

Analysis Report

This report is structured as follows.

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SAMPLE REPORT - Rafael Data Analysis Portfolio

Reliability and Factor Analysis

The item statistics table presented below shows the mean, standard deviation, sample size (N), and factor loadings (λ) for each item within the factors: Cohesion, Mission, Leadership, Accountability, Communication, and Resilience. All items demonstrated factor loadings above the 0.300 threshold, substantiating their relevance for the factors they represent.

In addition to the item-level data, the total variance explained by each factor was above 50%, indicating a substantial explanation of the dataset's variance by the respective factors. Furthermore, all factors passed the assumptions of Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy ($KMO > 0.600$) and Bartlett's test of sphericity ($p < 0.001$), thereby validating the suitability of Principal Component Analysis for this dataset.

Item Statistics

	Mean	Std. Deviation	N	λ
Cohesion				
People in this company can take on any challenge.	4.289	0.984	38	0.710
Because our departments work together well, this organization can beat our competition.	4.105	1.110	38	0.781
This organization is more innovative than most organizations I have worked in.	3.684	1.397	38	0.833
People in this company can work together to accomplish a complex project.	4.368	0.942	38	0.763
Everyone works together effectively in this company during times of organizational change.	3.684	1.297	38	0.836
This organization can meet customer requirements because the employees are extremely competent.	4.447	1.132	38	0.666
Every effort is made to prevent barriers between departments.	3.342	1.258	38	0.669
Mission				
People here have a sense of purpose.	4.282	0.887	39	0.561
This company has a strong vision of the future - we know where we're going.	3.615	1.206	39	0.884
People in this company are confident about its future.	3.872	1.301	39	0.931
Our company mission gives us confidence that this company will double in size in the next 10 years.	3.564	1.334	39	0.879
Leadership				
Leaders in this organization get things done.	4.205	1.704	39	0.893
Leaders in this organization have a credible track record.	4.000	1.076	39	0.924
Leaders in this organization know exactly what they want to accomplish.	3.718	1.213	39	0.943
Leaders in this organization know how to clearly communicate their ideas.	3.333	1.108	39	0.845
Leaders in this organization maintain focus on the goals they set.	3.641	1.224	39	0.773
Accountability				
In our company, people are held accountable for the quality of their work.	3.410	1.499	39	0.847
People are rewarded here when they go beyond the call of duty.	2.744	1.409	39	0.818
Promotions and rewards in this organization are based on merit and performance.	3.308	1.398	39	0.789

Non-performers don't last long in this organization.	3.795	1.281	39	0.715
Funding and managerial focus is consistently applied to the right programs, products and projects.	3.513	1.189	39	0.350

Communication

Our organization has a clear way to communicate important information to everyone.	3.579	1.130	38	0.808
We are all aware of key messages from our executive leadership team.	3.868	1.095	38	0.839
Leaders here take the time to ensure we understand their expectations.	3.763	1.218	38	0.736
Two-way communication is the norm here. Leaders listen to our feedback.	3.342	1.072	38	0.697

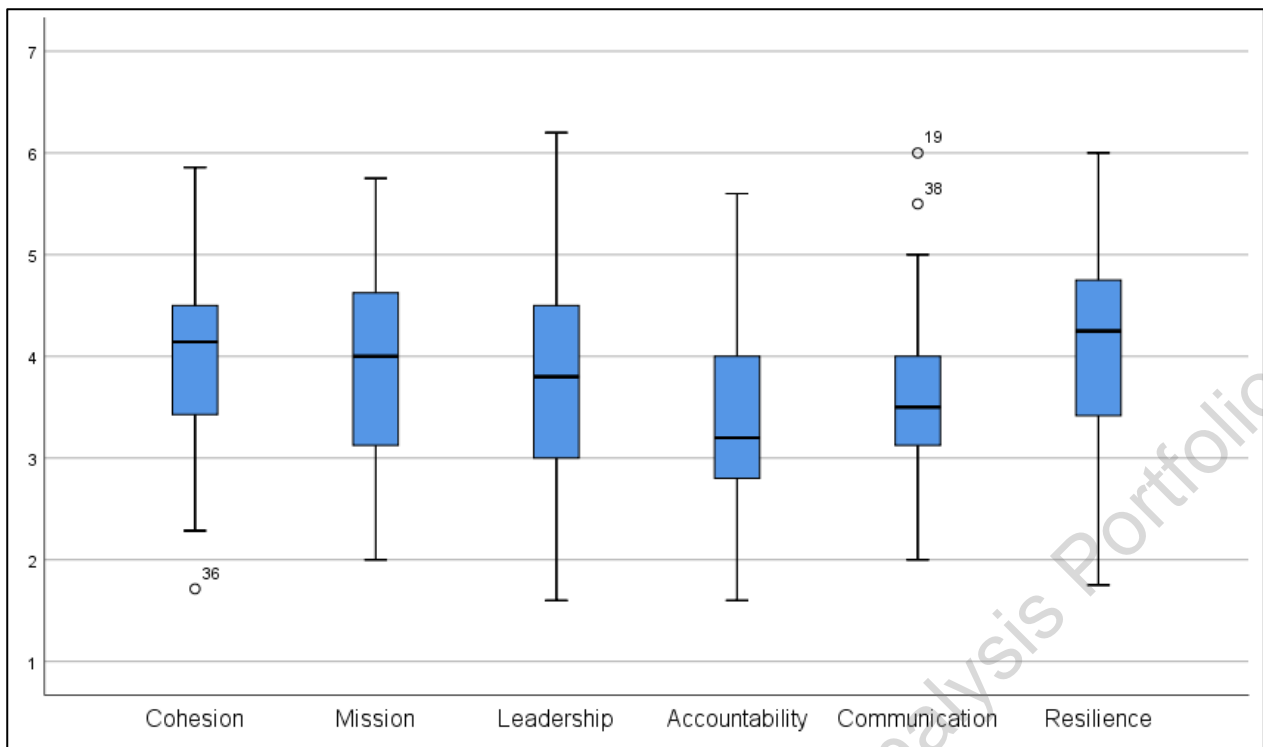
Resilience

This company is likely to struggle economically in a few years.	4.079	1.050	38	0.764
We're losing ground in the marketplace.	3.947	1.229	38	0.924
I am losing confidence in our ability to innovate.	3.816	1.205	38	0.849
During an economic downturn, this company is likely to fail.	4.447	0.978	38	0.824

The resulting factors were scored based on the average scores of their respective items. The table below shows descriptive statistics for each factor, including the Cronbach's Alphas. All Alphas were above 0.700, suggesting good reliability of the factor structure.

	Mean	SD	Minimum	Maximum	α
Accountability	3.354	0.968	1.600	5.600	0.758
Communication	3.647	0.862	2.000	6.000	0.772
Cohesion	3.993	0.865	1.714	5.857	0.872
Mission	3.833	0.987	2.000	5.750	0.835
Leadership	3.779	1.114	1.600	6.200	0.924
Resilience	4.053	0.934	1.750	6.000	0.861

The figure below shows boxplots of the resulting scales. While values across the sample are more dispersed for Leadership or Mission (larger 'box'), Communication shows less variability.



Before proceeding to the regression analysis, the distributions of the variables were tested. The Shapiro-Wilk test results suggest that the data for each factor—Accountability, Communication, Cohesion, Mission, Leadership, and Resilience—are normally distributed. The p-values for all factors are above the 0.05 significance level, thereby failing to reject the null hypothesis of normality (table below).

	Shapiro-Wilk		
	Statistic	df	Sig.
Accountability	.975	39	.540
Communication	.955	39	.120
Cohesion	.980	39	.707
Mission	.968	39	.334
Leadership	.981	39	.723
Resilience	.982	39	.783

Regression Model

The multiple linear regression model aimed to examine the influence of five predictors on the 'Mission' scale: Resilience, Accountability, Cohesion, Communication, and Leadership. The model accounts for approximately 79.4% of the variance in the 'Mission' variable (R-Squared = 0.794), with an adjusted R-Squared of 0.763, indicating a good fit. The standard error of the estimate is 0.481.

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.891 ^a	.794	.763	.481

a. Predictors: (Constant), Resilience, Accountability, Cohesion, Communication, Leadership

b. Dependent Variable: Mission

The ANOVA results indicate that the model is statistically significant ($F = 25.443$, $p < .001$), thereby confirming that at least one of the predictors is useful for predicting the dependent variable 'Mission'.

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.412	5	5.882	25.443	.000 ^b
	Residual	7.630	33	.231		
	Total	37.042	38			

a. Dependent Variable: Mission

b. Predictors: (Constant), Resilience, Accountability, Cohesion, Communication, Leadership

Regarding individual predictors, the coefficient for 'Cohesion' is statistically significant ($p = 0.032$) with a Beta value of 0.257, suggesting a positive relationship with 'Mission'. Other predictors are not statistically significant at the 0.05 level, and their confidence intervals include zero, rendering their contributions inconclusive. No multicollinearity was present ($VIP < 10$ for all predictors).

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	β			Lower Bound	Upper Bound	Tolerance	VIF
1 (Constant)	-.177	.489		-.361	.720	-1.172	.819		
Accountability	-.041	.133	-.040	-.304	.763	-.312	.231	.364	2.745
Communication	.341	.237	.297	1.440	.159	-.141	.822	.146	6.832
Cohesion	.293	.131	.257	2.242	.032	.027	.559	.477	2.098
Leadership	.270	.213	.305	1.270	.213	-.163	.704	.108	9.248
Resilience	.175	.140	.166	1.257	.218	-.109	.460	.358	2.795

a. Dependent Variable: Mission

The assumptions concerning the residuals of the model were verified through diagnostic plots. Both the Q-Q plot and the residual scatterplot indicated that the assumptions of normality, linearity, and homoscedasticity were met, thus validating the reliability and robustness of the regression model (figures below).

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Mission

