

# HR final Report

## Performance Rating Analysis

1. **Review Period:** The data spans from January 2013 to December 2022, with 6,709 total reviews for 1,280 unique employees.
2. **Rating Changes:**
  - 27.4% of employees showed improvement in self-ratings
  - 30.5% of employees showed improvement in manager ratings
  - The average change was slightly negative (-0.04 for self-ratings, -0.03 for manager ratings)
3. **Distribution of Changes:**
  - Most changes were between -1 and +1 points
  - Maximum improvement was 2 points for self-ratings and 3 points for manager ratings
  - Minimum was -2 points for self-ratings and -3 points for manager ratings
4. **Review Frequency:**
  - Employees had between 1-10 reviews
  - The distribution of rating changes varies by number of reviews
  - No clear pattern of improvement with more reviews
5. **Consistent Improvement:**
  - About 27.6% of employees showed consistently improving self-ratings
  - About 27.7% showed consistently improving manager ratings

The visualizations in the `plots` show:

1. Average rating trends over time
2. Distribution of rating changes
3. Number of reviews per employee
4. Rating distribution by year

Let me provide a deep-dive analysis of the HR data:

1. **Data Volume and Employee Base**
  - Total records: 6,709 entries
  - Unique employees: 1,280
  - Average records per employee: 5.24 (suggesting multiple reviews/updates)
  - Clean dataset after removing duplicates: 1,280 unique records

## 2. Attrition Overview

- Current workforce: 1,043 employees (81.48%)
- Departed employees: 237 (18.52%)
- This attrition rate is significant but not alarming for industry standards

## 3. Stock Option Level Impact (Critical Finding)

- Level 0 (No options): 27.70% attrition
- Level 3 (Highest): 20.83% attrition
- Level 1: 10.89% attrition
- Level 2: 8.70% attrition (Best retention)

### Key Insights:

- Clear correlation between stock options and retention
- Level 2 is optimal for retention
- Surprising higher attrition at Level 3
- No options (Level 0) shows highest flight risk

## 4. Training Analysis

### Retained Employees:

- Opportunities offered: 2.04 per year
- Training taken: 0.98 (48% utilization)

### Departed Employees:

- Opportunities offered: 2.03 per year
- Training taken: 0.93 (46% utilization)

### Key Findings:

- Similar opportunity access for all employees
- Slight difference in training uptake (5% higher in retained group)
- Low overall training utilization (~47%)

## 5. Strategic Recommendations

### A. Stock Options:

- Review Level 3 compensation package
- Consider moving more employees to Level 2
- Develop transition path from Level 0 to reduce flight risk
- Create clear stock option progression criteria

## B. Training:

- Investigate low training uptake (below 50%)
- Implement training tracking system
- Create incentives for training completion
- Focus on high-risk groups (Level 0 stock options)

## C. Retention Strategy:

- Focus on employees with no stock options
- Review compensation at Level 3
- Increase training engagement
- Monitor training completion rates

## 6. Risk Assessment

### High Risk Groups:

- Employees with no stock options (27.7% attrition)
- Low training participation (<0.93 average)
- Level 3 stock option holders (unexpected 20.8% attrition)

### Low Risk Groups:

- Level 2 stock option holders (8.7% attrition)
- High training participants (>0.98 average)
- Level 1 stock option holders (10.9% attrition)

## 7. Action Items

### Immediate:

- Review Level 0 employees for stock option eligibility
- Investigate Level 3 attrition causes
- Enhance training program accessibility

### Medium-term:

- Develop stock option progression framework
- Create training completion incentives
- Implement training tracking system

### Long-term:

- Restructure stock option levels
- Build comprehensive training program

- Create retention prediction model