

Analytics For Human Resource Management

Sourabh Sharma

College Of Vocational Studies

University Of Delhi

B.A VS Human Resource Management

2K22/HRM/112

Section – B

Report – Employees Satisfaction

Introduction

Employee satisfaction is a critical measure of how happy and fulfilled employees feel in their jobs. It is influenced by several factors, including work environment, compensation, management practices, opportunities for growth, and work-life balance. High employee satisfaction often leads to increased productivity, lower turnover rates, and better organizational performance.

Objective of Survey

I conducted this employment survey to analyze employee satisfaction within an organization. This survey will help me understand the responses of employees and provide insights into how an organization maintains employee satisfaction. It will also allow me to determine the satisfaction levels of employees while working, identify their needs, and understand the factors that influence employee satisfaction.

Mythology

1. I have created a survey using Google Forms.
2. Then, I added questions to the survey form. These questions were related to employee satisfaction and compensation.

3. I circulated the survey form to the employees using a Google link.
4. I received responses through the form.
5. Then, I downloaded an Excel sheet containing all the data.
6. I filtered and cleaned the data.
7. Then, using software like Excel and IBM SPSS, I performed further data analysis to derive meaningful insights.

About Software I Used

Excel - Microsoft Excel is a powerful spreadsheet tool used for organizing, analyzing, and visualizing data. It offers a range of features like formulas, PivotTables, charts, and conditional formatting, making it essential for tasks like financial analysis, data management, and reporting. Excel also supports automation through macros and collaborative work through cloud-based sharing.

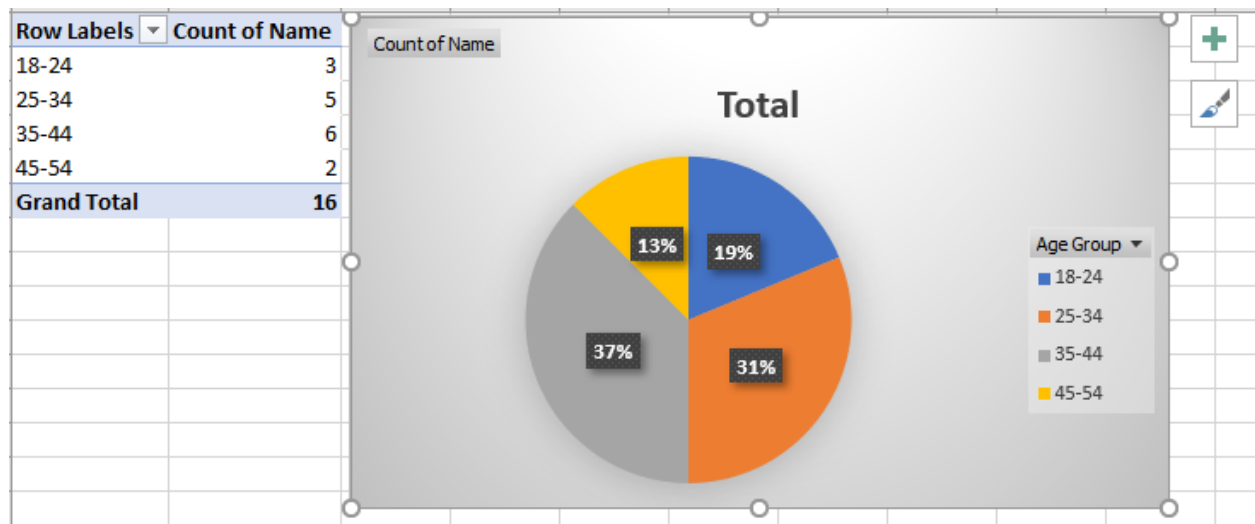
IBM SPSS - IBM SPSS is a statistical software suite used for data analysis, including descriptive statistics, hypothesis testing, and regression analysis. It provides advanced tools for data manipulation, visualization, and reporting, making it ideal for researchers, analysts, and businesses to derive meaningful insights from large datasets. SPSS supports both basic and complex analyses, offering a user-friendly interface and powerful capabilities for statistical modeling and forecasting.

Basic Data Table

Name	Age Group	Gender	Department:	Years with the Company	Position Level:
Yash kumar	18-24	Male	HR	Less than 1 year	Entry-Level
Aditya Kumar Pandey	18-24	Male	Trading	Less than 1 year	Entry-Level
Manish Sharma	25-34	Male	MARKETING	1-3 years	Mid-Level
Shankar	35-44	Male	PRODUCTION	4-6 years	Senior-Level
Kajal	35-44	Female	HR	1-3 years	Entry-Level
Tunntun	45-54	Male	MARKETING	4-6 years	Senior-Level
Sanjay	45-54	Male	PRODUCTION	7-10 years	Managerial
Sachita	35-44	Female	HR	1-3 years	Mid-Level
Prashant	25-34	Male	HR	Less than 1 year	Mid-Level
Kumar Akash	25-34	Male	SALES	1-3 years	Senior-Level
Sumit	35-44	Male	SALES	Less than 1 year	Mid-Level
Suman Yadav	25-34	Female	PRODUCTION	1-3 years	Managerial
Shivani	35-44	Female	IT	4-6 years	Senior-Level
Raghav	18-24	Male	MARKETING	1-3 years	Mid-Level
Aditya Singh	25-34	Male	SALES	4-6 years	Senior-Level
Shweta Das	35-44	Female	MARKETING	4-6 years	Executive

This is the table containing basic information from the responses. It includes their name, age group, gender, department, and position. They compiled the survey responses and provided insights for analyzing employee satisfaction and its factors.

Age Group Analysis



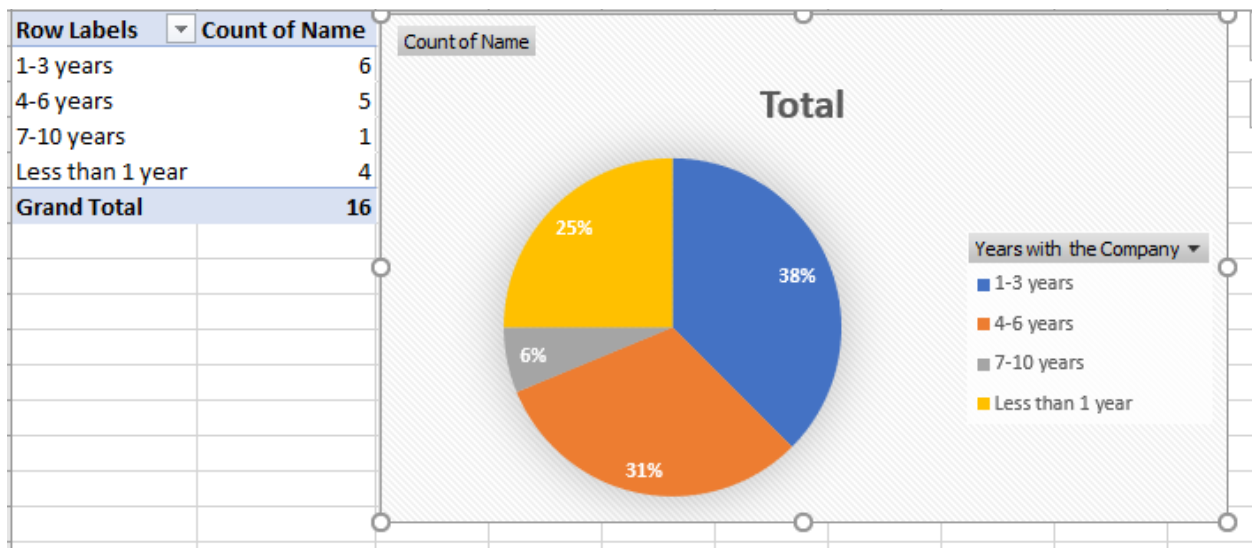
According to the data, I have collected 16 responses:

- 19% of respondents fall under the 18-24 age group.

- 31% of respondents fall under the 25-34 age group.
- 37% of respondents fall under the 35-44 age group.
- 13% of respondents fall under the 45-54 age group.

My Analysis - The survey data reveals a diverse distribution of employees across different age groups. The majority of respondents (37%) fall within the 35-44 age group, followed by 31% in the 25-34 age group. A smaller proportion of responses come from the 18-24 (19%) and 45-54 (13%) age groups. This suggests that the workforce is primarily composed of individuals in their mid-career stage, which may influence their expectations regarding job satisfaction and compensation. Further analysis of these age groups' specific needs and preferences could provide valuable insights into improving employee satisfaction and addressing the factors that drive their engagement and retention.

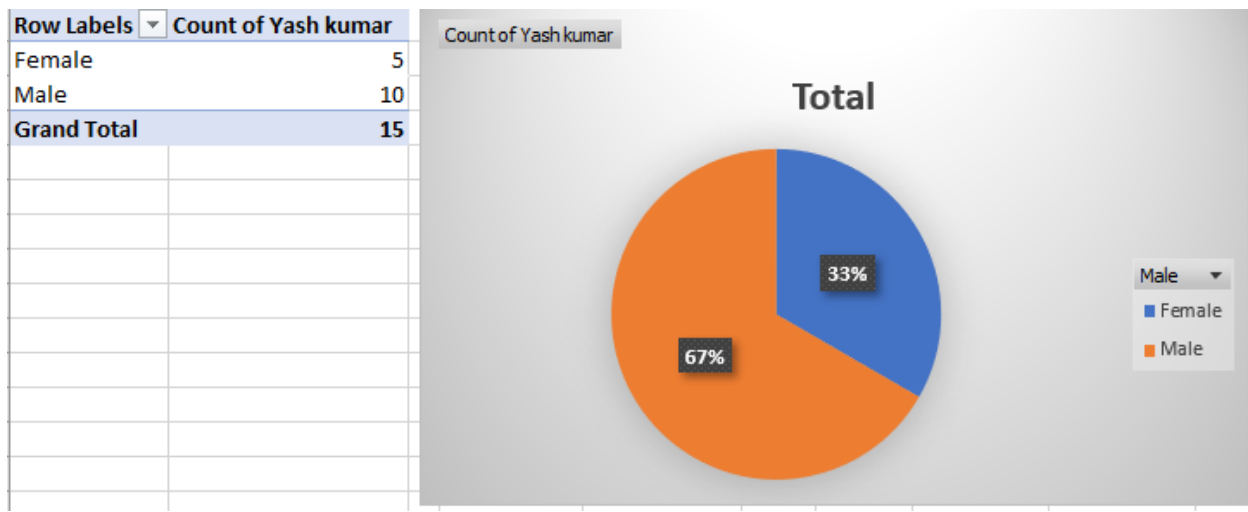
Experience (in Years)



- 38% of people have experience between 1-3 years.
- 31% of people have experience between 4-6 years.
- 6% of people have experience between 7-10 years.
- 25% of people have less than 1 year of experience.

Analysis - The survey reveals that most respondents have 1-3 years of experience (38%), suggesting a young workforce focused on growth and learning. 31% have 4-6 years of experience, indicating a mid-career stage with potential interest in leadership and higher compensation. Only 6% have 7-10 years of experience, highlighting a lack of senior-level representation. Additionally, 25% have less than 1 year of experience, which may reflect new hires or high turnover. Overall, the data points to opportunities for targeted development and retention strategies for employees at different career stages.

Gender Data



- 67% of males submitted their responses in my survey.
- 33% of females submitted their responses in my survey

Reliability Test

In IBM SPSS, a **reliability test** is typically conducted to assess the consistency and stability of a set of measurements or survey items. The most common method to measure reliability in SPSS is **Cronbach's Alpha**, which is used to evaluate the internal consistency of a scale, questionnaire, or survey.

Key Concepts:

1. **Reliability**: Refers to the degree to which a measurement tool produces consistent and stable results over time. In the context of surveys or

questionnaires, it ensures that the questions measure the same underlying concept.

2. **Cronbach's Alpha:** A statistical coefficient used to measure the internal consistency of a set of items in a scale. It ranges from 0 to 1:
 - A higher value (closer to 1) indicates better reliability.
 - A value above 0.70 is generally considered acceptable, while values above 0.80 are considered good, and values above 0.90 are excellent.
3. **Interpretation of Cronbach's Alpha:**
 - **0.9 and above:** Excellent reliability
 - **0.8 to 0.89:** Good reliability
 - **0.7 to 0.79:** Acceptable reliability
 - **0.6 to 0.69:** Questionable reliability
 - **Below 0.6:** Unacceptable reliability

Employee's Satisfaction Reliability Test

The data collected for the survey must be reliable and credible to support effective decision-making. To ensure this, the survey data is subjected to a reliability test using IBM SPSS. This test calculates **Cronbach's Alpha**, a measure of internal consistency that assesses how closely related a set of items are as a group. A Cronbach's Alpha value greater than 0.6 is generally considered acceptable, indicating that the data is reliable and suitable for further analysis.

Values closer to 1.0 represent higher reliability, with the following general thresholds:

- **0.9 and above:** Excellent reliability
- **0.8–0.89:** Good reliability
- **0.7–0.79:** Acceptable reliability
- **0.6–0.69:** Questionable reliability (but may be acceptable in exploratory research)
- **Below 0.6:** Poor reliability

The reliability analysis helps validate the consistency of the responses across multiple items in the survey, ensuring that the dataset is robust and suitable for decision-making and statistical analysis.

Reliability Statistics

Cronbach's Alpha	N of Items
.916	23

- The Cronbach's Alpha value for my data is **0.916**, which is considered excellent and indicates a high level of reliability. This strong internal consistency suggests that the data collected is robust and trustworthy for further analysis. The number of items included in the reliability test is **23**, representing the number of questions asked in the survey.
- This high reliability score demonstrates that the survey items are well-constructed and measure the intended concepts effectively. It also indicates that respondents provided consistent answers across related items, reinforcing the credibility of the data for decision-making and statistical analysis. Such a reliable dataset forms a strong foundation for deriving meaningful insights and making informed conclusions.

Linear Regression Test

Linear regression models the relationship between a dependent variable Y and one or more independent variables X using a linear equation. To test the model, fit it to the data and evaluate its performance using metrics like R^2 for goodness of fit, t-tests to check the significance of coefficients, and an F-test to assess overall model significance. Additionally, validate assumptions such as linearity, homoscedasticity, normality of residuals, and independence of errors to ensure the model is reliable.

Anova - ANOVA (Analysis of Variance) is a statistical method used to compare the means of three or more groups to determine if there are significant differences among them. It assesses whether the variability between group means is greater than the variability within groups, which could suggest that at least one group mean is significantly different

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1810.930	1	1810.930	26.770	.000 ^b
	Residual	947.070	14	67.648		
	Total	2758.000	15			

a. Dependent Variable: E.S SUM

b. Predictors: (Constant), E.C.SUM

In ANOVA, if the significance value (p-value) in the results is **0.000**, it indicates a very strong statistical significance (usually interpreted as $p < 0.001$). This means the null hypothesis — in your case, *"Employee satisfaction is not affected by compensation"* — is rejected. Thus, there is sufficient evidence to conclude that compensation does significantly impact employee satisfaction.

This result suggests that variations in compensation are associated with differences in employee satisfaction levels. It is important to interpret these findings in the context of your study and consider additional factors, such as sample size, data quality, and other variables that may also influence satisfaction.

Model Summary — A **model summary** in linear regression includes key statistics to evaluate model performance. It shows **coefficients**, which represent the impact of each predictor on the dependent variable. **R-squared** indicates how much variance in the outcome is explained by the model, with higher values suggesting a better fit. **Adjusted R-squared** adjusts for the number of predictors. The **F-statistic** tests overall model significance, and **p-values** for each coefficient show whether the predictors significantly contribute to the model. **Standard error** measures the accuracy of the coefficients, and **Durbin-Watson** tests for autocorrelation in residuals. These metrics help assess model validity and reliability.

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.810 ^a	.657	.632	8.225	1.385

a. Predictors: (Constant), E.C.SUM

b. Dependent Variable: E.S SUM

- I got an R-squared value of 0.657, which means that 65.7% of the variation in employee satisfaction is explained by the independent variables in the model. In other words, 65.7% of the change in the dependent variable (employee satisfaction) can be attributed to the independent variables. An R-squared value closer to 1 indicates a better fit, and a value of 0.657 is considered good, as it shows a strong relationship between the variables. Generally, an R-squared value above 0.60 is considered reliable and indicates a meaningful model. However, the reliability of the model also depends on the context and other diagnostic checks, such as residual analysis and the significance of individual predictors.

Residual Statistics - **Standard residuals** are the residuals (the differences between observed and predicted values) that have been standardized by dividing by their standard deviation. They are used to assess how far an observation is from the regression line, relative to the spread of the data.

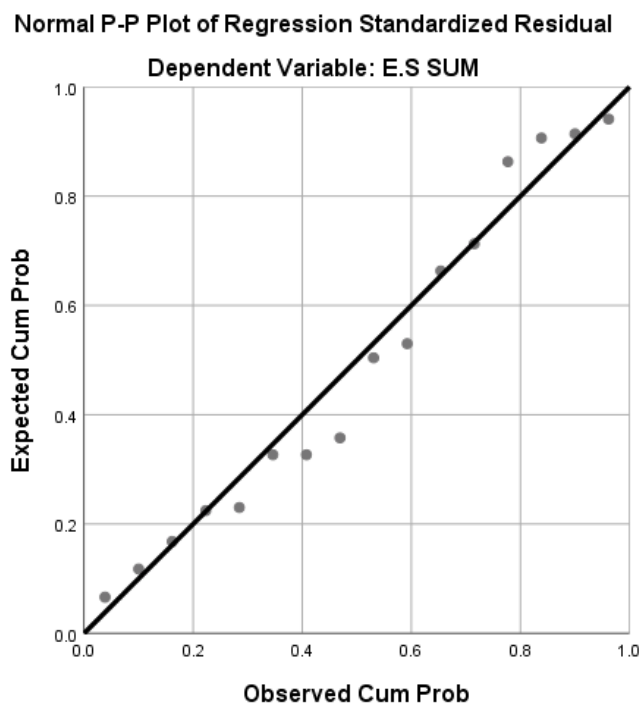
Standard residuals are useful for detecting outliers and assessing model fit. If a standard residual is greater than 3 or less than -3, it may indicate an outlier or an unusual data point that doesn't fit the model well. They help in diagnosing issues like heteroscedasticity or non-linearity, and are often plotted to visually inspect model assumptions.

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	43.14	84.15	67.00	10.988	16
Std. Predicted Value	-2.171	1.561	.000	1.000	16
Standard Error of Predicted Value	2.073	5.049	2.798	.816	16
Adjusted Predicted Value	35.36	81.62	66.40	11.863	16
Residual	-12.380	12.859	.000	7.946	16
Std. Residual	-1.505	1.563	.000	.966	16
Stud. Residual	-1.555	1.981	.032	1.069	16
Deleted Residual	-13.220	20.636	.601	9.840	16
Stud. Deleted Residual	-1.648	2.249	.054	1.127	16
Mahal. Distance	.016	4.715	.938	1.230	16
Cook's Distance	.000	1.186	.137	.293	16
Centered Leverage Value	.001	.314	.063	.082	16

a. Dependent Variable: E.S SUM

- In my analysis, the standard residuals range from **-1.555 to 1.981**, which is within the acceptable range of -3 to +3. This suggests that there are no extreme outliers in my data, and the model appears to fit the data well. Since the residuals fall within this range, it indicates that the assumptions of linear regression, including the distribution of residuals, are reasonably met. Overall, this result suggests that the model is reliable and there are no significant issues with individual observations affecting the analysis.
- In my analysis, **Cook's distance ranges from 0 to 1.186**. Since values of Cook's distance greater than 1 are typically considered influential, none of the data points in my dataset are highly influential, as the maximum value is well below 1. This indicates that no single observation is disproportionately affecting the regression model. The relatively low values suggest that the data points do not have a significant impact on the model's coefficients, and the overall model seems stable and reliable.

P-P Plot of Regression Standardized Residual



- The **x-axis** represents the observed cumulative probability of the residuals.

- The **y-axis** shows the expected cumulative probability of the residuals if they follow a normal distribution.

Analysis:

- The data points on the plot appear to follow a near-straight line, which suggests that the residuals are approximately normally distributed.
- This indicates that the assumption of normality for the residuals in the regression model is likely met, meaning there are no significant deviations from normality.

Overall, the plot supports the idea that the linear regression model is appropriate for your data, and the residuals do not exhibit major violations of normality. However, it's important to ensure that the rest of the model's assumptions (such as linearity and homoscedasticity) are also satisfied.

QUESTIONNAIRE

I am satisfied with my current job role.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

I feel motivated to come to work each day.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

My workload is manageable.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

My job gives me a sense of accomplishment.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

I am satisfied with my work-life balance.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

The physical working conditions are comfortable.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

I have the resources needed to perform my job efficiently.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

My work environment encourages teamwork and collaboration.

1 2 3 4 5

Strongly Disagree Strongly Agree

I feel respected by my colleagues.

1 2 3 4 5

Strongly Disagree Strongly Agree

I am satisfied with my salary and benefits package.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

I feel I am compensated fairly for the work I do.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

The company provides good growth opportunities (promotions, raises).

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

My manager provides clear and effective direction.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

...

I receive helpful feedback about my performance.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

Management takes my suggestions and concerns seriously.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

The company offers opportunities for career development.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

I am encouraged to develop new skills.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

I receive adequate training for my role.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

I have a flexible work schedule that allows me to balance work and life.

1 2 3 4 5

Strongly Disagree Strongly Agree

The company offers support for maintaining work-life balance (e.g., flexible hours, remote work).

1 2 3 4 5

Strongly Disagree Strongly Agree

I feel connected to the company's mission and goals.

1 2 3 4 5

Strongly Disagree Strongly Agree

I would recommend this company as a good place to work.

1 2 3 4 5

Strongly Disagree Strongly Agree

I plan to continue working here for the foreseeable future.

1 2 3 4 5

Strongly Disagree Strongly Agree

I have the resources needed to perform my job efficiently.

	1	2	3	4	5	
Strongly Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Strongly Agree

My work environment encourages teamwork and collaboration.

1 2 3 4 5

Strongly Disagree Strongly Agree

I feel respected by my colleagues.

1 2 3 4 5

Strongly Disagree Strongly Agree