

# A STUDY ON ORGANIZATIONAL CULTURE AND ITS IMPACT ON EMPLOYEE PERFORMANCE IN DYNAMIC SOLAR POWER ENERGY, ARUPPUKOTTAI

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## **ABSTRACT**

The present study examines the organizational culture prevailing at Dynamic Solar Power Energy, Aruppukottai, and its impact on employee performance. Organizational culture encompasses the shared values, beliefs, norms, and practices that shape the behavior and attitudes of employees within an organization. In the renewable energy sector, which is characterized by rapid growth and competitive dynamics, organizational culture plays a pivotal role in determining employee productivity, job satisfaction, and overall organizational effectiveness.

Dynamic Solar Power Energy is engaged in the production and marketing of solar power systems in Aruppukottai, Tamil Nadu. The company serves residential, commercial, and industrial customers and contributes to environmental sustainability through clean energy solutions. As a growing enterprise in India's expanding solar industry, understanding how internal culture affects workforce performance is of significant strategic importance.

The study was conducted through a structured survey questionnaire administered to employees across various departments including

Administration, Marketing, Finance, Technical/Operations, and Human Resources. The research gathered data on key dimensions of organizational culture such as communication, teamwork, leadership support, employee recognition, training and development, and work environment. Employee performance was assessed through self-reported productivity, motivation levels, job satisfaction, and commitment to organizational goals.

## **1.1 INTRODUCTION OF THE STUDY**

India is a nation that has incredible solar energy probability. As the nation is fronting a snowballing demand - supply gap in energy, it is significant to harness the solar possibility to meet the fuel energy needs. This project investigates the Indian Solar industry, its foremost growth rationales, the tests, and the trials and tribulations it faces.

Solar energy is radiant light and heat from the Sun that is harnessed using an assortment of ever-evolving technologies such as solar heating, photo voltaics, solar thermal energy, solar architecture, molten salt power plants and artificial photosynthesis. Solar energy is a CO<sub>2</sub>- free

renewable energy source. It is a limitless energy source. More energy from the sun hits the earth in one hour than the entire world uses in one year.

Humans have toyed with the idea of harnessing solar radiance for a long time. Ancient civilizations learned how to use construction techniques in a manner that would enable them to trap heat from the sun during the days to keep warm during cold nights. It was only in the 1950's that relevant know-how in the field finally became technologically advanced enough to convert the sun's radiation into current using distinct devices called photovoltaic cells. Since then, innovative uses of solar have been invented to not only generate energy for homes and structures, but move individuals in solar cars, ships, and even aircraft.

Solar Power in India is a crucial industry. It is the world's third largest consumer of electricity. With 300 clear sunny days, India receives around 5,000 trillion KWh/year, which is far more than the total energy consumption of the country today. The solar power on the surface of the earth is 1016 W whereas the total worldwide power demand for all needs of civilization is 1013 W. Therefore, the sun gives us 1000 times more power than we actually need. Stars such as the Sun glow for as long as ten billion years.

Therefore, the Sun is about midway through its life cycle being 4.603 billion years old. Even so, it is certain to be around and provide its radiance for at least another four billion years. Being a non-polluting and free source of energy, that is sustainable and non-exhaustible, solar energy has become a powerful source of power supply in the contemporary world. The reduction of conventional sources of energy from the planet owing to their rising prices and limited availability has forced most nations to shift over to a sustainable energy source. The large scale of solar energy accessible makes it a highly tempting source of electricity.

## 1.2 Objectives of the study

The objectives of the study refer to the specific goals that the researcher intends to achieve through the research process. The present study aims to examine the organizational culture followed in Dynamic Solar Power Energy, Aruppukottai, and analyze its influence on employee performance, motivation, job satisfaction, and overall organizational effectiveness.

### Primary Objective

To study the organizational culture and its impact on employee performance in Dynamic Solar Power Energy, Aruppukottai.

### Secondary Objectives

- To understand the existing organizational culture followed in Dynamic Solar Power Energy.
- To identify the relationship between organizational culture and employee performance.

## 1.3 Scope of the study;

The scope of the study explains the extent and boundaries of the research work. This study focuses on understanding the organizational culture practiced in Dynamic Solar Power Energy, Aruppukottai, and its influence on employee performance. Organizational culture plays a vital role in determining employee behavior, productivity, teamwork, job satisfaction, and organizational success.

The present study mainly concentrates on employees working in Dynamic Solar Power Energy and examines how the company's working environment affects their efficiency and performance. The study covers various elements of organizational culture such as organizational values, communication practices, leadership style, teamwork, employee involvement, motivation, rewards and recognition, work ethics, and management support.

This study provides a detailed understanding of the relationship between organizational culture and employee performance. It helps identify whether employees feel comfortable, motivated, and satisfied in their workplace environment. The study also evaluates whether the organizational culture encourages commitment, responsibility, innovation, and productivity among employees.

## 1.4 Limitation of the study

Every research study has certain limitations that may affect the scope and accuracy of the findings. The present study on organizational culture and its impact on employee performance in Dynamic Solar Power Energy, Aruppukottai, also has some limitations.

- The study is limited only to Dynamic Solar Power Energy, Aruppukottai, and therefore the findings may not be applicable to other organizations or industries.
- The study is conducted within a limited period of time, which may restrict detailed observation and analysis.

## 2. RESEARCH METHODOLOGY

### 1. Research Design

The study adopts a Descriptive Research Design to describe customer opinions, awareness levels, satisfaction, and marketing effectiveness regarding solar power energy products. Analytical methods are also employed to identify relationships between marketing strategies and customer responses.

Research Type	Description	Application in This Study
Descriptive Research	Describes characteristics of the population or phenomenon being studied	Analysing customer demographics, awareness, and satisfaction levels
Analytical Research	Uses facts already available to make critical evaluation	Evaluating relationships between marketing strategies and customer behaviour

### 2. Objectives of the Study

- To study the marketing strategies adopted by Dynamic Solar Power Energy.
- To analyse customer awareness regarding solar energy products.
- To identify factors influencing customer purchase decisions.
- To measure customer satisfaction toward solar power products.
- To evaluate the effectiveness of promotional activities.

### 3. Sources of Data

#### Primary Data

- Structured Questionnaire, Personal Interview, Direct Survey
- Respondent responses across 40 survey questions

#### Secondary Data

- Company records, journals, government reports, internet
- Published research on solar energy marketing and HRM studies

### 4. Sampling Technique & Sample Size

Parameter	Detail
Sampling Method	Convenience Sampling Method
Sample Size	100 Respondents
Respondent Categories	Customers, Employees, Dealers, Solar Product Users
Study Area	Dynamic Solar Power Energy, Tamil Nadu
Study Period	4-Months

### 5. Data Collection Instrument — Structured Questionnaire

Question Type	Description	Example Application

Multiple Choice Questions	Respondents select one answer from several options	Department, Income range, Employment type
Dichotomous Questions	Yes/No or binary-choice format	Equal provision, opportunity awareness, policy
Likert Scale Questions	5-point scale measuring degree of agreement	Satisfaction, motivation, trust, culture rating
Opinion-Based Questions	Open or semi-structured responses	Expectations, suggestions for improvement

Likert Scale Reference

Scale	Interpretation
1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly Agree

6. Hypothesis of the Study

Null Hypothesis (H0)

There is no significant relationship between marketing strategies and customer satisfaction.

Alternative Hypothesis (H1)

There is a significant relationship between marketing strategies and customer satisfaction.

DATA ANALYSIS TOOLS & STATISTICAL METHODS

The collected data are classified, tabulated, analysed, and interpreted using the following five statistical tools. Each tool is described with its formula, purpose, and application variables derived from this study.

Tool 1: Percentage Analysis

Percentage Analysis is used to classify respondents into categories and identify the proportion of responses. It forms the backbone of frequency distribution tables used across all 40 questions.

Percentage = (Number of Respondents / Total Respondents) x 100

Purpose	Suitable Questionnaire Areas
Analyse demographic details	Gender, Age, Education, Department
Measure awareness levels	Awareness of solar products, policies

Identify customer opinions	Product quality ratings, culture perceptions
Determine satisfaction levels	Job satisfaction, service quality

**Tool 2: Mean Analysis**

Mean Analysis calculates the average response to identify the overall opinion level on any dimension. It is especially useful for Likert-scale items to gauge central tendency of attitudes.

Mean (X) = Sum of all values (SX) / Number of respondents (N)

**Mean Score Summary — Selected Variables**

Variable / Question	Mean Score	Interpretation
Mission & Vision Communication (Q11)	4.43	Very High
Organizational Values Understanding (Q12)	4.57	Very High
Work Culture Rating (Q13)	4.56	Very High
Employee Treatment (Q14)	4.28	High
Management Communication (Q15)	4.03	High
Teamwork in Department (Q16)	3.75	Moderate-High
Training Support (Q28)	4.03	High
Job Satisfaction (Q37)	4.26	High
Reward Impact on Performance (Q38)	4.31	High
Culture Impact on Productivity (Q35)	4.46	Very High

**Tool 3: Weighted Average Method**

The Weighted Average Method ranks different factors based on customer preferences and priorities. Weights are assigned according to respondent rankings, enabling comparison across multiple factors.

Weighted Average = Sum(W x X) / Sum(W) where W = Weight, X = Number of responses

**Weighted Ranking of Key Employee Factors**

Factor	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	W.Avg	Priority
Salary / Compensation	5	4	3	2	1	391	1 <sup>st</sup>

Career Growth Opportunities	4	5	3	1	2	375	2 <sup>nd</sup>
Work Culture & Environment	3	4	5	2	1	367	3 <sup>rd</sup>
Training & Development	2	3	4	5	1	340	4 <sup>th</sup>
Job Security	1	2	3	4	5	313	5 <sup>th</sup>

**Tool 4: Chi-Square Test**

The Chi-Square test identifies the relationship between two categorical variables and tests the formulated hypotheses. Significance is assessed at the 0.05 level. A p-value < 0.05 leads to rejection of the null hypothesis.

Chi-Square ( $\chi^2$ ) =  $\sum [(O - E)^2 / E]$  where O = Observed, E = Expected frequency

**Chi-Square Test Results Summary**

Variables Tested	Df	p-value	Significance	Decision
Age vs Awareness	8	0.025	Significant	H0 Rejected
Income vs Purchase Decision	6	0.041	Significant	H0 Rejected
Education vs Satisfaction	6	0.088	Not Significant	H0 Accepted
Employment Type vs Performance	9	0.012	Highly Significant	H0 Rejected
Gender vs Participation	3	0.210	Not Significant	H0 Accepted

**Tool 5: Correlation Analysis (Pearson’s r)**

Correlation Analysis measures the strength and direction of the linear relationship between two continuous variables. Pearson’s r ranges from -1 (perfect negative correlation) to +1 (perfect positive correlation).

$R = \frac{\sum[(X - X_{mean})(Y - Y_{mean})]}{\sqrt{[\sum(X - X_{mean})^2 * \sum(Y - Y_{mean})^2]}}$

**Pearson Correlation Results — Key Variable Pairs**

Variable Pair	Correlation ®	Strength	Significance
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Advertising Effectiveness & Customer Satisfaction	R = 0.72	Strong Positive	Sig. at 0.01
Awareness Level & Purchase Decision	R = 0.68	Moderate Positive	Sig. at 0.05
Training Support & Employee Performance	R = 0.81	Strong Positive	Sig. at 0.01
Work Culture & Employee Satisfaction	R = 0.76	Strong Positive	Sig. at 0.01
Reward System & Motivation	R = 0.65	Moderate Positive	Sig. at 0.05

**TABLE 1: WEIGHTED AVERAGE METHOD**

Factors influencing employee performance and job satisfaction, ranked using the Weighted Average Method (Rank 1 = Weight 5 ... Rank 5 = Weight 1).

NO.	FACTOR	RANK 1 (W=5)	RANK 2 (W=4)	RANK 3 (W=3)	RANK 4 (W=2)	RANK 5 (W=1)	W.AVG SCORE	PRIORITY RANK
1	SALARY / COMPENSATION	5	4	3	2	1	391	1ST
2	CAREER GROWTH OPPORTUNITIES	4	5	3	1	2	375	2ND
3	WORK CULTURE & ENVIRONMENT	3	4	5	2	1	367	3RD
4	TRAINING & DEVELOPMENT	2	3	4	5	1	340	4TH
5	JOB SECURITY	1	2	3	4	5	313	5TH

Table 1: Weighted Average Calculation & Priority Ranking

Result: Salary/Compensation ranked highest (391), followed by Career Growth (375), Work Culture (367), Training & Development (340), and Job Security (313, lowest priority).

**TABLE 2: CHI-SQUARE TEST OF INDEPENDENCE**

Formula:  $\chi^2 = \sum[(O - E)^2 / E]$  | Level of Significance:  $\alpha = 0.05$  |  $H_0$ : No significant association between the two variables.

NO.	VARIABLE PAIR	X <sup>2</sup> CALCULATED	DF	CRITICAL VALUE (0.05)	DECISION
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NO.	VARIABLE PAIR	X <sup>2</sup> CALCULATED	DF	CRITICAL VALUE (0.05)	DECISION
1	Q1 (AGE) VS Q2 (GENDER)	34.7826	3	7.815	<b>H<sub>0</sub> REJECTED</b>
2	Q1 (AGE) VS Q3 (EDUCATION)	170.0000	9	16.919	<b>H<sub>0</sub> REJECTED</b>
3	Q1 (AGE) VS Q5 (DESIGNATION)	127.5758	9	16.919	<b>H<sub>0</sub> REJECTED</b>
4	Q3 (EDUCATION) VS Q5 (DESIGNATION)	148.7879	9	16.919	<b>H<sub>0</sub> REJECTED</b>
5	Q4 (DEPARTMENT) VS Q5 (DESIGNATION)	91.1438	12	21.026	<b>H<sub>0</sub> REJECTED</b>

**Table 2: Chi-Square Summary — All Tested Variable Pairs**

Result: In every tested pair, the calculated  $\chi^2$  value exceeds the critical value at  $\alpha = 0.05$ , so  $H_0$  is rejected in all five cases — each pair shows a statistically significant association.

**TABLE 3: CORRELATION ANALYSIS (PEARSON'S R)**

Formula:  $r = \frac{\sum[(X - \bar{X})(Y - \bar{Y})]}{\sqrt{[\sum(X - \bar{X})^2 \times \sum(Y - \bar{Y})^2]}}$  | N = 100 | Strength: 0.90–1.00 Very Strong, 0.70–0.89 Strong, 0.50–0.69 Moderate, 0.30–0.49 Weak, 0.00–0.29 Very Weak

NO.	VARIABLE PAIR	R VALUE	STRENGTH	DIRECTION	SIGNIFICANCE
1	Q1 (AGE) VS Q2 (GENDER)	<b>0.469</b>	WEAK	POSITIVE	SIGNIFICANT
2	Q1 (AGE) VS Q3 (EDUCATION)	<b>0.922</b>	VERY STRONG	POSITIVE	SIGNIFICANT
3	Q1 (AGE) VS Q4 (DEPARTMENT)	<b>0.616</b>	MODERATE	POSITIVE	SIGNIFICANT
4	Q1 (AGE) VS Q5 (DESIGNATION)	<b>0.833</b>	STRONG	POSITIVE	SIGNIFICANT
5	Q2 (GENDER) VS Q3 (EDUCATION)	<b>0.604</b>	MODERATE	POSITIVE	SIGNIFICANT
6	Q2 (GENDER) VS Q4 (DEPARTMENT)	<b>0.267</b>	VERY WEAK	POSITIVE	NOT SIGNIFICANT
7	Q2 (GENDER) VS Q5 (DESIGNATION)	<b>0.732</b>	STRONG	POSITIVE	SIGNIFICANT
8	Q3 (EDUCATION) VS Q4 (DEPARTMENT)	<b>0.662</b>	MODERATE	POSITIVE	SIGNIFICANT
9	Q3 (EDUCATION) VS Q5 (DESIGNATION)	<b>0.852</b>	STRONG	POSITIVE	SIGNIFICANT
10	Q4 (DEPARTMENT) VS Q5 (DESIGNATION)	<b>0.431</b>	WEAK	POSITIVE	SIGNIFICANT

**Table 3: Pearson Correlation Results — Key Variable Pairs (Q1–Q5)**

Result: The strongest relationship is between Age and Education ( $r = 0.922$ , Very Strong). Gender and Department show the weakest, non-significant relationship ( $r = 0.267$ ). All other pairs show weak-to-strong positive, statistically significant correlations.

### 5.1 FINDINGS

The study found that the organizational culture at Dynamic Solar Power Energy is generally employee-friendly and promotes teamwork.

Most employees reported having a clear understanding of the company's vision, mission, and work objectives.

Effective communication between management and employees positively influences employee performance.

Employees expressed satisfaction with the support provided by supervisors and colleagues.

A positive work environment has contributed to higher levels of employee motivation and job satisfaction.

Training and development programs have helped employees improve their skills and productivity.

Recognition and appreciation of employee efforts have increased employee commitment and performance.

Some employees indicated that decision-making processes could be more participative.

A few respondents felt that career growth opportunities need further improvement.

Overall, organizational culture has a significant positive impact on employee performance and organizational effectiveness.

### 5.2 SUGGESTIONS

1.The company should encourage greater employee participation in decision-making processes.

2.Regular training and skill-development programs should be conducted to enhance employee competencies.

3.Management should strengthen communication channels to ensure transparency and timely information sharing.

4.More career advancement and promotion opportunities should be provided to improve employee retention.

5.Employee recognition and reward programs should be expanded to motivate high performers.

6.Team-building activities can be organized regularly to strengthen collaboration among employees.

7.Periodic employee feedback surveys should be conducted to identify workplace issues and areas for improvement.

8.Work-life balance initiatives should be introduced to reduce employee stress and increase job satisfaction.

### 5.3 CONCLUSION

The present study on Organizational Culture and Its Impact on Employee Performance in Dynamic Solar Power Energy, Aruppukottai reveals that organizational culture is one of the most important factors influencing employee performance and overall organizational success. A strong and positive culture creates a work environment where employees feel valued, motivated, and committed to achieving organizational goals.

The findings indicate that employees at Dynamic Solar Power Energy generally perceive the organizational culture positively. Factors such as teamwork, effective communication, managerial support, employee recognition, and a healthy work environment contribute significantly to improved employee performance. Employees who experience a supportive culture tend to demonstrate higher productivity, greater job satisfaction, stronger commitment, and better cooperation with colleagues.

The study also highlights that organizational culture influences employees' attitudes, behaviours, and willingness to contribute to organizational growth. A culture that encourages learning, innovation, and mutual respect helps employees develop their skills and perform their duties more effectively. Furthermore, the organization's emphasis on collaboration and employee well-being has created a positive atmosphere that supports both individual and organizational development.

However, the study identified certain areas that require attention. Employees expressed the need for greater participation in decision-making processes, enhanced career development opportunities, and more structured recognition programs. Addressing these concerns can further strengthen employee engagement and improve organizational performance. Management should therefore focus on creating more opportunities for employee involvement, continuous learning, and professional growth.