1. **Introduction and Objectives**

In today’s competitive business environment, understanding why employees leave is critical so after creating some static visualizations on the creating some static chart task, moving to this section we will build a dashboard by using Power BI to answer the following questions that I observed from the dataset, this report will focus on answering 3 main questions about the HR issues in the company:

* **Q1:** How do turnover rates change with years of experience in each department, and do they spike when job satisfaction is low?
* **Q2:** How does working overtime affect turnover across different job roles, and can differences in workload explain the changes?
* **Q3:** How does overtime-related turnover connect with job satisfaction and job roles, and what does this suggest for improving HR strategies?

1. **Dashboard Layout and Structure:**

**A screenshot of a graph

AI-generated content may be incorrect.**

**Figure 1: Human Resources Dashboard**

The dashboard is organized into several blocks of chart, including a mix of bar charts and line charts. These various types of charts can provide insights from a different perspective of employee attrition which can target a specific angle of the attrition story. One visualization focuses on the direct impact of overtime on employee turnover. Others highlight how attrition varies by job role and job satisfaction, as well as across different tenure groups and departmental boundaries. On the next section we will deep dive in some questions that relate to the dashboard.

1. **Q1: How do turnover rates change with years of experience in each department, and do they spike when job satisfaction is low?**

The dashboard has an "Attrition Rate by YearsAtCompany" chart (bottom right). This directly addresses the change in turnover rates with years of experience. By filtering by department (e.g., HR, R&D, Sales ), we can observe these trends within specific areas of the company. For instance, attrition appears notably high in the initial years across departments and can show later spikes, such as around 20-25 years in some areas.

A screenshot of a graph

AI-generated content may be incorrect.

**Figure 2: Attrition year with HR Department**

According to the human resources dashboard, employees who work overtime have a higher attrition rate (29.4%) than those who don't (15.2%), implying that overtime causes employee burnout or dissatisfaction.

The attrition rate job is 23.0 percent, this indicating that HR employees face unique challenges or pressures, resulting in higher turnover for this roles. It's also clear that job satisfaction is also important, showing that with a lower satisfaction levels linked with higher turnover (54.7% at the lowest level), whereas happier employees can contribute longer for the company in the long run.

Finally, an attrition spike between 5 and 10 years of working, followed by a drop and rise after a period of 15 years, hypothesising a circumstance which they can have mid-career stagnation or late-career shifts.

A screenshot of a computer screen

AI-generated content may be incorrect.

**Figure 3: Attrition year with R&D Department**

Working overtime resulted in a much greater attrition rate (27.31%) than not working extra (8.55%), indicating that OT may be a contributing negative effect that pushing the employee to be burnout or discontent, which leads to drop out.  
  
The laboratory technician role has the greatest attrition rate (23.94%), indicating that this specific employment role may face with unique obstacles, high pressures, or high market demands, increasing the possibility of people giving up their job. In contrast, research directors have the lowest attrition rate (2.19%).  
  
There is a clear inverse relationship between job satisfaction and attrition. Employees with the lowest job satisfaction (Level 1) have a very high attrition rate (43.77%), while those with the highest job satisfaction (Level 4) have a considerably lower attrition rate (9.21%). This underscores the importance of employee contentment in retention.  
  
The attrition rate by years at the company displays a fluctuating pattern. There's an initial attrition rate of 17.33% for new employees, which then generally declines, reaching a low of 5.43% around the 7-year mark. Subsequently, the attrition rate steadily increases, peaking dramatically at 100% for employees with 40 years of service, possibly indicating retirements or late-career transitions.

A screenshot of a graph

AI-generated content may be incorrect.

**Figure 4: Attrition year with Sales Department**

According to the sales department dashboard, employees who work overtime have a significantly higher turnover rate (37.50%) than those who do not (13.64%). This strongly suggests that overtime contributes significantly to burnout or discontent among salespeople, resulting in higher turnover.  
  
Within the studied job roles, "sales representative" had the highest attrition rate of 39.76%, indicating that this frontline sales role experiences significant demands or problems, resulting in a higher churn rate. "sales executive" follows with a 17.48% attrition rate, while "manager" has the lowest attrition rate at 5.41% in this filtered view.  
  
Job satisfaction is significant in determining turnover in the sales sector. Employees with the lowest job satisfaction (Level 1) have a high attrition rate of 28.47 percent. Job satisfaction generally reduces turnover, with Level 4 satisfaction leading to a 15.32% attrition rate.

1. **Q2: How does working overtime affect turnover across different job roles, and can differences in workload explain the changes?**

In this section, we will be focusing on the top 3 main job role (sale representative, laboratory technician and human resource) that have highest attrition rate which they can represent for the 3 main departments in the dataset.

**Sales department:**

A screenshot of a graph

AI-generated content may be incorrect.

**Figure 5: Sale Representative Filter**

For example, the sales representative has the highest rate (39.76%); the more they work overtime, the more likely they are to drop out soon (66.67%); if they do not survive in the first two years to specify, it will start at 57.14% and remaining high at 56.52% after one year, before dropping to 22.22% at the two-year mark, the likelihood of dropping out will be high, not including the attrition rate, which decreases slowly but remains high; after they work for two years, they will decide whether to find a new job or stay with the company (mostly, they do not choose to stay; they simply use IBM's fame as a foundation). Not disclosing the job statistics is also extraordinarily high. Looking more in the figure below.

A screenshot of a graph

AI-generated content may be incorrect.

**Figure 6: Sale Department Filter (Specify for Sales Representative)**

**R&D department:**

A screenshot of a computer

AI-generated content may be incorrect.

**Figure 7: Laboratory Technician Filter**

Overtime increases attrition for laboratory technicians role. Overtime workers had a 50.00% attrition rate, compared to 15.74% for non-overtime workers. The second-highest turnover rate among employment roles is 23.94% for laboratory technicians.  
New laboratory technicians have a high initial attrition rate (63.64%) that drops significantly over time. Attrition spikes to 50.00% at 17 years. Laboratory Technicians at the lowest satisfaction level (Level 1) have a 7.49% attrition rate, compared to 12.49% at Level 4, suggesting a nuanced relationship between satisfaction and attrition for this role or smaller sample sizes at different satisfaction levels.

A screenshot of a computer screen

AI-generated content may be incorrect.

**Figure 8: R&D Department Filter (Specify for Laboratory Technician)**

**HR Department:**

A screenshot of a computer screen

AI-generated content may be incorrect.

**Figure 9: Human Resource Filter**

Overtime may contribute a negative effect that leading a result of turning-over in Human Resources, since overtime workers have a 38.46% attrition rate compared to 17.95% who do not. Human Resources has 23.08% attrition, third highest of the roles shown.  
Job satisfaction and attrition are linked. The dashboard shows attrition is selected ("Yes"), however HR's attrition rates per satisfaction level are not shown, despite the bars suggest higher attrition at lower satisfaction levels. The "Attrition Rate by YearsAtCompany" for HR professionals starts at 80.00% for new hires, drops to 25.00% after one year, peaks at 33.33% at 7 years, and rises to 100% for very long-tenured personnel.

A screenshot of a graph

AI-generated content may be incorrect.

**Figure 10: Human Resource Department (Sepcify for Human Resource)**

No workload include, need more data

**Limitation:** The dashboard shows *if* employees work overtime, but it doesn't explicitly quantify "workload." "Works Overtime Yes/No" is a binary measure. To explain changes based on *differences* in workload, you'd ideally need more granular data on workload (e.g., average hours of overtime, project load, etc.) correlated with job roles and attrition. The current dashboard doesn't provide this level of workload detail

1. A screenshot of a computer

   AI-generated content may be incorrect.**Q3: How does overtime-related turnover connect with job satisfaction and job roles, and what does this suggest for improving HR strategies?**

**Figure 11: Overtime filter (No)**

A screenshot of a computer screen

AI-generated content may be incorrect.Consistent overtime work led to a nearly increase in attrition rates, with 30.53% of those working overtime leaving compared to 10.44% of those not working overtime, indicating a significant factor in turnover from both dashboard perspectives.  
  
Both dashboards indicate a consistent pattern where decreased work satisfaction is associated with increased attrition rates, ranging from approximately 7% at the highest satisfaction levels to about 11-12% at the lowest.  
  
  
The attrition rate associated with overtime (30.53%) is significantly higher than the highest attrition statistics linked to low job satisfaction. This indicates that overtime serves as a significant stressor for employees, potentially leading to turnover irrespective of other satisfaction factors or markedly diminishing job satisfaction to the extent of attrition. Working overtime is consistently linked to a significantly higher risk of attrition.

**Figure 12: Overtime filter (Yes)**

**Recommendation:**

1. **Manage and Mitigate Overtime:**

* **Problem:** The data consistently shows a strong correlation between working overtime and significantly higher attrition rates.
* **HR Strategies:** 
  + **Flexible work arrangements:** Where feasible, offer flexible schedules or compressed workweeks to help employees manage their work-life balance, even if occasional overtime is necessary.
  + **Overtime policy review:** Implement clear policies regarding overtime, ensuring it's used exceptionally rather than routinely, and that employees are fairly compensated or given time off.

1. **Enhance Job Satisfaction:**

* **Problem:** Lower job satisfaction consistently correlates with higher attrition.
* **HR Strategies:** 
  + **Regular feedback mechanisms:** Implement and actively use employee surveys, stay interviews.
  + **Career development and growth opportunities:** Provide clear paths for advancement, training, and skill development to keep employees engaged and feeling valued.
  + **Recognition and rewards:** Implement programs that recognize contributions and reward performance, fostering a positive work environment.
  + **Supportive management:** Train managers in people skills, empathetic leadership, and how to support their teams' well-being.
  + **Work environment and culture:** Foster a positive, inclusive, and supportive workplace culture.

1. **Improve onboarding and early tenure support:**

* **Problem:** Many roles showed high attrition within the first few years.
* **HR strategies:** 
  + **Comprehensive onboarding:** Ensure new hires understand their roles, and receive training and support from day one.
  + **Mentorship programs:** Pair new employees with experienced mentors to guide them during their initial period.
  + **Early check-ins:** conduct regular check-ins during the first year to identify and address any emerging issues proactively.

1. **Conclusion and Insight**

In conclusion, this interactive dashboard demonstrates that overtime and low job satisfaction are significant factors driving employee attrition, with exceptional roles, such as Sales Representatives and Laboratory Technicians, being especially vulnerable. The findings highlight the critical need for targeted HR strategies, such as revising overtime policies, improving job satisfaction programs, and providing tailored support for high-risk roles, in order to improve retention and promote a stable workforce.