

A group of diverse business professionals in an office setting, smiling and cheering, with laptops and charts in the background.

HR Analytics

HR Analytics Using Power BI

Aakash Ashok Satpute

Power BI

Power BI is a powerful business analytics tool that allows users to visualize and share insights from their data. It enables the creation of interactive dashboards and reports, making it easier to analyze trends, track performance, and make data-driven decisions.

It connects to a wide range of data sources such as Excel, databases, cloud services, and web APIs. Also Power BI supports real-time data monitoring and updating of dashboards.



Power BI





I Project Overview

The Human Resource Report provides a comprehensive view of employee data across various departments and business units. Its primary purpose is to support HR decision-making by offering insights into workforce demographics, job classifications, job satisfaction, performance ratings, and other key metrics.

Dataset

18	18-25	Yes	Travel_Rare	230	Research & Dev	3	3	Life Sciences	1	405	3	Male	54	3	1	Laboratory	3	Single
18	18-25	No	Travel_Rare	812	Sales	10	3	Medical	1	411	4	Female	69	2	1	Sales Rep	3	Single
18	18-25	Yes	Travel_Frequent	1306	Sales	5	3	Marketing	1	614	2	Male	69	3	1	Sales Rep	2	Single
18	18-25	No	Non-Traveler	287	Research & Dev	5	2	Life Sciences	1	1012	2	Male	73	3	1	Research & Dev	4	Single
18	18-25	Yes	Non-Traveler	247	Research & Dev	8	1	Medical	1	1156	3	Male	80	3	1	Laboratory	3	Single
18	18-25	No	Non-Traveler	1124	Research & Dev	1	3	Life Sciences	1	1368	4	Female	97	3	1	Laboratory	4	Single
18	18-25	Yes	Travel_Frequent	544	Sales	3	2	Medical	1	1624	2	Female	70	3	1	Sales Rep	4	Single
18	18-25	No	Non-Traveler	1431	Research & Dev	14	3	Medical	1	1839	2	Female	33	3	1	Research & Dev	3	Single
19	18-25	Yes	Travel_Rare	528	Sales	22	1	Marketing	1	167	4	Male	50	3	1	Sales Rep	3	Single
19	18-25	No	Travel_Rare	1181	Research & Dev	3	1	Medical	1	201	2	Female	79	3	1	Laboratory	2	Single
19	18-25	Yes	Travel_Frequent	602	Sales	1	1	Technical	1	235	3	Female	100	1	1	Sales Rep	1	Single
19	18-25	Yes	Travel_Rare	303	Research & Dev	2	3	Life Sciences	1	243	2	Male	47	2	1	Laboratory	4	Single
19	18-25	Yes	Travel_Rare	489	Human Resources	2	2	Technical	1	566	1	Male	52	2	1	Human Resources	4	Single
19	18-25	Yes	Travel_Rare	419	Sales	21	3	Other	1	959	4	Male	37	2	1	Sales Rep	2	Single
19	18-25	No	Travel_Rare	645	Research & Dev	9	2	Life Sciences	1	1193	3	Male	54	3	1	Research & Dev	1	Single
19	18-25	Yes	Non-Traveler	504	Research & Dev	10	3	Medical	1	1248	1	Female	96	2	1	Research & Dev	2	Single
19	18-25	No	Travel_Rare	265	Research & Dev	25	3	Life Sciences	1	1269	2	Female	57	4	1	Research & Dev	4	Single
20	18-25	Yes	Travel_Frequent	871	Research & Dev	6	3	Life Sciences	1	137	4	Female	66	2	1	Laboratory	4	Single
20	18-25	No	Travel_Rare	959	Research & Dev	1	3	Life Sciences	1	657	4	Female	83	2	1	Research & Dev	2	Single
20	18-25	Yes	Travel_Rare	1362	Research & Dev	10	1	Medical	1	701	4	Male	32	3	1	Research & Dev	3	Single
20	18-25	Yes	Travel_Rare	500	Sales	2	3	Medical	1	922	3	Female	49	2	1	Sales Rep	3	Single
20	18-25	Yes	Travel_Rare	129	Research & Dev	4	3	Technical	1	960	1	Male	84	3	1	Laboratory	1	Single
20	18-25	Yes	Travel_Rare	1097	Research & Dev	11	3	Medical	1	1016	4	Female	98	2	1	Research & Dev	1	Single
20	18-25	Yes	Travel_Frequent	769	Sales	9	3	Marketing	1	1077	4	Female	54	3	1	Sales Rep	4	Single
20	18-25	No	Travel_Rare	805	Research & Dev	3	3	Life Sciences	1	1198	1	Male	87	2	1	Laboratory	3	Single
20	18-25	No	Travel_Rare	654	Sales	21	3	Marketing	1	1226	3	Male	43	4	1	Sales Rep	4	Single
20	18-25	No	Travel_Rare	1141	Sales	2	3	Medical	1	1657	3	Female	31	3	1	Sales Rep	3	Single
20	18-25	No	Travel_Rare	727	Sales	9	1	Life Sciences	1	1680	4	Male	54	3	1	Sales Rep	1	Single
21	18-25	No	Travel_Rare	391	Research & Dev	15	2	Life Sciences	1	30	3	Male	96	3	1	Research & Dev	4	Single

Dashboard Overview



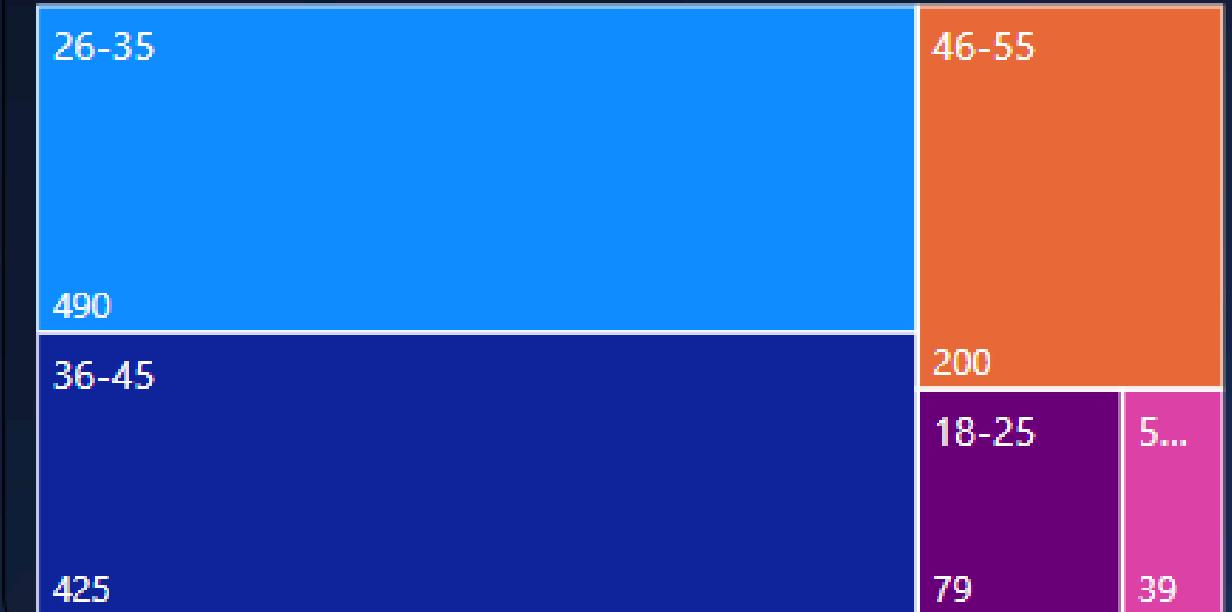


Employee Count by EducationField

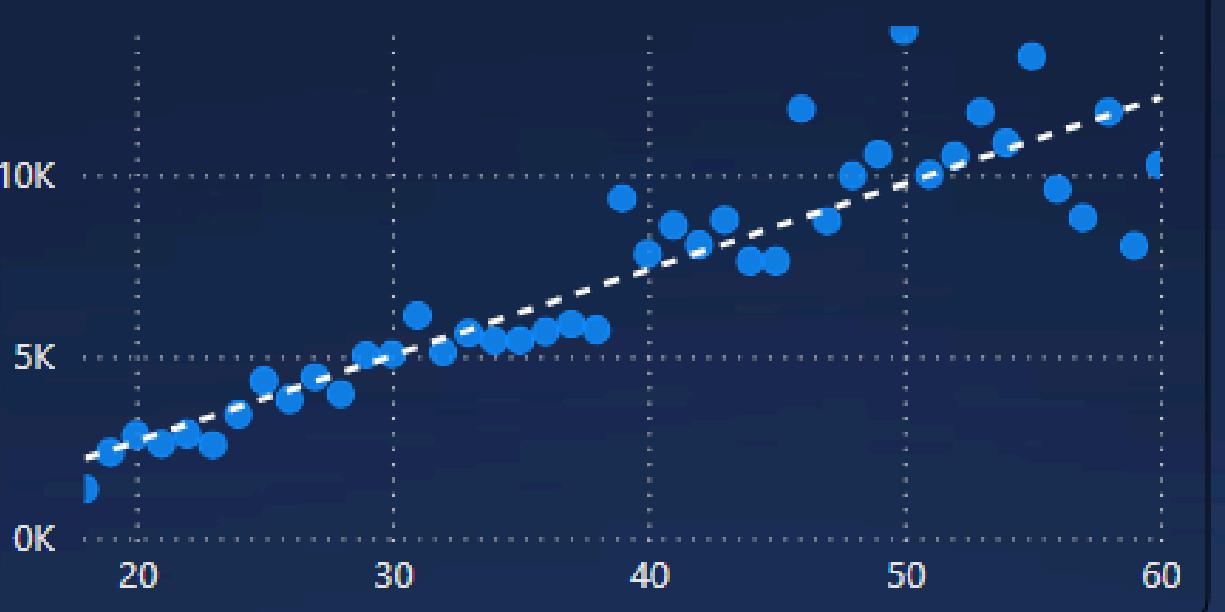


JobRole	Employee Count	Av. Age	Av. Job Satis.	Av. Salary	Av. Hike	Gender Ratio	Overtime %	Average Years
Healthcare Representative	122	40	2.77	7535	15.6	61%	29%	8
Human Resources	40	37	2.68	4392	15.1	33%	20%	6
Laboratory Technician	197	35	2.78	3373	14.9	54%	16%	6
Manager	97	47	2.72	17201	15.2	87%	24%	14
Manufacturing Director	135	38	2.67	7409	15.8	101%	26%	8
Research Director	78	44	2.71	15947	15.0	70%	28%	11
Research Scientist	245	35	2.83	3344	15.3	66%	26%	5
Sales Executive	269	37	2.80	6869	14.9	71%	23%	8
Sales Representative	50	32	2.90	2858	16.0	79%	16%	3
Total	1233	38	2.78	6879	15.2	68%	23%	7

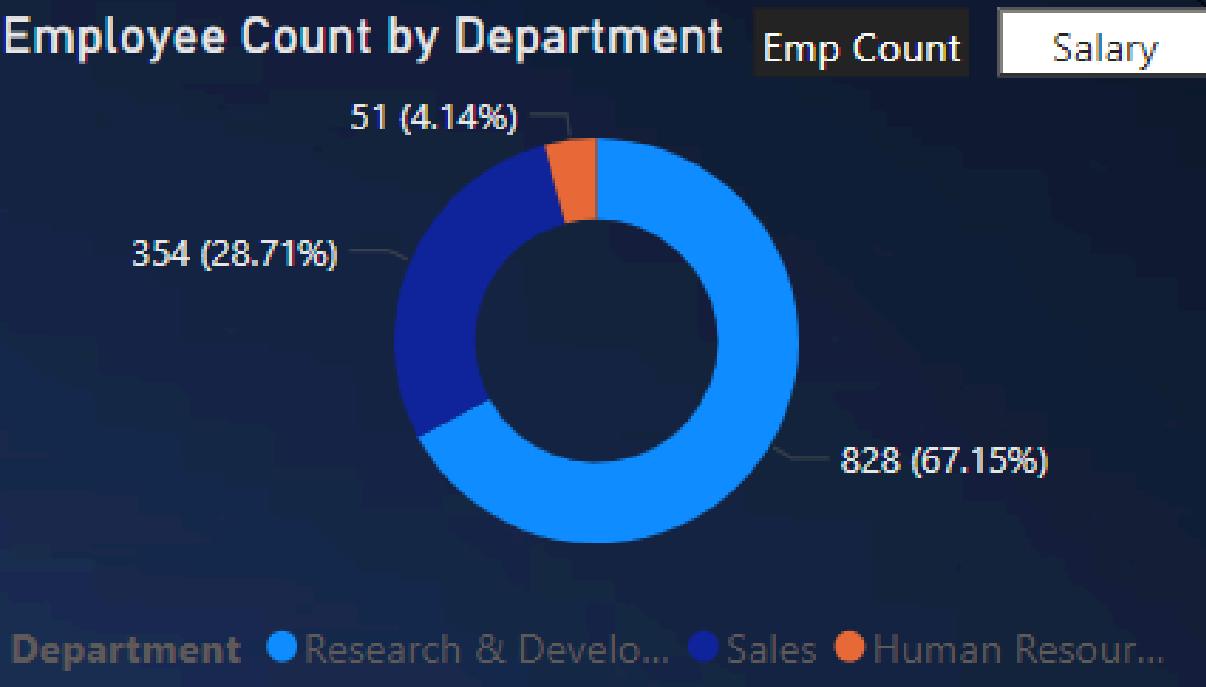
Employee Count by AgeGroup

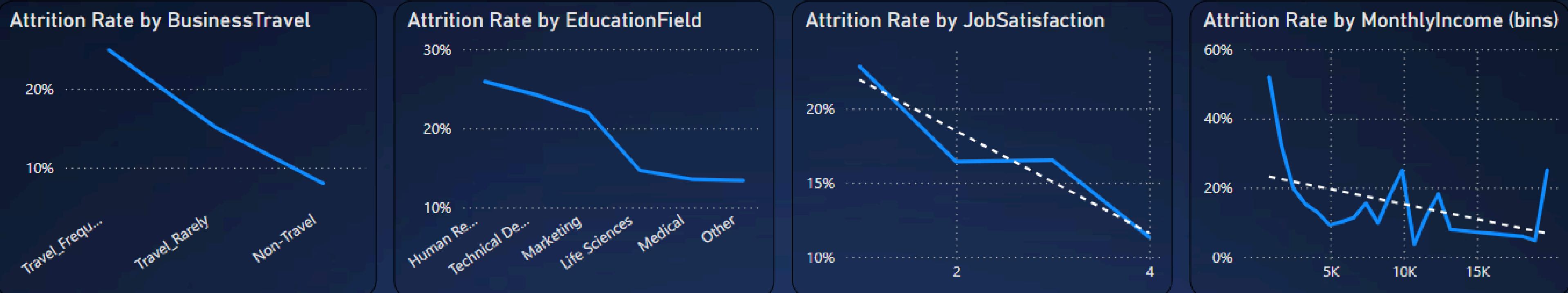
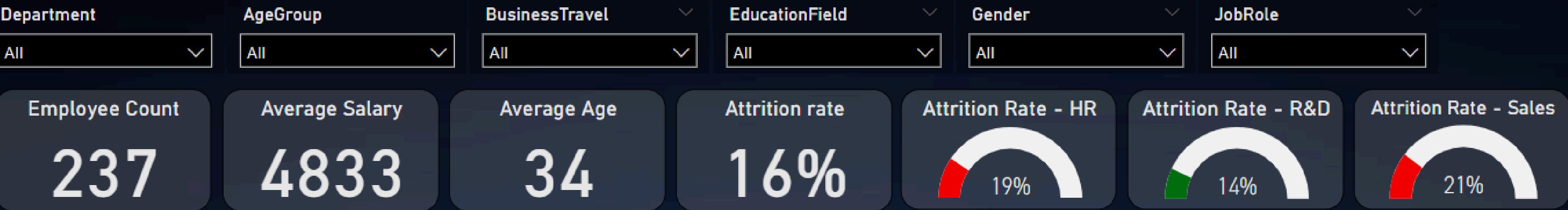


Average Salary by Age



Employee Count by Department





DAX Measures

To define the KPIs and DAX measures in Power BI, we need to use the Modeling tab and the DAX language. The Modeling tab is where we can create and manage the KPIs and DAX measures in our data model. The DAX language is the formula language that we use to define the logic and calculation of the KPIs and DAX measures.



```
//Measures for attrition Target  
Attrition Target = 0.2  
  
//Measures to calculate Average Age  
Average Age = AVERAGE(HR_Analytics[Age])  
  
//Measures to calculate Average Job Satisfaction  
Average Job Satisfaction = AVERAGE(HR_Analytics[JobSatisfaction])  
  
//Measures to calculate Average Monthly Salary  
Average Salary = [Monthly Salary]/[Employee Count]  
  
//Measures to calculate Average Salary Hike  
Average Salary Hike = AVERAGE(HR_Analytics[PercentSalaryHike])  
  
//Measures to calculate Average Years at Company  
Average Years = AVERAGE(HR_Analytics[YearsAtCompany])  
  
//Measures to calculate Employee Count  
Employee Count = DISTINCTCOUNT(HR_Analytics[EmplID])  
  
//Measures to calculate Gender Ratio  
  
Gender Ratio =  
DIVIDE (  
    CALCULATE ( [Employee Count], HR_Analytics[Gender] = "Female" ),  
    CALCULATE ( [Employee Count], HR_Analytics[Gender] = "Male" ),  
    0  
)  
  
//Measures to calculate Monthly Salary  
Monthly Salary = SUM(HR_Analytics[MonthlyIncome])
```

Observations



- The employee attrition rate is 16%, which is higher than the industry average of 12%. The main reasons for attrition are low salaries, high workload, and lack of career growth opportunities.
- The employee diversity and inclusion analysis reveals that there is a significant gap in gender representation, especially in HR, where only 33% are female. The education field is also dominated by Life Sciences & Medical, which accounts for more than 50% of the employees.
- Attrition rates vary across departments, with Sales (21%), R&D (19%), and HR (14%) having the highest rates.
- Among job roles, Sales Representatives (40%), Laboratory Technicians (24%), and Human Resources Specialists (23%) have the highest attrition rates.



Future Enhancement

1. Integrate predictive analytics to forecast attrition rates and identify risk factors.
2. Add real-time dashboards for dynamic decision-making.
3. Incorporate employee feedback surveys to analyze job satisfaction.
4. Include benchmarking data to compare performance with industry standards.

A group of four professionals are shown in an office environment. A man in a blue shirt and tie is on a phone call. A woman in a light blue dress is looking down at a laptop. Another man in a grey suit is looking at a tablet. A fourth person's hands are visible on the right, also working on a laptop. They are all focused on their respective devices.

THANK YOU

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AAKASH ASHOK SATPUTE