Detailed Report on Atlas Labs Employee Case Study

Introduction

This case study focuses on analyzing employee data from Atlas Labs using Power BI. The dataset comprised five CSV files:

- **Employee**
- **Ratinglevel**
- **Satisfiedlevel**
- **Performancerating**
- **Educationlevel**

Through data exploration, visualization, and analysis, several insights were derived concerning hiring trends, demographics, performance, and attrition. The project utilized DAX queries extensively for calculations and insights.

Data Overview

The analysis began with a comprehensive exploration of the data to understand its structure, content, and relationships among the different datasets. Key aspects of the exploration included:

1. **Integration**: The five datasets were connected using common attributes, ensuring a unified view.
2. **Data Cleaning**: Missing values, duplicates, and inconsistencies were handled to ensure accurate insights.
3. **Attribute Identification**: Key columns like employee IDs, performance metrics, and demographic details were identified for further analysis.

Key Insights

1. Hiring Trends Over Time

An analysis of the hiring data revealed:

- **Patterns Over the Years**: A timeline of hiring rates showcased how recruitment fluctuated, highlighting peak and slow hiring periods.
- **Departmental Hiring Trends**: Specific departments exhibited consistent growth, indicating higher demand in certain areas.
- **Job Role Trends**: Certain job roles showed significant spikes in hiring, pointing to strategic focus areas.

2. Demographics Analysis

To understand the workforce composition, multiple demographic factors were analyzed:

a. Age and Gender

- **Age Distribution**: Most employees fell within the mid-career age group (25–40), suggesting a workforce with moderate experience.
- **Gender Representation**: The gender split revealed areas for potential improvement in diversity.

b. Marital Status and Ethnicity

- **Marital Status**: Employees were categorized as single, married, or divorced, helping assess familial responsibilities.
- **Ethnicity**: Diverse representation in the workforce was mapped, highlighting inclusivity levels.

3. Performance Tracker

The performance tracker aimed at understanding how employees performed based on various metrics:

- **Rating Levels**: Employee ratings were distributed across different levels to identify high, average, and low performers.
- **Performance Metrics Over Time**: Trends showed consistent improvements or declines in performance, potentially tied to organizational changes.
- **Impact of Education**: A correlation between education levels and performance ratings was observed, providing actionable insights for hiring strategies.

4. Employee Attrition

Attrition analysis was a critical component of the study, focusing on understanding why employees leave and identifying trends:

- **Attrition Ratio**: The overall attrition rate was calculated, with comparisons across departments and job roles.
- **Factors Affecting Attrition**:
    - **Job Satisfaction**: Employees with lower satisfaction levels were more likely to leave.
    - **Performance Levels**: Poor performers showed higher attrition, but some high performers also left, possibly due to better opportunities.
    - **Demographics Impact**: Certain age groups or marital statuses had higher attrition rates.
- **Departmental Analysis**: Attrition trends across departments highlighted specific problem areas.

Methods and Tools

The analysis was powered by **Power BI** and supported by the following techniques:

- **DAX Queries**: Used extensively for measures, calculated columns, and advanced metrics.
- **Interactive Dashboards**: Provided dynamic views into trends and key statistics.
- **Visualization**: Charts, heatmaps, and tables illustrated insights effectively.

DAX Queries Used

1.
```
% Attrition Rate Date =
DIVIDE(
    [InactiveEmployeesDate],
    [TotalEmployeesDate],
    0
)
```

2.
```
AttritionPercent = DIVIDE('Mesures'[InactiveEmployees], 'Mesures'[TotalEmployees])
```

3.
```
AverageSalary = AVERAGE(Employee[Salary])
```

4.
```
EnvironmentSatisfaction = CALCULATE(MAX(PerformanceRating[EnvironmentSatisfaction]),
USERELATIONSHIP(SatisfiedLevel[SatisfactionID],
PerformanceRating[EnvironmentSatisfaction]))
```

5.
```
InactiveEmployees =
CALCULATE(
    COUNT(Employee[EmployeeID]),
    Employee[Attrition] = "Yes"
)
```

6.
```
Inactiveemployeesdate = CALCULATE([InactiveEmployees],
USERELATIONSHIP(Employee[HireDate], DimDate[Date]))
```

7.
```
Jobsatisfaction = MAX(PerformanceRating[JobSatisfaction])
```

8.
```
LastReviewDate =
VAR Last_Date = MAX(PerformanceRating[ReviewDate])
RETURN
    IF(
        ISBLANK(Last_Date),
        "No review has happened",
        FORMAT(Last_Date, "MM/DD/YYYY")
    )
```

9.
```
ManagerRating = CALCULATE(MAX(PerformanceRating[ManagerRating]),
USERELATIONSHIP(PerformanceRating[ManagerRating], RatingLevel[RatingID]))
```

10.
```
NextReviewDate =
VAR Last_Date = MAX(PerformanceRating[ReviewDate])
VAR HireDate = SELECTEDVALUE(Employee[HireDate])
RETURN
    IF(
        ISBLANK(Last_Date),
        FORMAT(HireDate + 365, "MM/DD/YYYY"),
        FORMAT(Last_Date + 365, "MM/DD/YYYY")
    )
```

11.
```
RelationshipSatisfaction = CALCULATE(MAX(PerformanceRating[RelationshipSatisfaction]),
USERELATIONSHIP(SatisfiedLevel[SatisfactionID],
PerformanceRating[RelationshipSatisfaction]))
```

12.
```
SelfRating = CALCULATE(MAX(PerformanceRating[SelfRating]),
USERELATIONSHIP(PerformanceRating[SelfRating], RatingLevel[RatingID]))
```

13.
```
WorklifeBalance = CALCULATE(MAX(PerformanceRating[WorkLifeBalance]),
USERELATIONSHIP(PerformanceRating[WorkLifeBalance], SatisfiedLevel[SatisfactionID]))
```

Conclusion and Recommendations

The case study successfully revealed critical insights into employee demographics, performance, and attrition. The findings are summarized as follows:

1. **Hiring Trends**:
    - Align recruitment strategies with peak demand areas.
    - Focus on departments with the highest turnover to stabilize hiring needs.
2. **Demographics**:
    - Enhance diversity in gender and ethnicity.
    - Tailor employee programs for specific age groups and marital statuses.
3. **Performance Management**:
    - Provide additional training for low performers.
    - Recognize and retain high-performing employees through incentives.
4. **Attrition**:
    - Address job satisfaction to lower attrition.
    - Implement retention strategies for roles with high turnover.

By implementing these recommendations, Atlas Labs can improve workforce management, boost productivity, and foster a healthier organizational culture.

Future Scope

To build upon this study, future efforts could include:

1. **Predictive Analysis**: Use machine learning models to predict attrition risk.
2. **Employee Feedback Integration**: Incorporate survey data for qualitative insights.
3. **Continuous Monitoring**: Set up automated dashboards for real-time monitoring of key metrics.

This case study demonstrates the power of data-driven decision-making and sets the foundation for ongoing improvement at Atlas Labs.