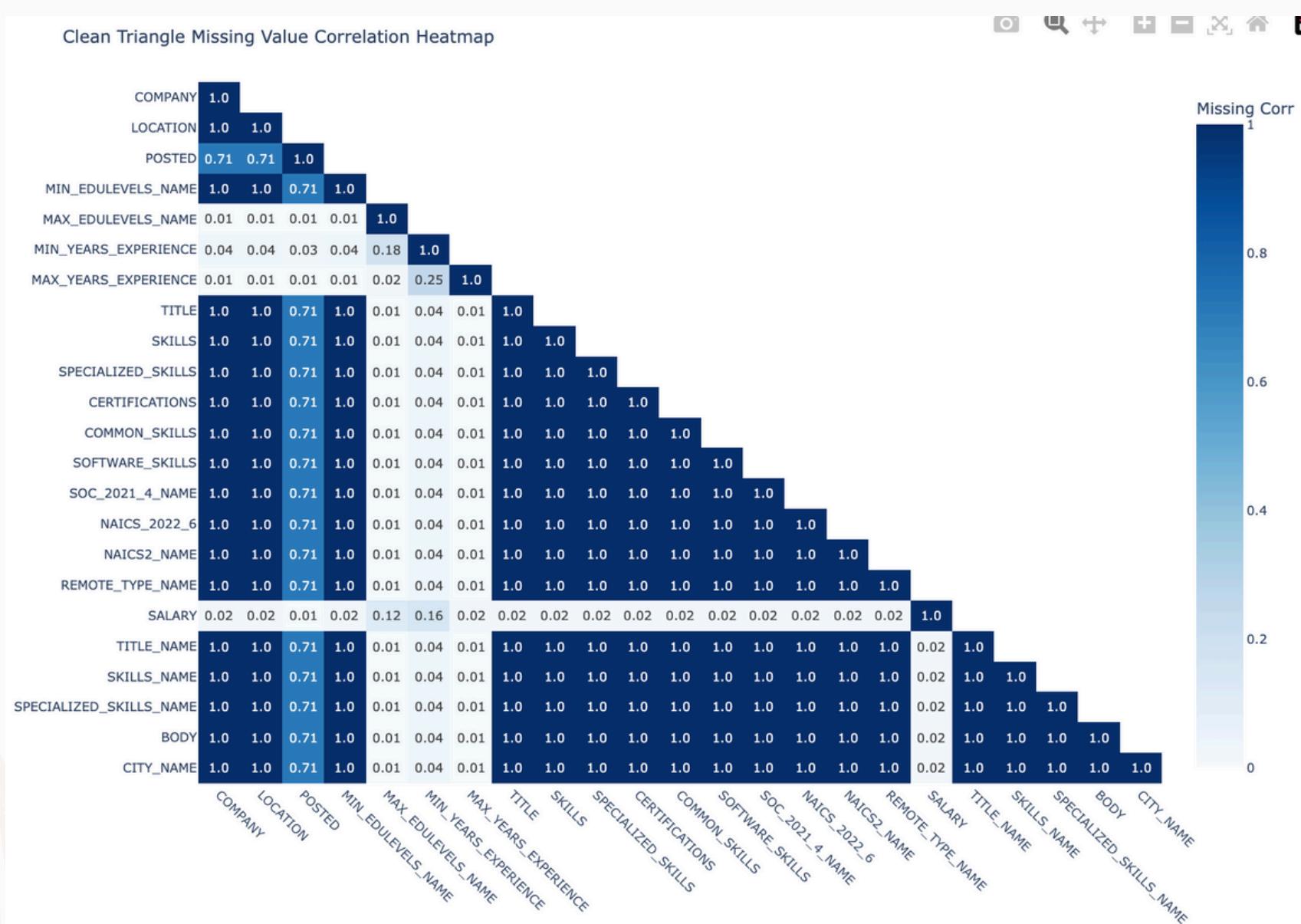
Regression Model

After extensive cleaning and filtering, we focused on extracting structured skills, experience levels, education requirements, and job titles. For modeling, we built a classification model to predict whether a role required Machine Learning or Data Science skills, combining structured metadata and job description text.



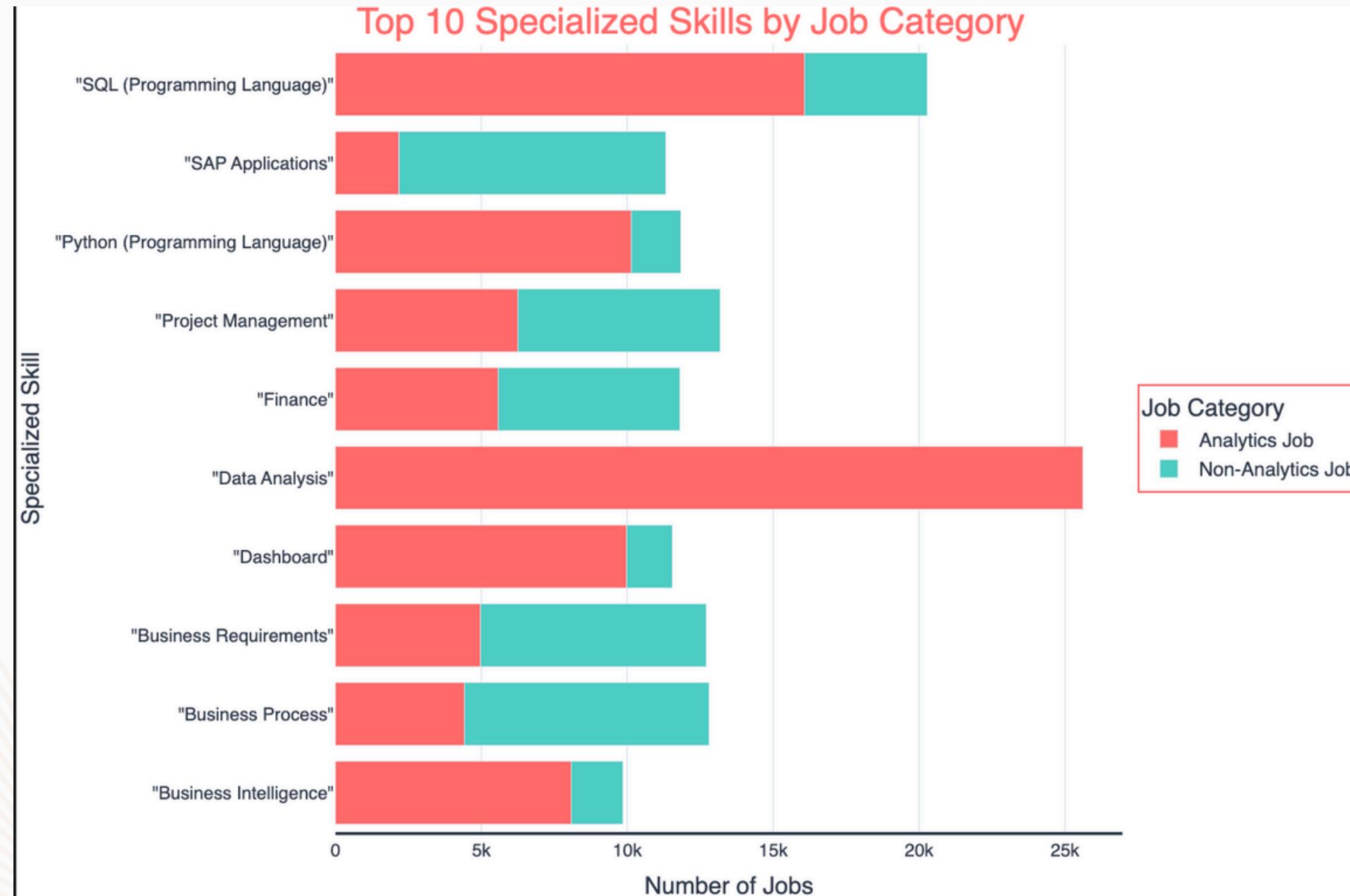
Data Cleaning

```
columns_to_keep = [  
    'COMPANY', 'LOCATION', 'POSTED', 'MIN_EDULEVELS_NAME', 'MAX_EDULEVELS_NAME',  
    'MIN_YEARS_EXPERIENCE', 'MAX_YEARS_EXPERIENCE', 'TITLE', 'SKILLS',  
    'SPECIALIZED_SKILLS', 'CERTIFICATIONS', 'COMMON_SKILLS', 'SOFTWARE_SKILLS',  
    'SOC_2021_4_NAME', 'NAICS_2022_6', 'NAICS2_NAME', 'REMOTE_TYPE_NAME',  
    'SALARY', 'TITLE_NAME', 'SKILLS_NAME', 'SPECIALIZED_SKILLS_NAME', 'BODY', 'CITY_NAME'  
]  
  
eda_data = df[columns_to_keep]
```



- **Strong missing correlation** between COMPANY, LOCATION, POSTED, and skill columns (mostly 1.0).
- **Weak missing correlation** for SALARY, YEARS OF EXPERIENCE, and education fields.
- This helps identify which columns should be handled together when filling missing data.
- Understanding missing value patterns helps us design smarter and more efficient data cleaning strategies.

Most in Demand Skills



The top skills:

- **Data Analysis and SQL** are the most in-demand skills
- **Python**, especially for analytics-focused roles are essential
- **Project Management and Business Requirements** are valued across job types, highlighting the need for business skills.
- Analytics jobs require deeper technical expertise, while non-analytics jobs lean slightly more on business process management.
- **Key takeaway:** Data and technical literacy are now critical even beyond pure analytics roles.

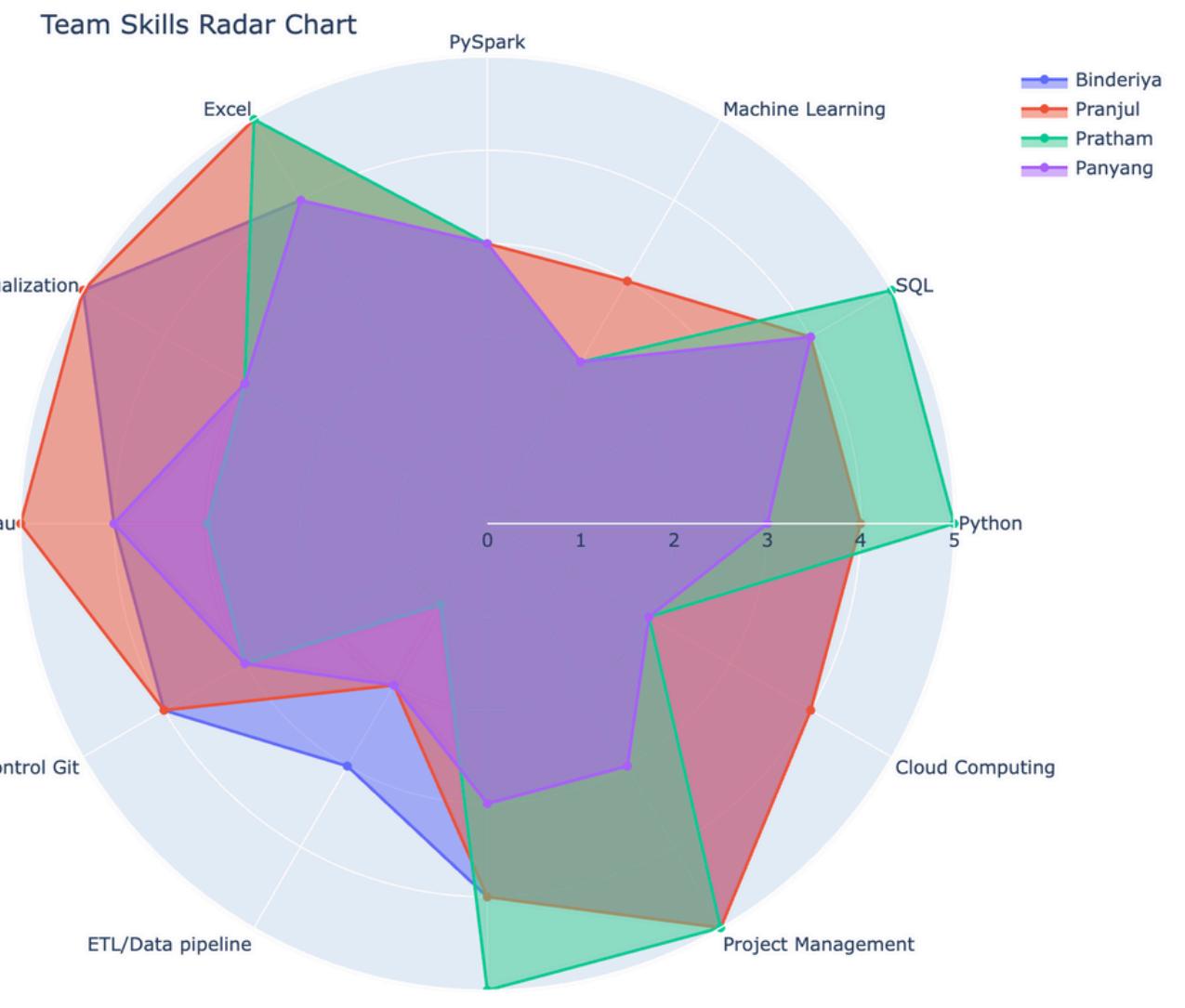
Skill Analysis Using Word Cloud



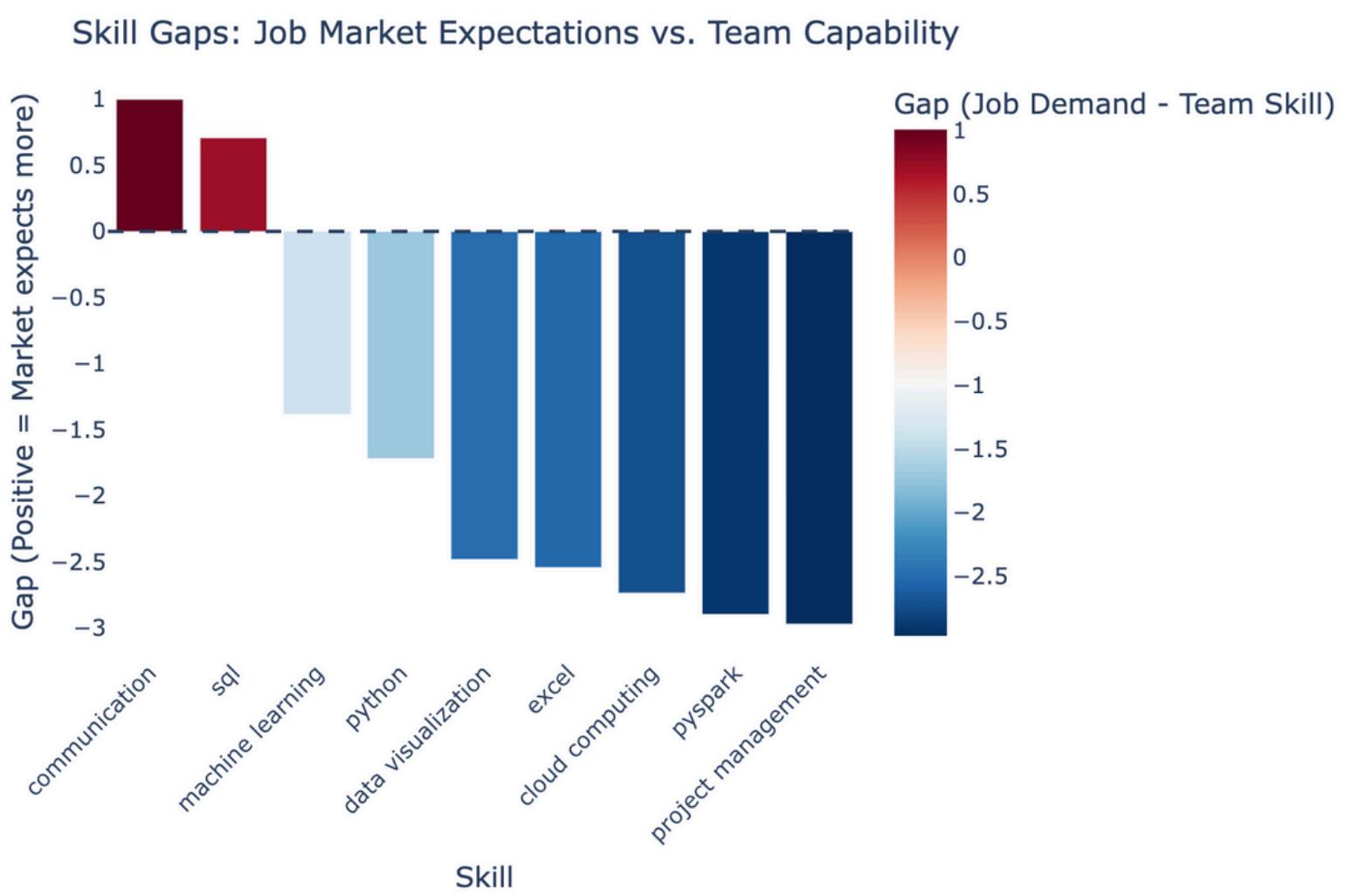
The top skills:

- **Strong Programming & Technical Skills:** Knowledge of programming languages (especially Python, SQL) and tools like Tableau, Power BI, and Excel is critical.
 - **Data Management Expertise:** Skills in data analysis, data modeling, data quality, and database management are highly valued.
 - **Business & Problem-Solving Mindset:** Understanding business processes, gathering business requirements, and using analytical thinking to solve real-world problems is a must.

Skills Gap Analysis



Our team is strong in some areas like **Excel** and **Data Visualization**, there are noticeable gaps in **Machine Learning** and **PySpark**.



- Market demand for technical skills like **Machine Learning**, **Cloud Computing**, and **Python** is significantly higher than our current capability.
- The largest gaps are in advanced technical skills critical for today's data-driven jobs.

Jobs across U.S States

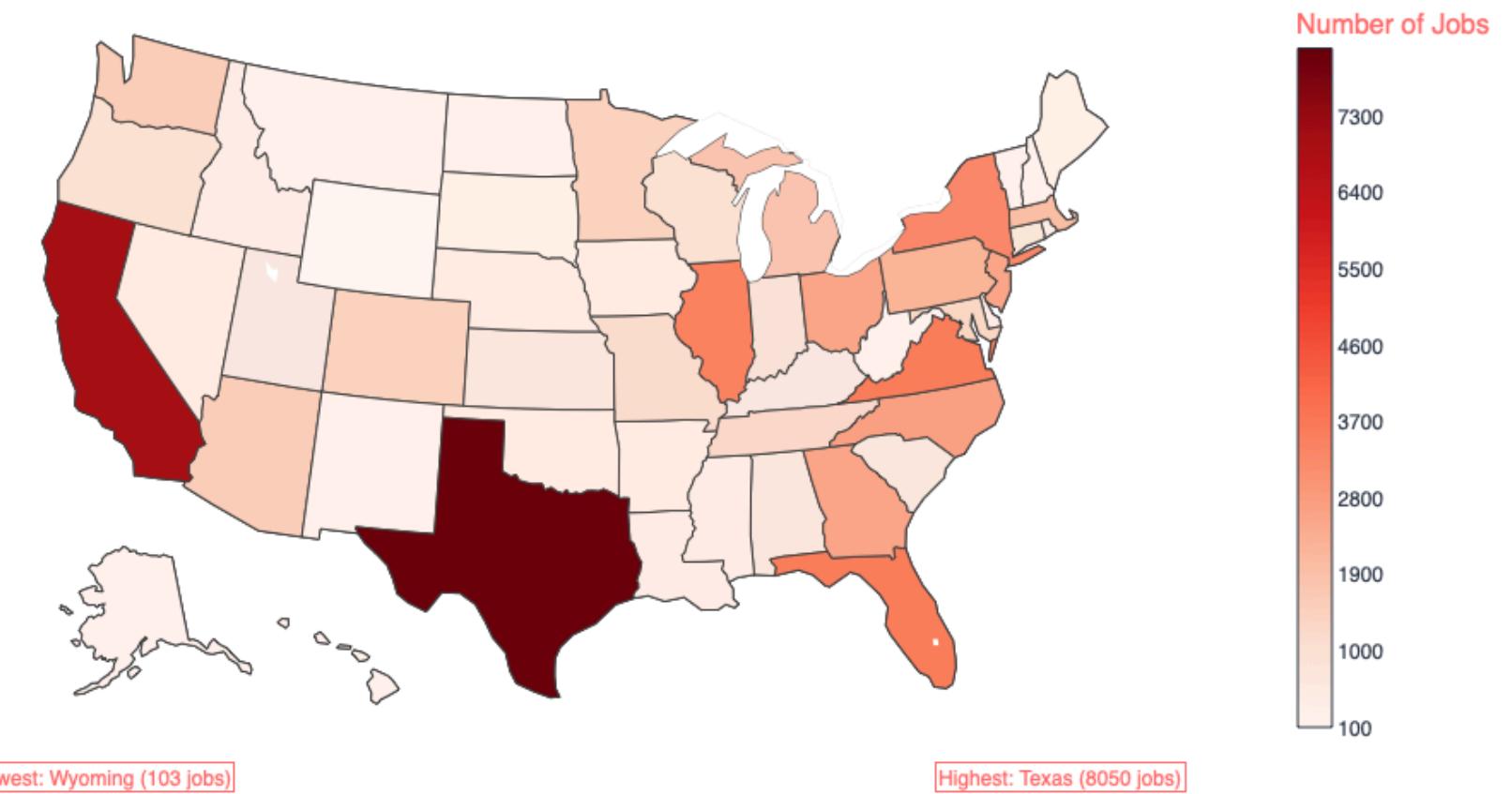


Data Analyst & Business Analyst

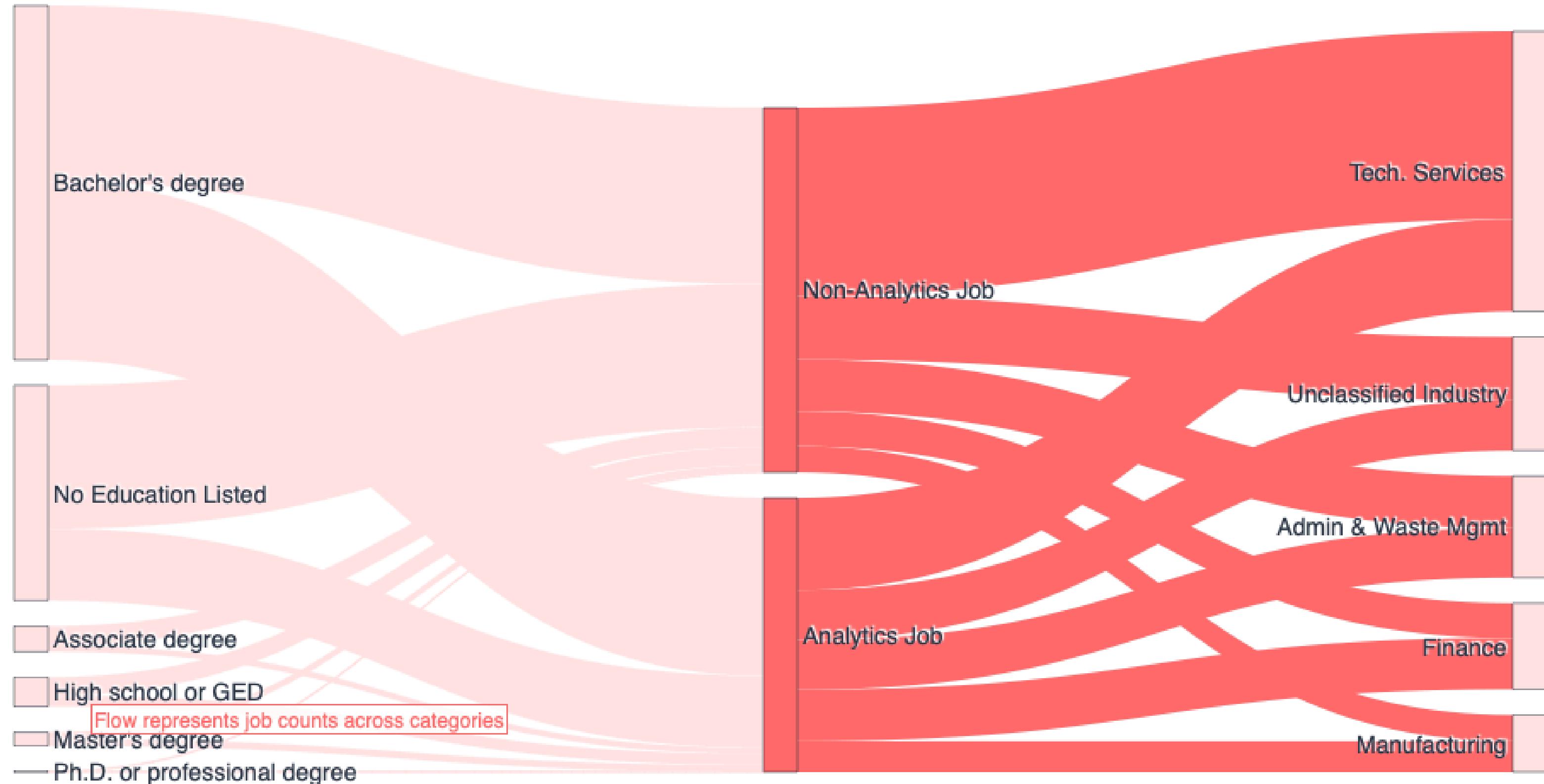
- Texas, California, Florida, and New York have the highest number of data analyst job postings.
- **Urban vs. Rural Divide:** Major metro areas dominate opportunities, while rural states show significantly fewer postings.
- **Nationwide Demand:** Data analysts are now essential across industries – not just in tech, but also finance, healthcare, logistics, and manufacturing.

"Economic growth fuels data growth – and data growth fuels demand for analysts."

Geographic Distribution of Analytics Job Postings (2025)



Flow of Jobs: Education Level → Job Category → Industry (2025)



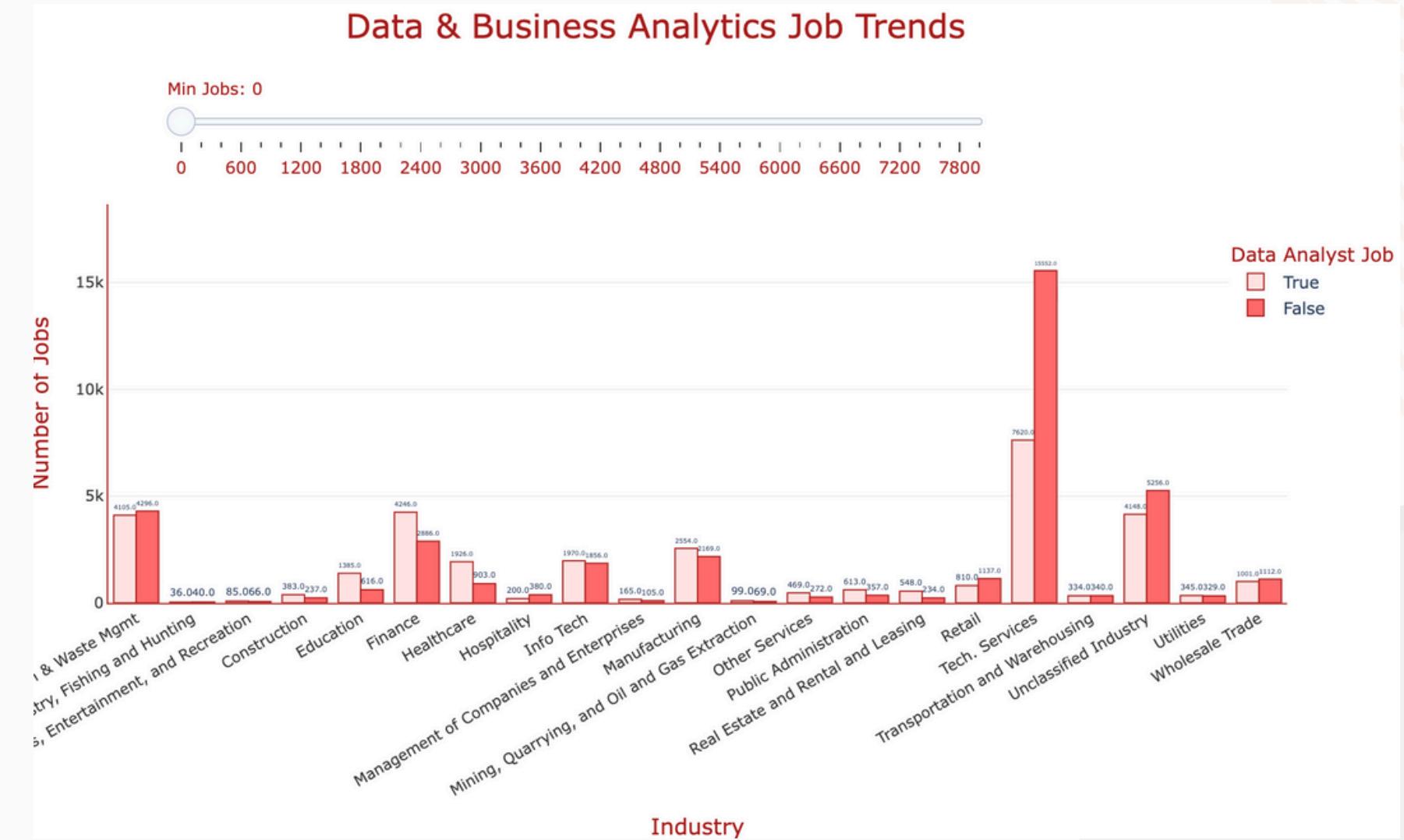
Why Tech & Finance?

Technology

- Tech companies live on data (user metrics, churn, A/B tests, personalization)
- Product Development: Tech companies rely on data analysts to interpret user data, guiding product enhancements and innovations.

Finance

- Risk Management & Compliance: Financial institutions utilize data analytics to assess risks, detect fraud, and ensure compliance with regulatory standards
- Data analysts develop and refine algorithms for trading strategies, optimizing investment decisions.

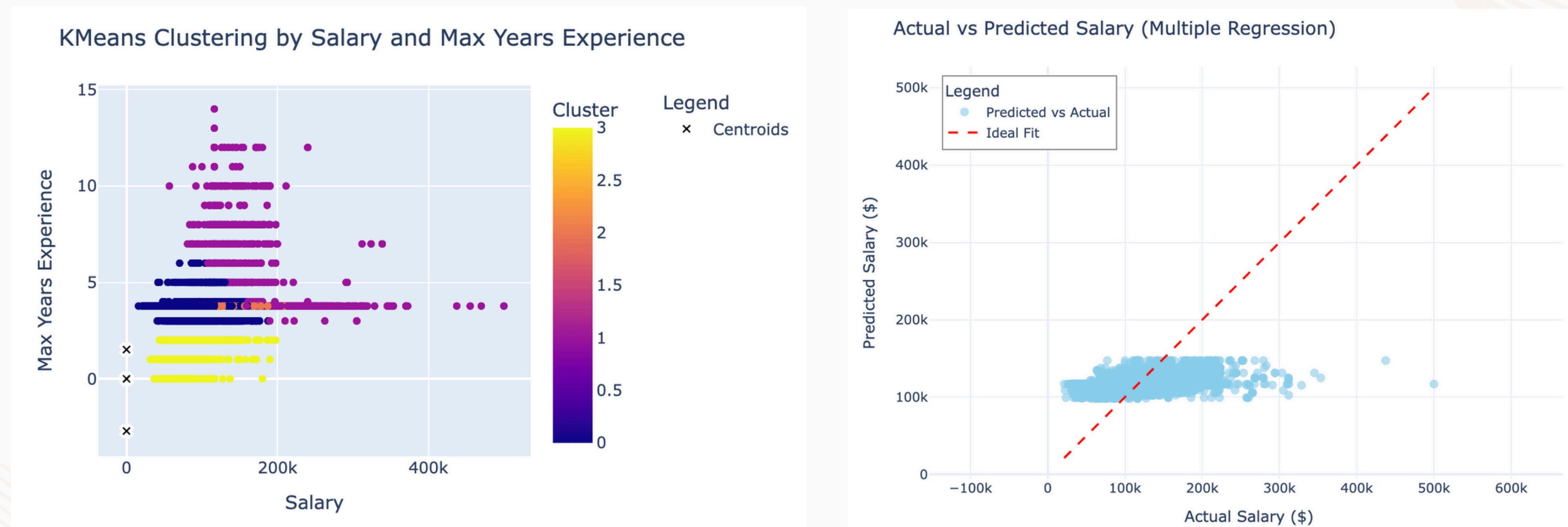


In the U.S. job market, there are currently 7,640 data analyst positions in the tech sector and 4,236 in the finance sector, highlighting the critical role these professionals play in driving data-informed strategies across industries."

Experience Requirements vs Salary for Analytics Jobs



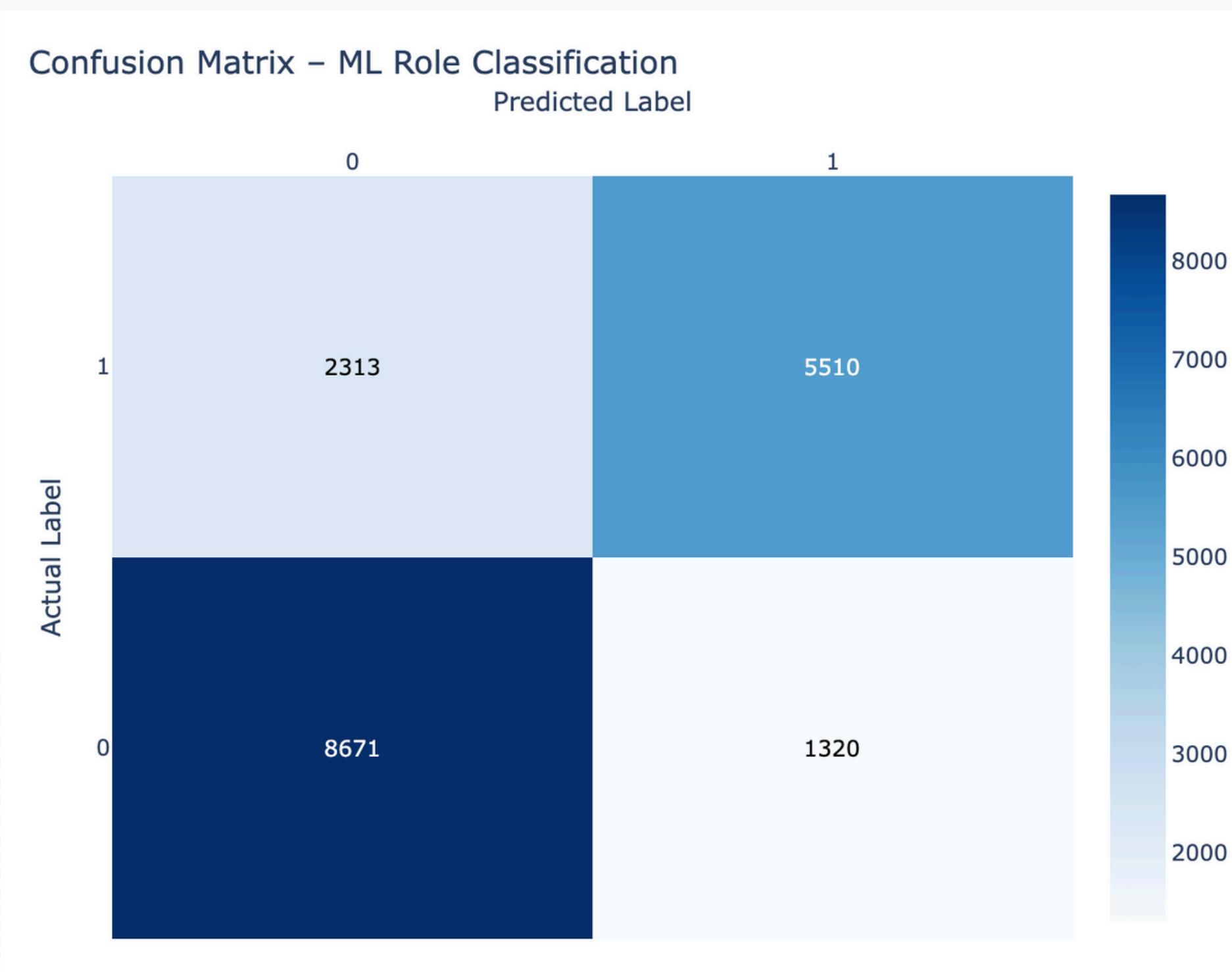
K means clustering and Multiple Regression Model



- Grouped candidates based on Salary and Max Years of Experience.
- Results reveal meaningful segmentation for career strategy planning



Confusion Matrix



- The model demonstrates strong overall classification performance.
- Class 0 (Non-ML roles) is predicted very accurately, with a high number of true positives.
- Class 1 (ML-related roles) shows more misclassification, indicated by a higher number of false negatives
- This suggests the model is more conservative – it tends to under-predict ML roles.
- Integration of unstructured data significantly enhanced the model's ability to distinguish between ML and non-ML roles.

Outlook for 2030

The Future of Jobs Report 2025

World Economic
Forum



Significant Job Churn and Net Growth

By 2030, estimated 22% of current formal jobs facing churn through displacement (**92 million jobs**) and creation (**170 million jobs**)¹. The overall outlook is a projected net increase of **7%** in total employment, or **78 million jobs** globally

Technology as a Major Driver of Change

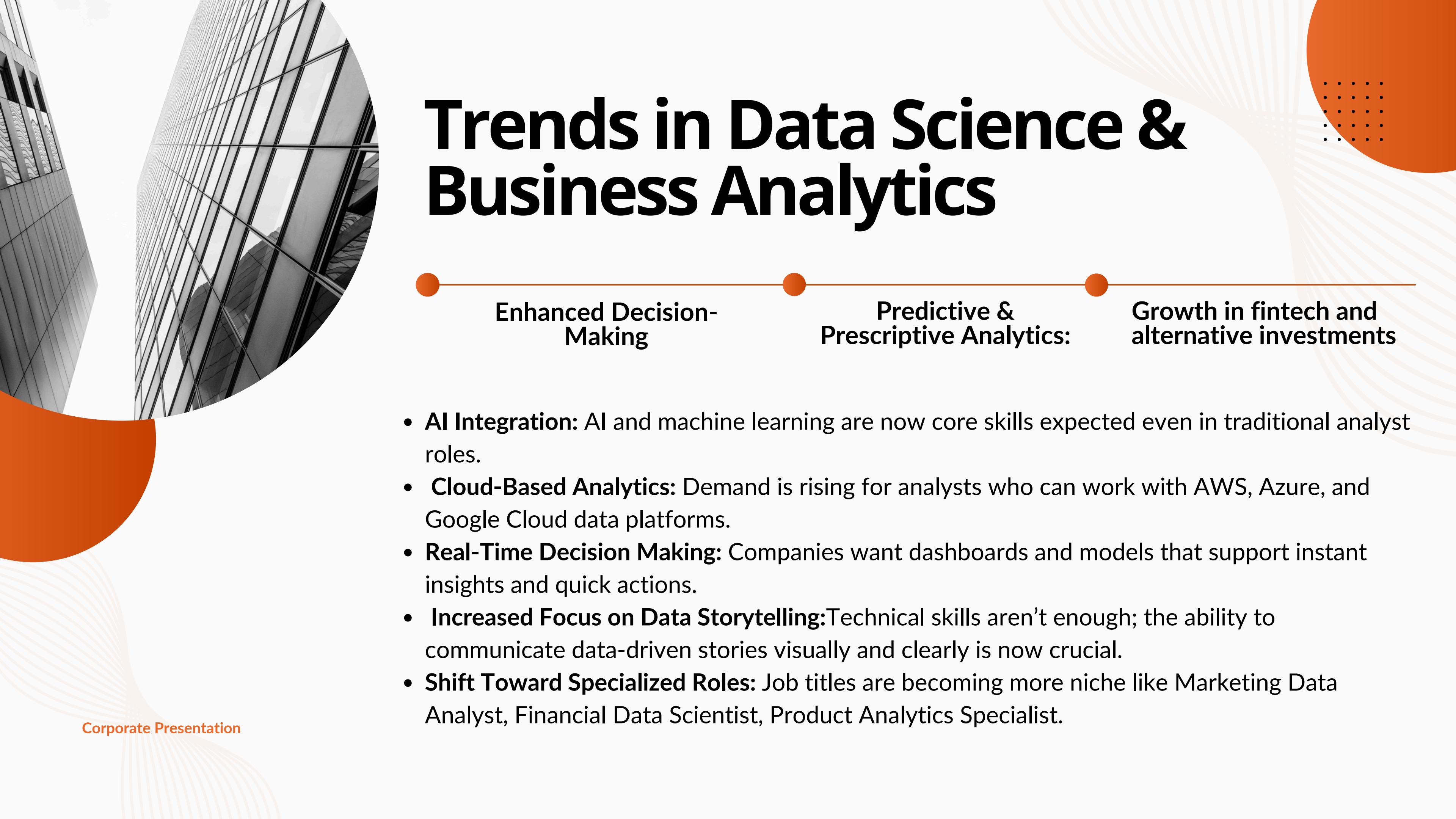
AI and information processing technologies, are anticipated to be the primary drivers of both job creation and displacement

- AI and big data are specifically highlighted as top drivers of growth for many fast-growing jobs and are seen as the fastest-growing skills

Urgent Need for Upskilling

39% of workers' core skills are expected to change

- **Analytical thinking** remains the most important core skill. Skills related to **AI and big data, networks and cybersecurity, technological literacy, creative thinking, and resilience** are projected to increase most rapidly



Trends in Data Science & Business Analytics

Enhanced Decision-Making

Predictive & Prescriptive Analytics:

Growth in fintech and alternative investments

- **AI Integration:** AI and machine learning are now core skills expected even in traditional analyst roles.
- **Cloud-Based Analytics:** Demand is rising for analysts who can work with AWS, Azure, and Google Cloud data platforms.
- **Real-Time Decision Making:** Companies want dashboards and models that support instant insights and quick actions.
- **Increased Focus on Data Storytelling:** Technical skills aren't enough; the ability to communicate data-driven stories visually and clearly is now crucial.
- **Shift Toward Specialized Roles:** Job titles are becoming more niche like Marketing Data Analyst, Financial Data Scientist, Product Analytics Specialist.

Roadmap for Job Success!



Emphasize Human Centered Skills:

With technical expertise, cultivate soft skills like leadership, communication, resilience, and creativity, are critical as automation increasingly reshapes traditional roles.



Build Strong Technical and Analytical Skills

Focus on mastering key technical tools like Python, SQL, cloud platforms, and AI fundamentals, while strengthening analytical thinking and problem-solving abilities.



Continuously Upskill and Stay Adaptable

Regularly invest time in learning new technologies, taking certifications, and developing flexibility to adjust to emerging industry needs.



Q & A Session?

Thank You

