

ATLAS LABS

HUMAN RESOURCES ATTRITION

DATA ANALYST REPORT



2012 - 2022

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WELCOME TO HR ANALYSIS REPORT



“

**High turnover
slows productivity
and drives up
hiring costs.**

Atlas Labs is experiencing these effects as rising employee exits create workflow disruptions and elevate training and onboarding demands.

Introduction

These challenges highlight the need to understand the underlying causes of attrition.

This report provides an analytical review of employee attrition, focusing on identifying key drivers of turnover and generating data-driven insights. The goal is to support more effective retention strategies and improve workforce stability.

Table of Contents



01.

Data Model Overview

Exploring the structure of the data and its analytical foundation.

02.

Data Visualization and Analysis

Providing company-level and segment-based analysis to uncover important workforce patterns

03.

Proposed Solutions

Using attrition insights to enhance employee experience and reduce turnover.

Business Questions

01. What are the key workforce patterns reflected in the HR metrics?
02. Which factors most strongly contribute to employee attrition across different employee groups?
03. What strategic interventions can effectively reduce turnover and improve workforce stability?

Data Model Overview

Import all data files into Power BI.

File PerformanceRating.csv

The **PerformanceRating** table stores employee performance evaluations from 2012–2022, including Performance ID, Employee ID, and Review Date. It captures job satisfaction, work-life balance, training, and both self- and manager ratings, supporting analysis of performance trends and employee engagement.

File Employee.csv

The **Employee** table contains core demographic and employment information for each employee. It includes identification details, personal attributes, work-related characteristics, and employment history, which are essential for workforce analysis and attrition modeling. Key fields include employee demographics, job roles, compensation, tenure, and career progression indicators.

File EducationLevel.csv

The **EducationLevel** table provides standardized classifications of employee education levels. It includes a numeric identifier and a descriptive label for each level of education. This table is used as a reference to support consistent reporting and analysis related to employee qualifications.

File RatingLevel.csv

The **RatingLevel** table contains standardized categories for employee performance ratings. It has a numeric ID and a descriptive label for each rating, serving as a reference to ensure consistent reporting and analysis of employee performance.

File SatisfiedLevel.csv

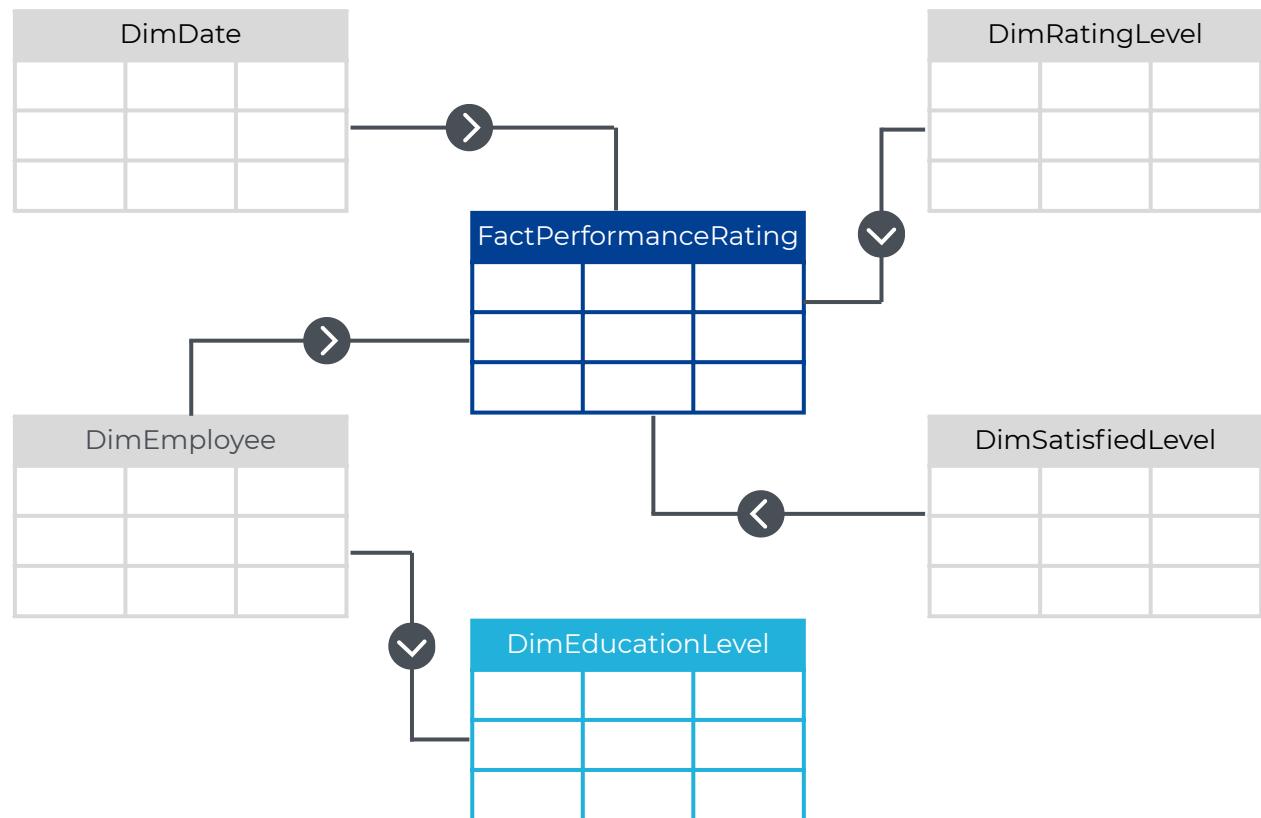
The **SatisfiedLevel** table contains standardized categories for employee satisfaction levels. It includes a numeric identifier and a descriptive label for each level, such as Very Dissatisfied, Dissatisfied, Neutral, Satisfied, and Very Satisfied, supporting consistent reporting and analysis of employee satisfaction.



Data Model Overview

DATA PREPARATION AND MODELING

- Imported and standardized datasets
- Created a date table to track review periods.
- Checked and corrected data for consistency.
- Built a **snowflake schema** for efficient analysis.



Notes:

- *Dim (Dimension):* Contains descriptive information about entities for filtering and grouping data.
- *Fact:* Contains actual data and quantitative measures for aggregation and analysis.
- *Arrow (→):* Represents the relationship from Dim → Fact, showing the data filter flow.



Data Visualization and Analysis

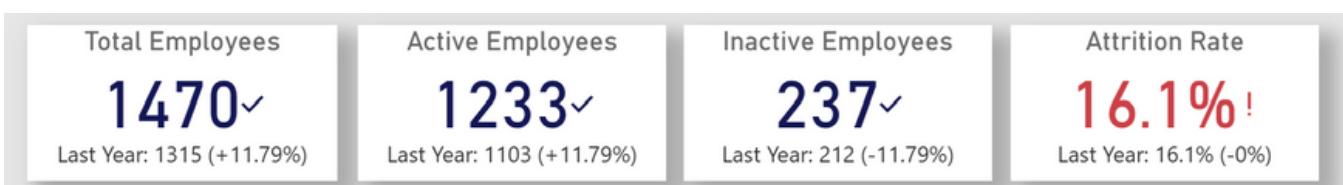
01 Overview Analysis

➤ Workforce Overview



“The key challenge is not whether AtlasLab can hire fast enough, but whether it can retain its critical talent as the company scales.

Atlas Labs's workforce is heavily concentrated in the Technology department, which accounts for the largest share of employees, confirming the company's positioning as a technology-driven organization. The Sales department represents a smaller but strategically important group that commercializes the company's technical solutions. Human Resources has the smallest headcount, functioning as a lean support team that enables hiring, retention, and workforce operations.



From 2012 to 2022, Atlas Labs experienced steady workforce growth despite ongoing attrition challenges. Over the decade, the company expanded its employee base through sustained hiring efforts, reaching a total headcount of **1,470** employees in the latest year, representing an **11.79%** year-over-year increase.

However, alongside this growth, Atlas Labs faced a persistent attrition rate of **16.1%**, indicating that employee turnover remained a structural challenge. This suggests that workforce expansion was achieved largely by hiring at a pace sufficient to offset employee exits, rather than through retention alone.



Data Visualization and Analysis

01 Overview Analysis

➤ Workforce Distribution by State

Employee distribution is concentrated in major U.S. states, including California (CA), Illinois (IL), and New York (NY). Among these, California hosts the largest share of employees (875 employees), reflecting its role as a key technology and innovation hub.

Illinois and New York represent secondary workforce centers, supporting both operational and business-facing functions. This geographic concentration suggests that the company strategically places talent in regions with strong labor markets and industry presence.

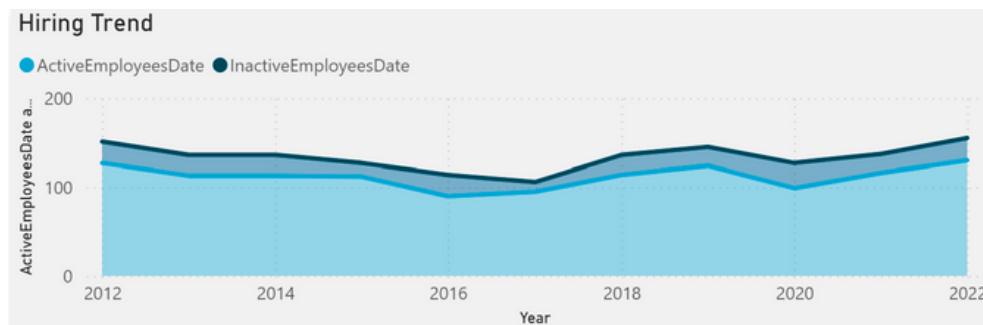


Business Implication:

The current workforce distribution highlights opportunities to optimize location-based hiring strategies and assess regional retention risks, particularly in high-cost and competitive labor markets such as California and New York.

Data Visualization and Analysis

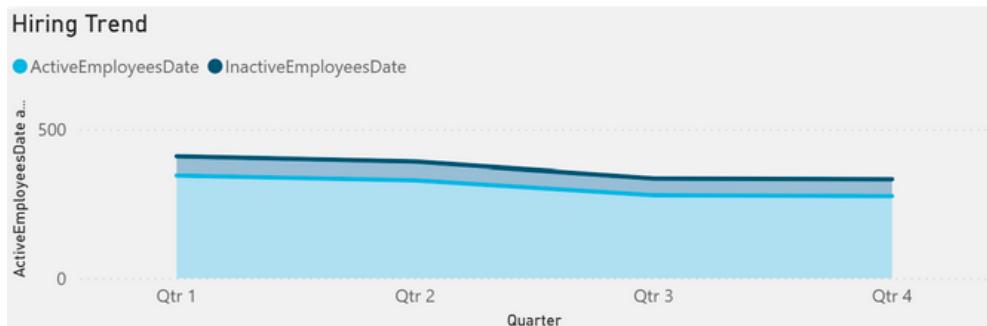
➤ Hiring Trend



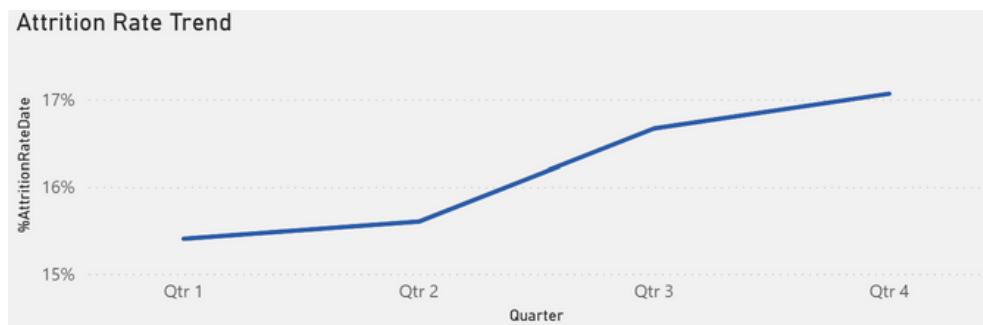
Hiring activity declined from 2012 to 2016, bottomed out around 2016–2017, and then recovered steadily, with strong growth toward 2022.

Despite short-term dips, overall recruitment trends reflect a renewed focus on workforce expansion in later years.

Strong Q1 hiring followed by slower recruitment later in the year indicates a reactive approach to workforce gaps rather than sustained hiring momentum.



➤ Attrition Trend



Analysis of aggregated data from 2012 to 2022 reveals a clear seasonal pattern in employee attrition. Attrition rates remain relatively stable and lowest in the first half of the year (Q1–Q2), averaging approximately 15.4%–15.6%. From Q3 onward, attrition increases noticeably, rising to around 16.7% in Q3 and peaking at 17.1% in Q4. The 1.7 percentage-point gap between early-year and year-end attrition highlights a recurring escalation in turnover pressure toward the end of each year.

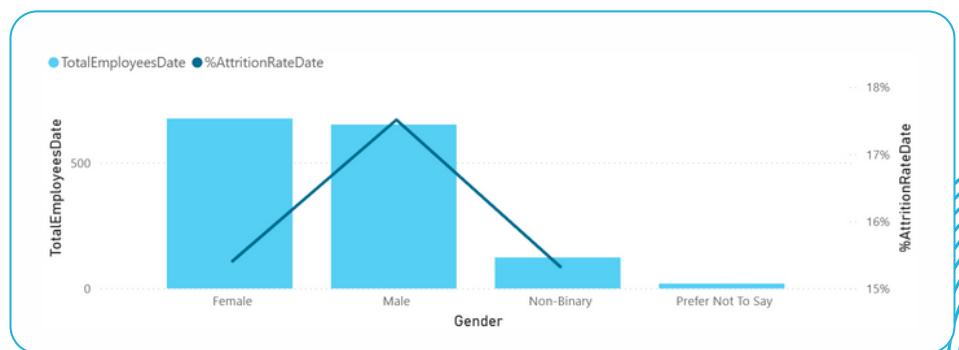
Data Visualization and Analysis

02

Attrition Drivers by Workforce Demographics

Employee attrition is not a random phenomenon but often reflects systematic differences across workforce segments. This section explores how turnover risk differs by key demographic factors, providing insights into which employee groups are more vulnerable to leaving the organization.

Gender
**- The difference
 is not in
 numbers.**



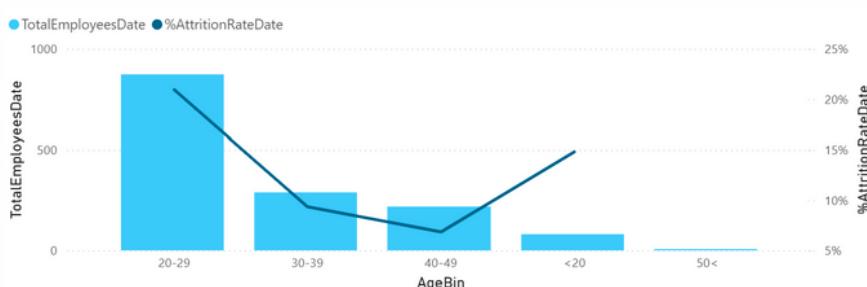
Female and Male employees are nearly equally represented, yet the attrition rate is higher among Male employees, indicating a potential gender-based difference in turnover behavior. This difference may be associated with:

- Variations in career expectations
- Greater pressure related to career advancement or job switching driven by income considerations

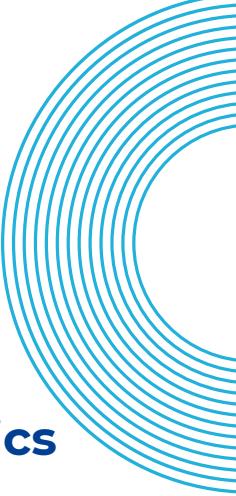
The 20–29 age group represents the largest share of the workforce and also exhibits the highest attrition rate. In contrast, employees aged 40–49 have the lowest attrition.

The story is quite clear:

- Younger employees tend to explore new opportunities, have fewer commitments, and are more mobile.
- Middle-aged employees usually enjoy greater stability in income, role, and position.

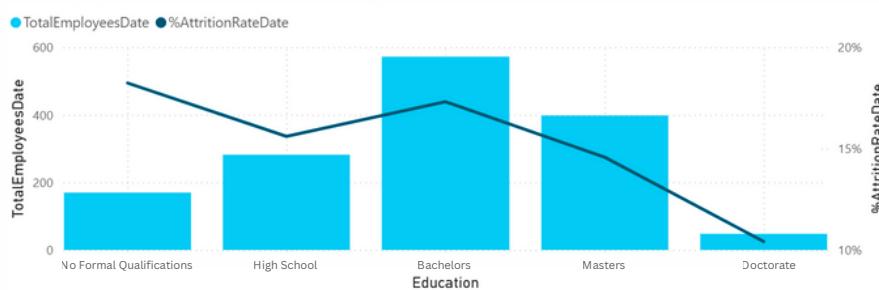


**Age -
 "Younger
 Employees
 Leave the Most"**



Data Visualization and Analysis

02 Attrition Drivers by Workforce Demographics

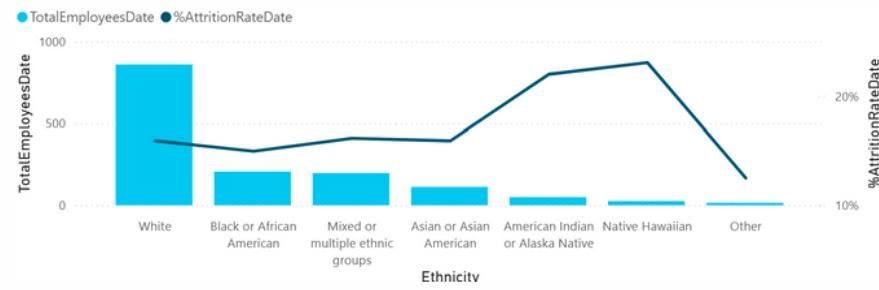


“ Education – “The Value of Degrees Goes Beyond Numbers”

The workforce distribution by education level shows that employees are primarily concentrated in the Bachelor's and Master's groups, while the Doctorate group represents a very small proportion. However, the key insight lies not in size but in attrition trends.

The highest attrition rate is observed among Bachelor's degree holders, whereas Doctorate holders have the lowest turnover. This suggests that:

- Highly educated employees tend to have stronger engagement and greater career stability.
- Bachelor's degree employees may face development pressures, internal competition, or a lack of clear career advancement paths.



“ Ethnicity – “Small Groups, Higher Risk”

The workforce is predominantly White, while other ethnic groups represent a relatively small proportion. However, attrition rates tell a different story.

Smaller groups, such as American Indian/Alaska Native and Native Hawaiian employees, exhibit significantly higher attrition compared to the overall workforce. This may reflect:

- A sense of lack of inclusion.
- Limited development opportunities or internal support.

Data Visualization and Analysis

02 Attrition Drivers by Workforce Demographics

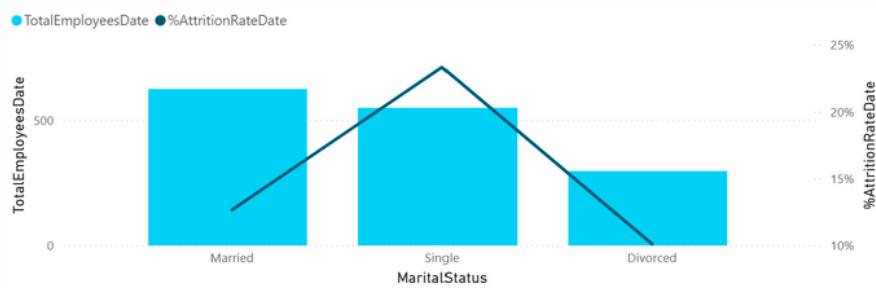
” Distance to Work – “Distance is More Than Just a Number”



Employees living far from work (>20km) make up the largest proportion, yet surprisingly, the highest turnover rate is among those living <5km away.

This indicates:

- Geographic distance is not the only determining factor.
- Employees living nearby may find it easier to change jobs due to lower commuting costs and more alternative options.



” Marital Status – “Personal Commitments Influence Retention Decisions”

Single employees have the highest turnover rate, while married employees tend to be significantly more stable.

This reflects that:

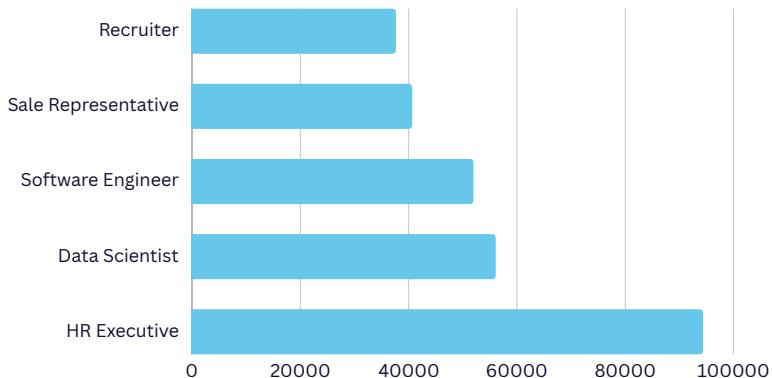
- Single individuals often have higher flexibility and are more willing to take on new challenges.
- Married individuals tend to prioritize stability and security.

Data Visualization and Analysis

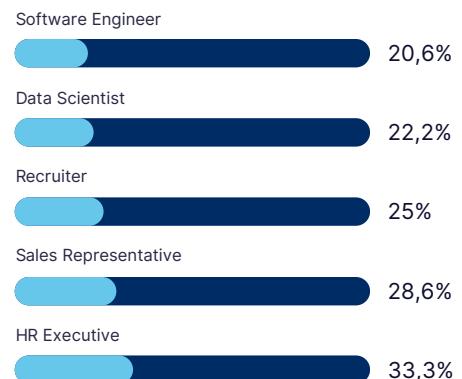
03 Attrition Drivers by Job Characteristics



Bottom 5 Job Roles by Average Salary



Top 5 Job Roles by Attrition Rate



The analysis reveals a consistent and concerning pattern: all job roles with the highest attrition rates also fall within the bottom five in terms of average salary. Positions such as HR Executive, Sales Representative, Recruiter, Software Engineer, and Data Scientist not only receive lower-than-average compensation but also experience elevated turnover, with HR Executive recording the highest attrition rate at **33.3%**.

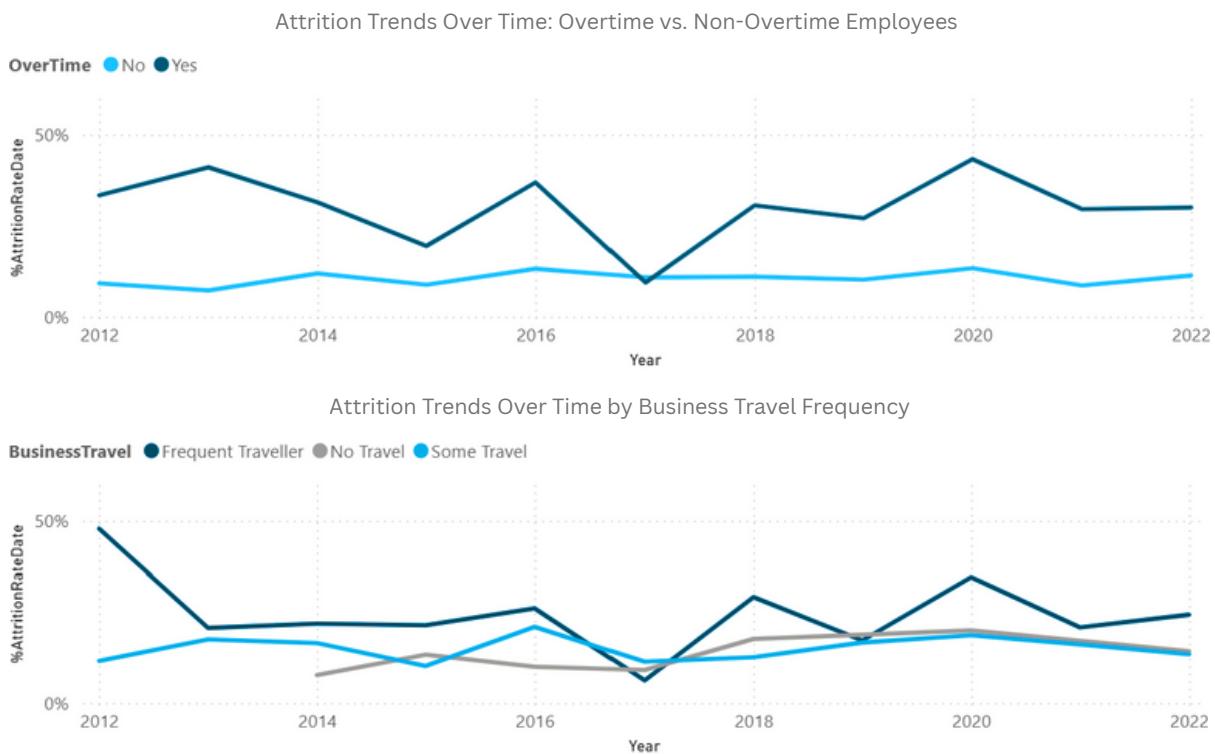
Implication:

This suggests that compensation may be a foundational driver of employee turnover, even for roles requiring strong technical expertise such as Software Engineer and Data Scientist.

When pay levels are not competitive with the external labor market, these roles become particularly vulnerable to employee mobility, regardless of their strategic importance to the organization.

Data Visualization and Analysis

03 Attrition Drivers by Job Characteristics



Attrition Trends Over Time & Business Travel

Employee attrition shows a clear time-based pattern, with overtime employees consistently recording higher attrition rates than those without overtime, indicating sustained workload pressure as a key retention risk.

In addition, frequent business travelers exhibit the highest and most volatile attrition rates over time, significantly exceeding employees with little or no travel. This suggests that travel intensity, combined with work demands, amplifies burnout and turnover risk, especially during peak periods.

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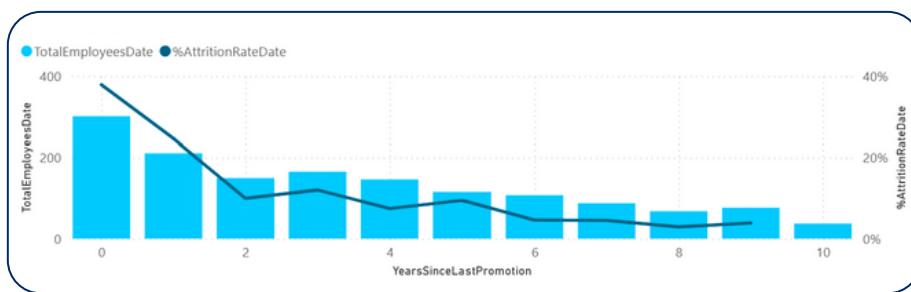
Managing workload balance and travel frequency is critical to stabilizing attrition in the long term.

Data Visualization and Analysis

03

Attrition Drivers by Job Characteristics

Promotion, Role Tenure & Organizational Tenure



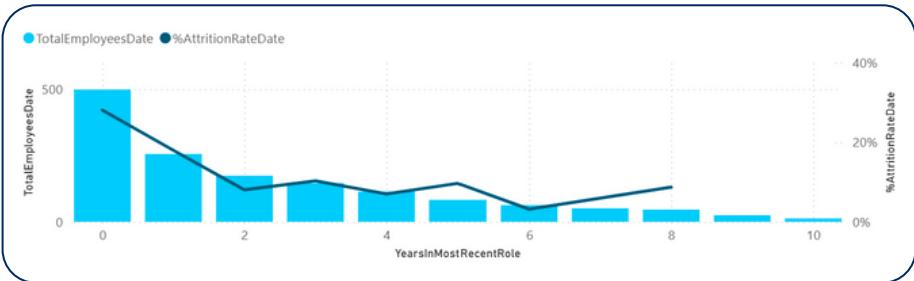
Attrition by Years Since Last Promotion

Attrition is highest among employees who are new or have not yet received a promotion (0–1 years).

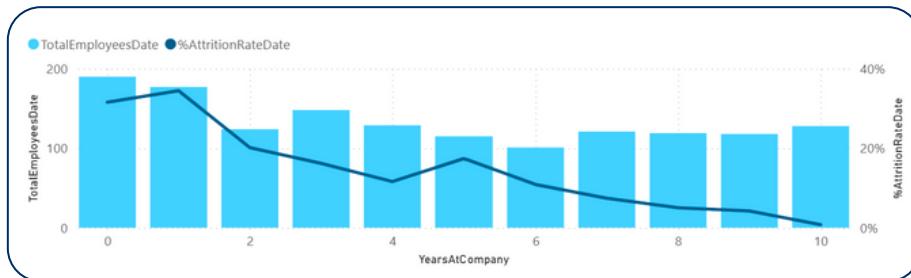
As time since the last promotion increases, attrition gradually declines, highlighting the importance of early career progression opportunities in employee retention.

Attrition by Years in Most Recent Role

Employees with short tenure in their current role experience higher attrition, particularly during the first years.



This indicates that the role transition and adaptation phase represents a critical risk period if expectations and support are misaligned.



Attrition by Years at Company

Attrition is highest among new hires and decreases steadily as organizational tenure increases.

Long-tenured employees tend to be more stable, reflecting the impact of organizational integration, accumulated experience, and long-term commitment.

➤ Employee turnover is concentrated in the early stages of the employee lifecycle, underscoring the need for effective onboarding, early development pathways, and targeted support to improve retention outcomes.



Proposed Solutions

Structural Workforce Patterns

Atlas Labs shows steady workforce growth alongside persistently high attrition, indicating that expansion has been driven more by continuous hiring than by employee retention.

The workforce is heavily concentrated in Technology roles and key states such as California, exposing the company to competitive labor markets. Hiring and attrition also display clear seasonal patterns, with turnover consistently peaking toward the end of the year, highlighting structural retention pressure as the organization scales.

Attrition Risk Factors

Employee attrition is primarily driven by early career stage, compensation gaps, and workload intensity. Higher turnover is observed among younger, single, Bachelor's-level employees, underrepresented ethnic groups, and those in lower-paid yet high-skill roles.

Job-related factors such as non-competitive pay, overtime, frequent business travel, limited early promotions, and short role tenure further amplify attrition risk, especially during the first years of employment.

Strategic Interventions

To reduce turnover and strengthen workforce stability, Atlas Labs should adopt a targeted, data-driven retention strategy that moves beyond a one-size-fits-all approach. Accordingly, the proposed interventions are organized into four strategic dimensions: workforce structure, demographic characteristics, job-related factors, and performance and employee satisfaction monitoring, enabling more precise and sustainable retention actions.



Workforce Structure Optimization



Role & Job Design Interventions



Demographic-Based Retention



Performance & Engagement Monitoring

Proposed Solutions

Targeted strategies are proposed as follows.

► FROM HIRING-LED GROWTH TO RETENTION-LED SCALING

- **Critical Role Retention Plan:** Atlas Labs should identify high-impact technology roles (top 20%) and apply 12–18 month retention bonuses combined with six-month career checkpoints.
- **Location-Based Compensation Adjustment:** Introduce location-based pay bands for high-cost states such as California and New York, aligned with cost-of-living and market salary benchmarks.
- **Q3–Q4 Attrition Prevention Program:** Conduct stay interviews and engagement pulse surveys in late Q2 to identify and mitigate attrition risks before the Q3–Q4 peak.

► STRATEGIES BASED ON DEMOGRAPHIC INSIGHTS

- **Early-Career Retention Program (0–24 months):** Implement structured mentoring, role-based training roadmaps, and mandatory career discussions within the first two years of tenure.
- **Bachelor-Level Career Acceleration Track:** Establish standardized specialist, leadership, and cross-functional career paths with clear promotion criteria for Bachelor's degree holders.
- **Targeted DEI Retention Measures (Ethnicity-Focused):** Provide cross-functional mentoring, track attrition and advancement by ethnicity, and link retention outcomes for underrepresented groups to manager KPIs.
- **Flexible Engagement Model for Single and Mobile Employees:** Offer hybrid work options and short-term internal projects or job rotation to maintain engagement and reduce external mobility.



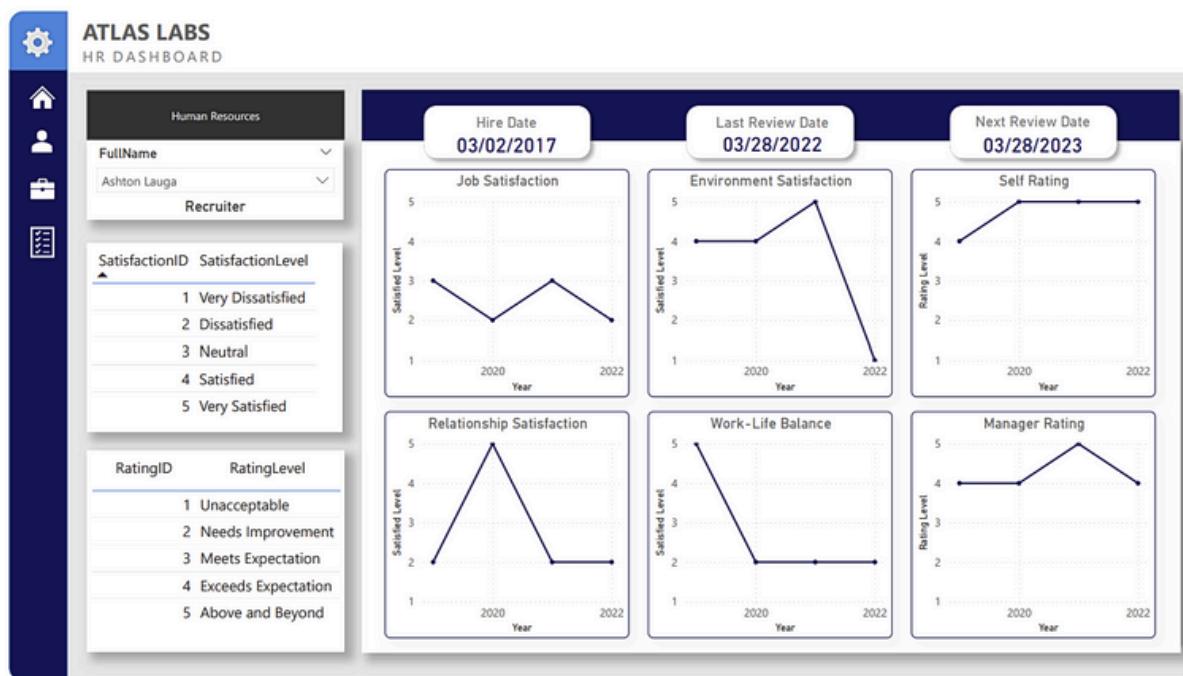
Proposed Solutions

► COMPENSATION, WORKLOAD, AND ROLE CLARITY

- **Market Salary Correction Program:** Conduct annual salary benchmarking at P50–P75 for high-skill, high-attrition roles such as Software Engineer, Data Scientist, HR Executive, and Sales Representative.
- **Overtime Risk Threshold Policy:** Trigger mandatory workload reviews when overtime exceeds 20% for two consecutive quarters and integrate overtime metrics into manager evaluations.
- **Business Travel Optimization Framework:** Set quarterly limits on travel days and provide recovery days or allowances for travel-intensive roles to reduce burnout.
- **First-Year Role Success Framework:** Standardize 30–60–90 day plans, role clarity checklists, and check-ins at months three and six to reduce early attrition.

► PERFORMANCE & SATISFACTION MONITORING DASHBOARD

Atlas Labs uses an employee-level dashboard to track performance and satisfaction across the employee lifecycle, incorporating key milestones such as hire date and review cycles. Trends in job satisfaction, work-life balance, and self vs. manager ratings act as early warning signals of attrition risk, enabling proactive intervention before turnover occurs.





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