HR ANALYTICS USING POWER BI

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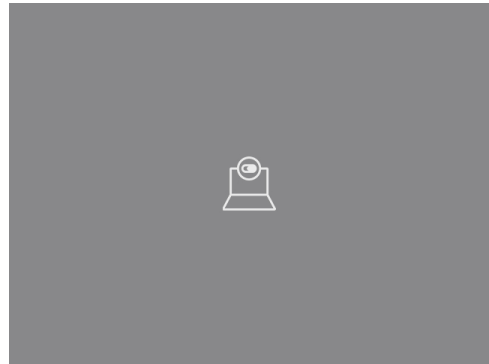
PRDA-03: HR analysis

Introduction

- HR Analytics helps organizations make better decisions using employee data.
- This project analyzes HR data using Power BI / Tableau.
- Key KPIs are created to track employee count, location, and average age.
- Visuals show hiring trends and employee distribution.
- Insights support better workforce planning and HR strategies.



Project objectives

- Analyse HR data to understand workforce structure and trends.
- Create key HR KPIs using DAX in Power BI.
- Visualize hiring patterns and employee demographics.
- Identify workforce distribution and diversity insights.
- Support HR decision-making through data-driven analysis.

Data source & Tools

1. MySQL (HR database)
2. Power BI desktop
3. Power query editor
4. DAX (Calculations) & Measures

Dataset overview

Employee details

- ID
- First_name
- Last_name
- Job title
- Departnment

Demographics

- Birthdate
- Age
- Race

Location information

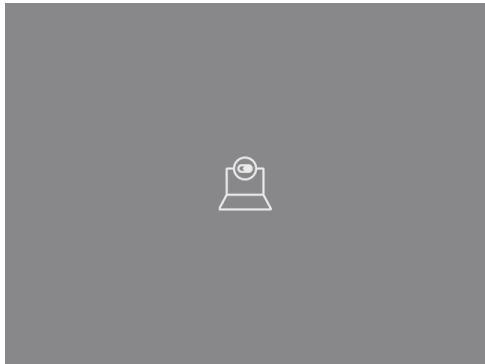
- Location
- State
- City

Employment date

- Hire date
- Termination date

1. Data preparation and connectivity

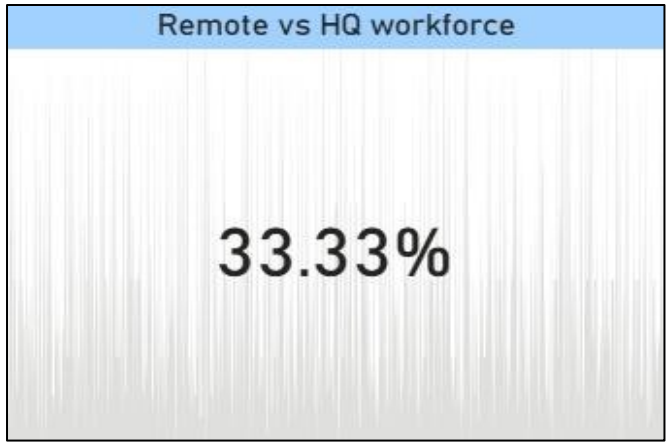
- Used MySQL Connector library with ODBC data source.
- MySQL database integrated with Power BI.
- Loaded data into Power Query Editor for cleaning and analysis.
- Created calculated columns & measures using DAX.



2. KPI’s Dashboards

- **Insights**:

1. The organization has 5 employees, representing the total workforce size.
2. This KPI serves as a baseline reference for overall HR analysis.



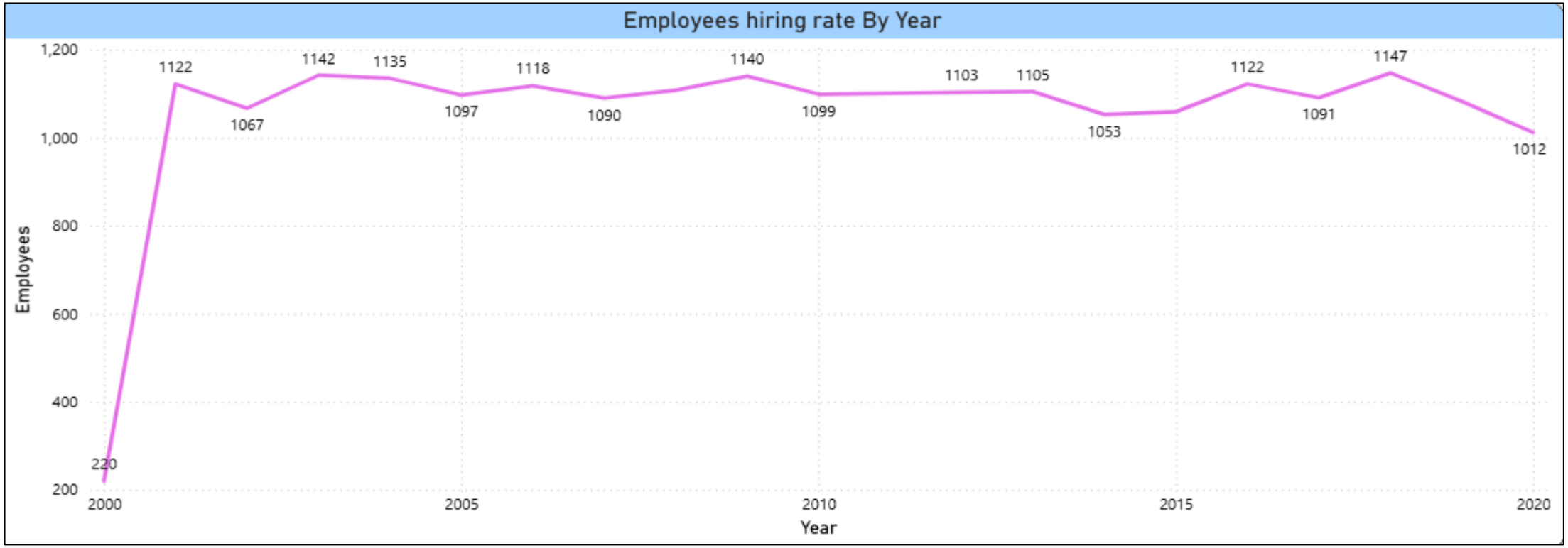
- **Insights**:

1. 33.33% of employees work remotely, indicating partial adoption of a remote work model.
2. The remaining workforce operates from HQ, showing a hybrid work structure.

- **Insights**:

1. The average employee age is 34 years, indicating a mid-career workforce.
2. This suggests a balance of experience and adaptability within the organization.

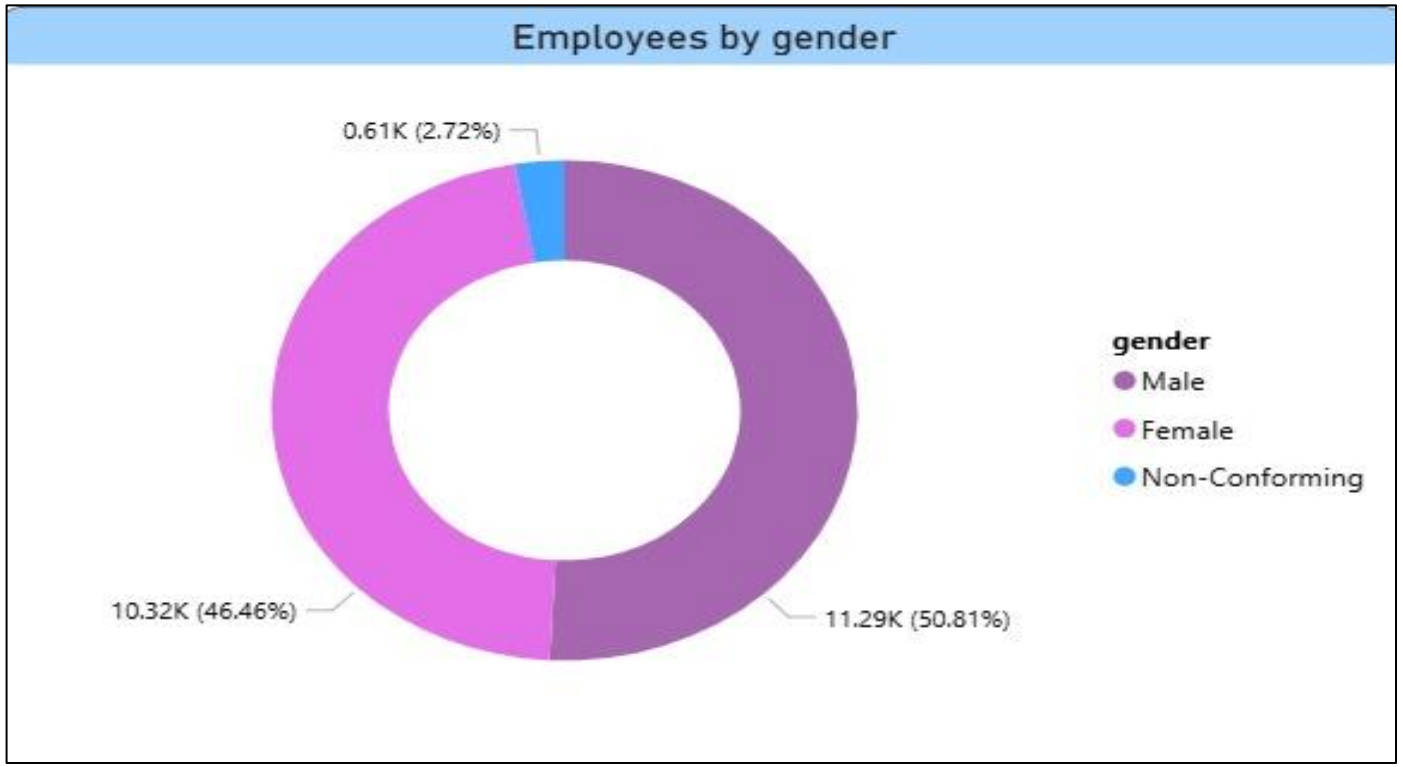
3. Employees hiring trend by year



Insights:

1. **Stable hiring:** From 2001 onward, hiring stayed steady, showing consistent workforce planning.
2. **Early expansion:** The sharp rise between 2000 and 2001 reflects a major growth or restructuring
3. **High-demand years:** Peaks in 2003, 2009, and 2018 indicate periods of business growth or new initiatives.
4. **Temporary slowdowns:** Slight dips around 2014 and 2020 suggest market or cost-related adjustm

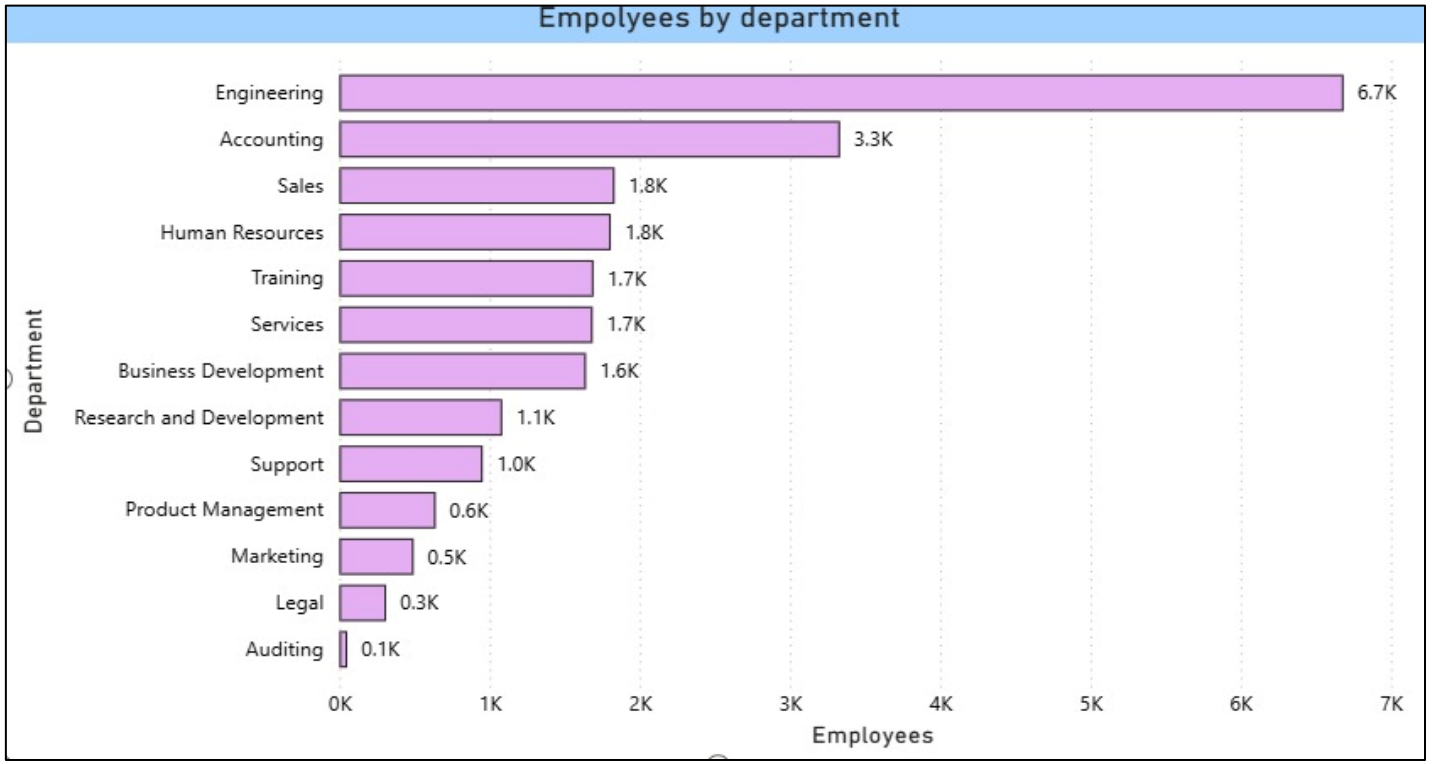
4. Employees gender distribution



Insights:

1. Male had the highest Count of employees at (11.29k), followed by Female at (10.32k) and Non-Conforming at (0.61k).
2. Male accounted for (50.81%) of Count of employees.

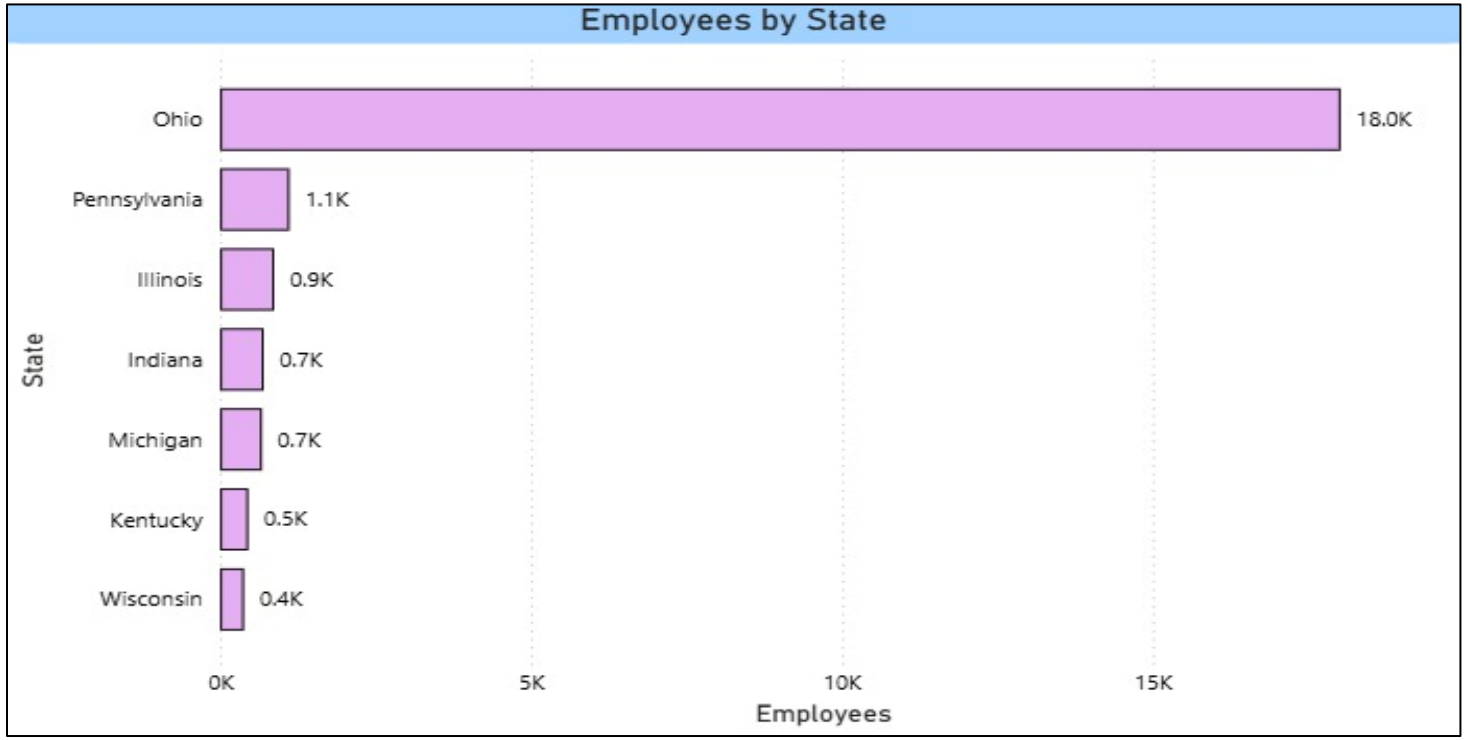
5.(a) Department-wise Employees distribution



Insights:

1. Engineering has the largest workforce (6.7K), showing a strong focus on technical operations.
2. Accounting (3.3K) is the second-largest department, indicating emphasis on financial control.
3. Sales, HR, Training, and Services have balanced staffing, supporting core business functions.
4. R&D and Business Development maintain moderate teams, reflecting selective growth and innova
5. Marketing, Legal(0.3k), and Auditing(0.1k) have smaller teams, suggesting lean support and comp roles.

(b) State-wise employees distribution

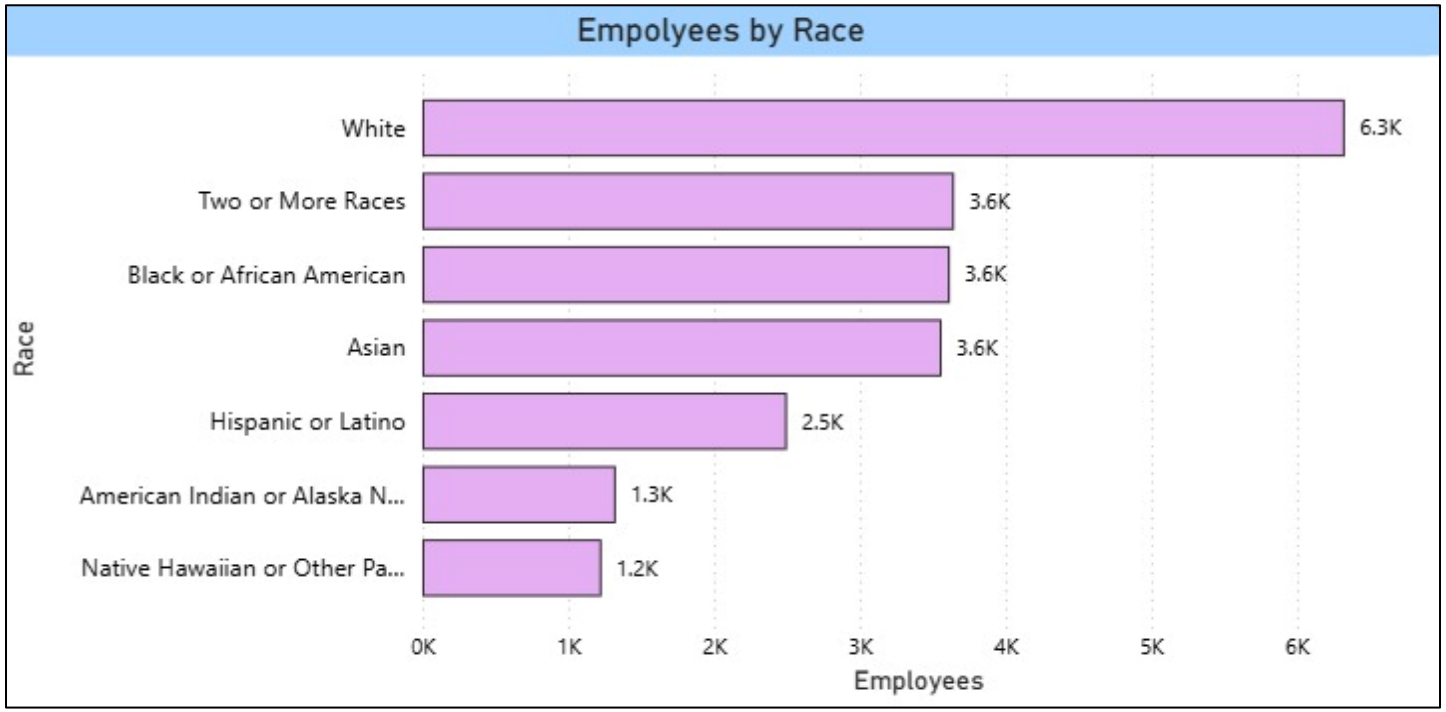


Insights:

1. Ohio has the highest number of employees (18.0K), indicating it as the primary workforce hub.
2. Pennsylvania and Illinois have moderate employee presence, supporting regional operations.
3. Indiana and Michigan show similar workforce levels, reflecting balanced staffing.
4. Wisconsin has the lowest employee count (0.4K), suggesting limited operational presence.

Overall, the workforce is **highly concentrated in Ohio**, with smaller teams across other states.

(c) Race-wise Employees distribution

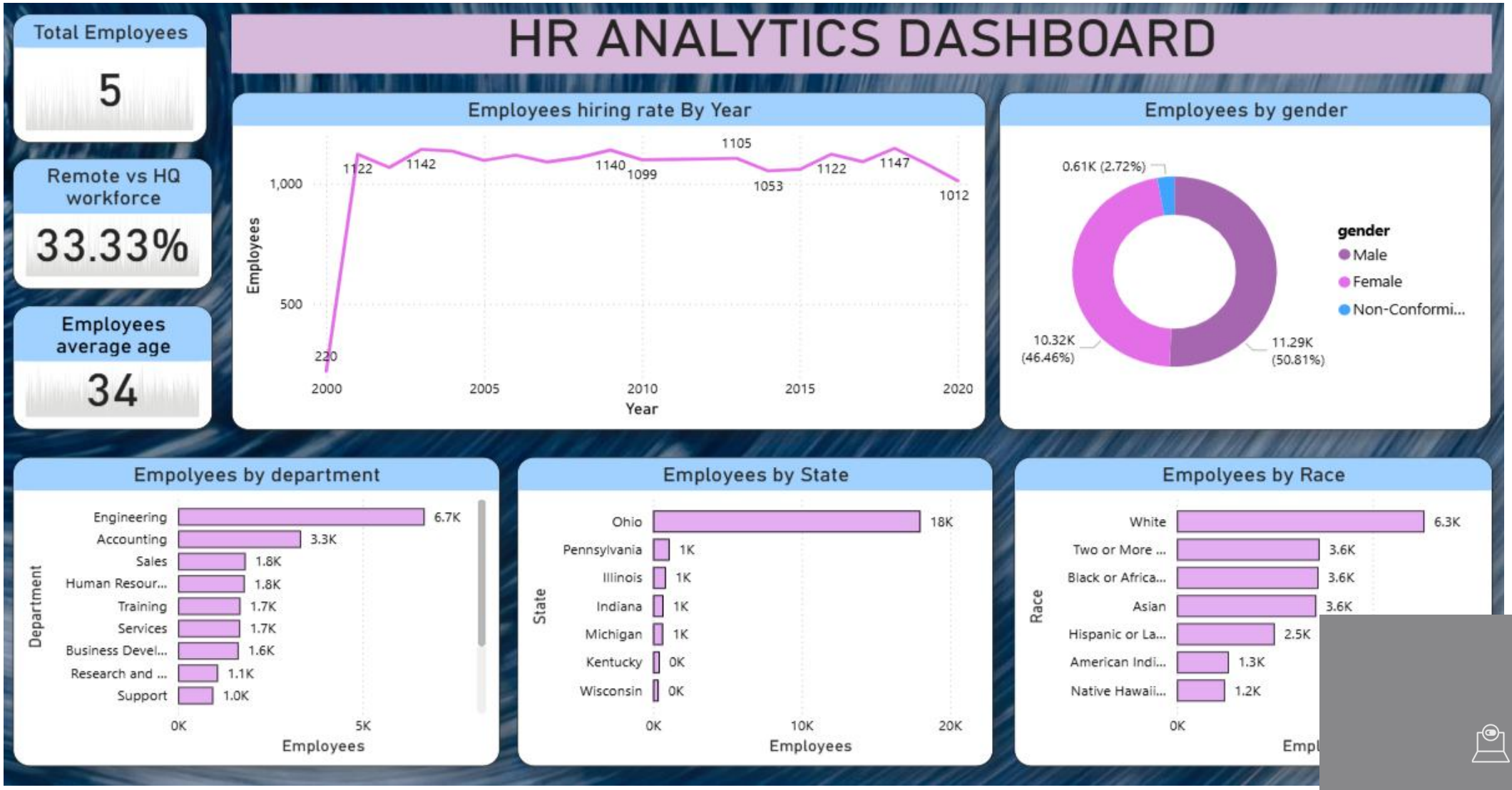


Insights:

1. White employees form the largest group with 6.3K employees.
2. Asian, Black or African American, and Two or More Races show balanced representation (3.6K each).
3. Hispanic or Latino employees account for a moderate share (2.5K).
4. American Indian/Alaska Native and Native Hawaiian groups have the lowest representation (~1.2–1.3K).

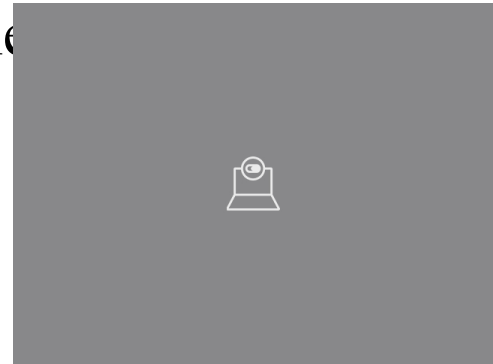
Overall, the workforce shows healthy diversity with room for inclusion growth.

6. HR Analytics dashboard overview



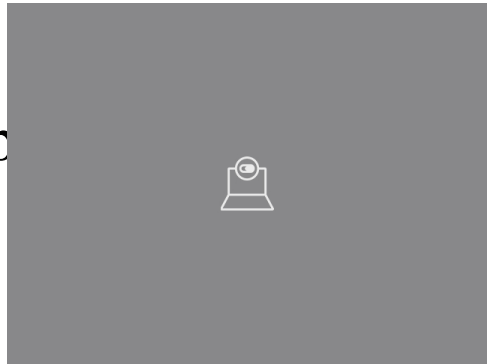
6.a) Workforce overview & insights

- Workforce is stable with a balanced average age of 34, indicating a mature talent pool.
- 33.33% remote employees reflect a flexible and modern work culture.
- Hiring trends show consistent annual growth (~1,100 hires) with controlled expansion.
- Gender distribution is well balanced, supporting diversity and inclusion.
- Workforce is highly concentrated in Ohio, posing geographic dependency risk.
- Racial diversity is present, though some groups remain underrepresented.
- Engineering dominates headcount, highlighting a technology-driven organization.
- Smaller teams like Support and Research may require capacity strengthe



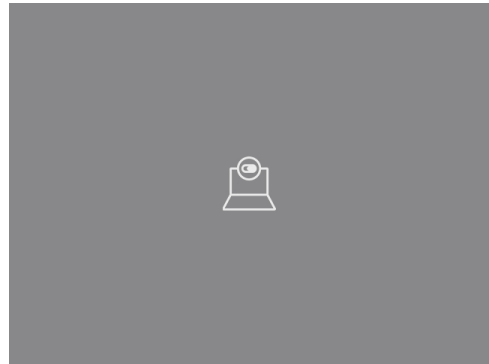
7.a) Inputs

- The organization has a very small workforce, indicating an early or limited operational scale.
- Only a portion of employees work remotely, showing partial adoption of flexible work models.
- The average employee age is 34, reflecting a mid-career workforce.
- Hiring has remained stable over the years with minor fluctuations.
- Gender representation is fairly balanced, with minimal non-conforming representation.
- Engineering dominates the workforce, while support and business functions are understaffed.
- Employees are highly concentrated in a single state.
- The workforce is racially diverse, but representation varies across group



7.b) Suggestions

- Expand remote hiring to attract wider talent, reduce infrastructure costs, and improve work-life balance.
- Hire fresh talent while developing leadership programs for experienced employees.
- Implement strategic, growth-aligned hiring plans rather than year-to-year recruitment.
- Strengthen inclusive hiring practices to enhance diversity and workplace culture.
- Increase staffing in support and business departments to improve operational efficiency.
- Reduce geographic risk by expanding hiring across multiple locations or remotely.
- Track diversity KPIs and ensure equal growth and development opportunities.



Summary

- This HR Analytics project analyzes employee data to support data-driven human resource decision-making. Using Power BI, HR data from a MySQL database was cleaned, transformed, and analyzed to create interactive dashboards and KPIs. The dashboard tracks key workforce metrics such as total employees, location, average age, hiring trends, and employee distribution by gender, state, department, and race. The analysis reveals a stable hiring trend, a hybrid work model, and a mid-career workforce with an average age of 34 years. Engineering emerges as the largest department, while support functions operate with lean staffing.
- From a business perspective, the dashboard enables better workforce planning, supports diversity monitoring, improves hiring strategy alignment, and reduces manual reporting efforts through automated insights.
- In the future, this analysis can be expanded by including attrition and retention metrics, predictive hiring models, employee performance data, and real-time dashboard updates to further enhance strategic HR decision-making.