VisionTech Solutions - HR Analytics Project Documentation
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Project Overview

The objective of this project was to analyze HR data from VisionTech Solutions to uncover key insights related to employee demographics, attrition, and performance. We aimed to build an interactive and user-friendly Power BI dashboard to enable the HR team to make data-driven decisions that improve employee retention and organizational development.

Data Sources

We received five CSV files containing:

- **DimEmployee**: Employee demographic and job information.

- **DimEducationLevel**: Education level details.

- **DimRatingLevel**: Performance rating levels.

- **DimSatisfiedLevel**: Satisfaction levels.

- **FactPerformanceRating**: Employee performance metrics and reviews.

Data Preparation

Using Power Query Editor, we:

- Renamed tables with prefixes (**Fact** for fact table and **Dim** for dimension tables).

- Removed irrelevant columns.

- Reorganized columns for better readability.

- Created calculated columns:

    - **Age Bins** (categorized age ranges).

    - **Distance from Home Bins** (categorized commuting distance).

- o **Full Name** (combining first and last name).
- Built a **dedicated Date Table** using DAX to enable time intelligence functions.

Data Modeling

We structured the model using a star schema:

- **FactPerformanceRating** is the central fact table.
- Connected to:
  - o **DimEmployee** via EmployeeID.
  - o **DimEducationLevel** via EducationLevelID.
  - o **DimDate** via ReviewDate.
  - o **DimRatingLevel** via RatingID.
  - o **DimSatisfiedLevel** via SatisfactionID.

Relationships:

- Active and inactive relationships were carefully managed to enable precise DAX calculations.
- One-to-many relationships were used where appropriate.

Measures Created (DAX)

Key measures include:

- Total Employees
- Active Employees
- Inactive Employees
- Attrition Rate (%)
- Average Salary
- Attrition Rate by Year

Dashboard Pages Overview

1. Overview Page

- **KPIs**: Total Employees, Active Employees, Inactive Employees, Attrition Rate.

- **Visuals**:

    o Employee hiring trends by year.

    o Active employees by department.

    o Active employees by department and job role.

2. Demographics Page

- **KPIs**: Youngest and Oldest Employee.

- **Visuals**:

    o Employees by age bin.

    o Gender distribution.

    o Marital status breakdown.

    o Ethnicity and average salary analysis.

3. Performance Tracker Page

- **Visuals**:

    o Job satisfaction trend.

    o Relationship satisfaction trend.

    o Self-rating trend.

    o Environment satisfaction trend.

    o Work-life balance trend.

    o Manager rating trend.

- **Details**:

    o Start Date, Last Review Date, Next Review Date for each employee.

4. Attrition Page

- **Visuals**:

- Attrition rate by department and job role.
- Attrition by travel frequency.
- Attrition by overtime requirement.
- Attrition by hire date.
- Attrition by tenure (years at company).

Findings (Summary)

1. **Overall attrition rate** is relatively high at 16.1%.
2. **Sales Representatives** and **Recruiters** show the highest attrition rates (~40%).
3. **Frequent travelers** have significantly higher attrition rates than employees who travel less or none.
4. **Employees working overtime** have higher turnover rates.
5. **New hires within 0-2 years** are the most vulnerable to resignations.
6. **Majority workforce is young** (ages 20-29), requiring strong career development programs.
7. **Salary disparities exist** across ethnicities.
8. **Performance satisfaction metrics** (environment, work-life balance, manager rating) show fluctuation, indicating some internal organizational challenges.

Recommendations (Action Plan)

1. **Enhanced Onboarding and Support Programs**
   - Implement structured onboarding processes.
   - Regular mentoring and performance check-ins during the first two years.
2. **Address Sales and Recruitment Work Conditions**
   - Investigate workload, compensation, and management practices.
   - Provide additional incentives or redesign roles if necessary.
3. **Review Business Travel Policies**

- o   Reduce mandatory travel where possible.

- o   Offer travel perks or alternatives like remote engagements.

4. **Manage Overtime Policies**

- o   Limit overtime hours.

- o   Provide additional pay, benefits, or time off to compensate for extra work.

5. **Promote Work-Life Balance Initiatives**

- o   Flexible working hours.

- o   Remote working opportunities.

- o   Well-being programs.

6. **Ensure Pay Equity**

- o   Conduct regular pay equity audits.

- o   Correct salary gaps across different ethnicities and roles.

7. **Strengthen Managerial Training**

- o   Train managers on effective communication, team building, and empathy.

- o   Regular feedback mechanisms between employees and management.

8. **Focus on Career Development for Young Employees**

- o   Launch skill development programs.

- o   Clear career progression paths.

- o   Opportunities for promotions and leadership roles.

Conclusion

The HR Analytics project provided VisionTech Solutions with a clear, data-driven view of its workforce dynamics. Through our insights, the company can now strategically address areas of concern, enhance employee engagement, and significantly improve retention rates. By implementing the recommended actions, VisionTech Solutions can build a healthier, more resilient, and future-ready workplace.