

COVID-19 Resilience and Recovery: Analyzing Organizational Performance After Oil and Gas Industry Disasters

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Abstract

This study investigates the impact of COVID-19 recovery strategies on organizational performance within the oil and gas industry in Gujarat, focusing on demographic composition and self-reported employee performance. The research employed a Descriptive research design, collecting data via surveys from 418 oil and gas industry employees in Gujarat. The findings reveal significant insights into the industry's workforce. A gender disparity was prominent, with 80.1% of respondents being male, emphasizing the need for gender diversity initiatives. The majority of respondents (40.4% and 36.6%) fell within the 35 to 55-year age range, signifying a mature workforce, but age diversity was also notable. Designations within the industry varied, with a substantial representation of field employees (43.3%) and machine operators (36.4%), encompassing roles from administrative staff to employers. The study assessed employees' self-reported performance across key aspects, demonstrating their confidence in meeting job performance goals and contributing to overall company success during the pandemic. Their proficiency in adapting to changing work conditions and feeling well-supported highlighted resilience. Furthermore, strong self-satisfaction, meeting project deadlines, proactive skill development, effective collaboration, motivation, and perceived contribution to safety and success underscored dedication. Regression analysis unveiled a robust and highly significant positive relationship between Organizational Performance and Employee Performance. Improved Organizational Performance was associated with enhanced employee performance, emphasizing the strategic importance of organizational practices in fostering workforce productivity post-COVID-19. In conclusion, this study offers insights into demographics and employee perceptions in the oil and gas industry, highlighting the need for diversity and the impact of organizational strategies on employee performance.

Keywords: COVID-19 recovery strategies, organizational performance, oil and gas industry, demographic composition, employee performance, gender diversity, age diversity, employee satisfaction, adaptation, workplace collaboration.

Introduction

The COVID-19 pandemic, a worldwide catastrophe that emerged abruptly in early 2020, has significantly impacted several industries and businesses. The oil and gas industry, which plays a crucial role in the global energy supply chain, was also affected by the difficulties brought about by this extraordinary occurrence. The industry experienced a period of upheaval during the pandemic, marked by unpredictable fluctuations in oil demand, interruptions in the supply chain, and increased emphasis on health and safety protocols (Garcia, A. S., Mendes-Da-Silva, W., & Orsato, R. J., 2021). The oil and gas sector in Gujarat, an important participant in India's energy industry, had to demonstrate exceptional endurance and adaptation in order to overcome the storm and continue progressing (Raut, R. D., Narkhede, B., & Gardas, B. B., 2017).

This research study examines the strategies employed by the oil and gas industry in Gujarat to address the consequences of the Covid-19 outbreak. Gujarat's significant contribution to India's energy infrastructure, with

its abundance of refineries, petrochemical facilities, and oil exploration activities, makes it an important subject for studying the wider difficulties and responses of the industry on a worldwide level.

This research has two main purposes. The primary objective is to examine the strategies and actions implemented by the oil and gas industry in Gujarat to strengthen its ability to withstand and recover from the impacts of the Covid-19 outbreak. Secondly, it aims to assess the influence of these policies on the organisational performance of the sector. Organisational performance, in this context, goes beyond financial measures and includes a range of criteria such as the ability to adapt to changing circumstances, the well-being of the workforce, operational efficiency, and environmental sustainability.

Amidst a world marked by uncertainty and swift transformations, it is crucial to comprehend how organisations adjust and develop in response to major shocks. This research project aims to examine the COVID-19 resilience and recovery in the oil and gas sector in Gujarat. It will offer vital insights into the intricate relationship between pandemic resilience, organisational reaction, and overall performance. These insights can act as a guiding principle to navigate the energy industry in Gujarat and beyond, as it prepares to face future difficulties and uncertainties in the constantly changing energy sector.

Review of Literature

The oil and gas industry has been greatly affected by the Covid-19 epidemic. The sector has experienced a supply shock, an unparalleled decrease in demand, and a worldwide humanitarian disaster. The sector's financial and structural condition is currently more dire than in prior crises (Obeidat, S. M., Al Bakri, A. A., & Elbanna, S., 2020). The emergence of shale, an abundant supply, and lenient financial markets that disregarded restricted capital discipline have all played a role in the sector's unsatisfactory results. The industry is currently seeing its third instance of a significant decrease in prices within a span of 12 years, and executives have a strong perception that change is unavoidable (Yusuf, Y. Y., Gunasekaran, A., Musa, A., Dauda, M., El-Berishy, N. M., & Cang, S., 2014).

The COVID-19 problem is expediting a significant period of transformation in the sector. Although the exact extent and duration of this crisis are undetermined, our research indicates that without significant transformation, it will be challenging to regain the previously favourable sector performance (Sarrakh, R., Renukappa, S., & Suresh, S., 2022). The sector is currently heading towards a period characterised by fierce rivalry, rapid supply response driven by technology, stagnant or decreasing demand, scepticism from investors, and growing public and government scrutiny about the industry's impact on climate and the environment (Agi, M. E., 2016).

In order to shift the existing paradigm, the industry must delve into its rich history of audacious structural manoeuvres, innovation, and successful and lucrative operations in the most challenging circumstances. Companies that fail to do so will either undergo restructuring or inevitably decline (Sharma, M., Joshi, S., Prasad, M., & Bartwal, S., 2023).

Objectives

Examine the COVID-19 recovery strategies implemented by organizations in the oil and gas industry, with a particular emphasis on their impact on overall organizational performance following disruptive events.

Methodology

The study adopted Descriptive research design, wherein the data was collected through survey method. For the purpose of study, the data was collected from employees working in Oil and Gas industry in Gujarat were considered as the sample. Using simple random sampling technique, the data was collected from 418 respondents through structured questionnaire.

Analysis and Interpretation

This table shows the distribution of respondents based on their gender, age, and designation within the oil and gas industry.

Table No. 1: Demographic Profile of the respondents

		Frequency	Percent
Gender	Male	335	80.1
	Female	83	19.9
	Total	418	100.0
Age	Less than 35 Years	52	12.4
	35 - 45 Years	169	40.4
	45 - 55 Years	153	36.6
	Above 55 years	44	10.5
	Total	418	100.0
Designation	Field Employee	181	43.3
	Machine Operators	152	36.4
	Employer	39	9.3
	Administrative Staff	46	11.0
	Total	418	100.0

Source: (Primary data)

Gender:

- The table indicates that a total of 418 respondents participated in the survey.
- Out of the total respondents, the majority were male, accounting for 80.1% of the respondents.
- Female respondents comprised a smaller but still significant proportion at 19.9%.

This suggests that the survey had a larger representation of male respondents in the oil and gas industry, with a notable but comparatively smaller presence of female respondents.

Age:

- The respondents' ages were categorized into four groups: "Less than 35 Years," "35 - 45 Years," "45 - 55 Years," and "Above 55 years."
- The most substantial group of respondents fell into the "35 - 45 Years" category, making up 40.4% of the total respondents.
- The second-largest age group was "45 - 55 Years," with 36.6%.
- "Less than 35 Years" accounted for 12.4% of respondents, while "Above 55 years" constituted 10.5%.

The majority of the respondents were in the age range of 35 to 55 years, indicating a mature and experienced workforce in the oil and gas industry. However, there was also a presence of younger and older employees in the survey.

Designation:

- Respondents' designations were categorized into four groups: "Field Employee," "Machine Operators," "Employer," and "Administrative Staff."
- The largest group of respondents held the designation of "Field Employee," making up 43.3% of the total respondents.
- "Machine Operators" constituted the second-largest group at 36.4%.
- "Administrative Staff" accounted for 11.0% of the respondents, and "Employers" represented 9.3%.

The data reveals a diverse mix of designations among the respondents, with a significant presence of field employees and machine operators. This suggests that the survey covered a broad spectrum of roles within the oil and gas industry, from fieldwork to administrative and managerial positions.

The aspects of organizational performance with respect to different designations within a company. Each aspect is evaluated in terms of the sum of squares, degrees of freedom, mean square, F-statistic, and significance (Sig.) value.

Table No. 2: Organizational Performance W.r.t. Designation

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
The company consistently achieves its financial targets.	Between Groups	20.124	3	6.708	10.138	.000
	Within Groups	273.926	414	.662		
	Total	294.050	417			
The company effectively manages health and safety standards in the workplace.	Between Groups	22.219	3	7.406	11.003	.000
	Within Groups	278.673	414	.673		
	Total	300.892	417			
The company's operations are environmentally responsible and sustainable.	Between Groups	22.336	3	7.445	10.658	.000
	Within Groups	289.216	414	.699		
	Total	311.553	417			
The company fosters a culture of innovation and adaptation.	Between Groups	12.567	3	4.189	5.573	.001
	Within Groups	311.184	414	.752		
	Total	323.751	417			
The company provides employees with opportunities for professional growth and development.	Between Groups	14.950	3	4.983	7.011	.000
	Within Groups	294.278	414	.711		
	Total	309.227	417			
The company effectively manages and mitigates risks in its operations.	Between Groups	23.923	3	7.974	12.816	.000
	Within Groups	257.601	414	.622		
	Total	281.524	417			
The company has strong leadership and effective communication.	Between Groups	41.645	3	13.882	21.087	.000
	Within Groups	272.537	414	.658		
	Total	314.182	417			
The company has a strong commitment to ethical business practices.	Between Groups	14.883	3	4.961	7.183	.000
	Within Groups	285.924	414	.691		
	Total	300.806	417			
The company maintains high levels of customer satisfaction and loyalty.	Between Groups	31.732	3	10.577	15.734	.000
	Within Groups	278.318	414	.672		
	Total	310.050	417			

Source: (Primary data)

The ANOVA results demonstrate that there are substantial variations in perceptions among different designations within the company regarding various aspects of organizational performance. These variations may reflect differences in experiences, responsibilities, or expectations among different groups within the organization, highlighting the need for targeted strategies to address these disparities and enhance overall organizational performance.

Table No. 3 presents descriptive statistics for various aspects of organizational performance categorized by different designations within the company, including Field Employees, Machine Operators, Employers, and Administrative Staff. The data in the table provides insights into the mean scores for each performance aspect, indicating how different groups perceive these organizational factors.

Table No. 3: Descriptive Statistics – Organizational Performance

Designation	Field Employee	Machine Operators	Employer	Administrative Staff
The company consistently achieves its financial targets.	4.2762	4.3750	3.8205	3.7609
The company effectively manages health and safety standards in the workplace.	4.2707	4.3816	3.8205	3.7174

The company's operations are environmentally responsible and sustainable.	4.3481	4.3553	3.8974	3.6957
The company fosters a culture of innovation and adaptation.	4.2707	4.3421	4.0000	3.8043
The company provides employees with opportunities for professional growth and development.	4.2099	4.2566	3.7436	3.7826
The company effectively manages and mitigates risks in its operations.	4.3923	4.3684	3.9744	3.6739
The company has strong leadership and effective communication.	4.2762	4.3947	3.8462	3.3913
The company has a strong commitment to ethical business practices.	4.3591	4.4145	4.0769	3.8261
The company maintains high levels of customer satisfaction and loyalty.	4.3039	4.4013	3.7949	3.5870

Source: (Primary data)

- The company consistently achieves its financial targets:
 - Machine Operators rated the company highest in terms of achieving financial targets, followed by Field Employees. In contrast, Employers and Administrative Staff rated the company lower in this aspect.
- The company effectively manages health and safety standards in the workplace:
 - Machine Operators and Field Employees rated the company highly in terms of health and safety management. Employers and Administrative Staff had comparatively lower ratings.
- The company's operations are environmentally responsible and sustainable:
 - Interpretation: Field Employees and Machine Operators provided higher ratings for the company's environmental responsibility. Employers and Administrative Staff gave lower ratings.
- The company fosters a culture of innovation and adaptation:
 - Machine Operators rated the company highest in fostering innovation and adaptation, followed by Field Employees. Employers and Administrative Staff provided slightly lower ratings.
- The company provides employees with opportunities for professional growth and development:
 - Machine Operators and Field Employees rated the company positively in providing growth opportunities. Employers and Administrative Staff had slightly lower ratings in this aspect.
- The company effectively manages and mitigates risks in its operations:
 - Field Employees rated the company highly in risk management, closely followed by Machine Operators. Employers and Administrative Staff provided lower ratings.
- The company has strong leadership and effective communication:
 - Machine Operators rated the company highest in terms of leadership and communication, followed by Field Employees. Employers provided a slightly lower rating, while Administrative Staff had the lowest rating.
- The company has a strong commitment to ethical business practices:
 - Machine Operators and Field Employees rated the company highly for ethical business practices. Employers also provided a positive rating, but it was lower than that of Field Employees and Machine Operators. Administrative Staff rated this aspect the lowest.
- The company maintains high levels of customer satisfaction and loyalty:
 - Machine Operators and Field Employees provided higher ratings for customer satisfaction and loyalty. Employers rated this aspect positively but slightly lower, and Administrative Staff rated it the lowest.

These results highlight variations in perceptions among different designations within the organization, shedding light on areas where improvements or targeted strategies may be needed to align these perceptions and enhance overall organizational performance.

The table provides a summary of a regression analysis that aims to understand the relationship between the independent variable "Organizational Performance" and the dependent variable "Employee Performance."

Table No 4: Regression Analysis – Impact of Employee Performance on Organizational Performance

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.810 ^a	.656	.655	.31650		
a. Predictors: (Constant), Organizational Performance						
ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	79.427	1	79.427	792.917	.000 ^b
	Residual	41.671	416	.100		
	Total	121.098	417			
Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.750	.124		6.073	.000
	Organizational Performance	.821	.029	.810	28.159	.000
a. Dependent Variable: Employee Performance						

Source: (Primary data)

Model Summary:

- **R:** The correlation coefficient (R) measures the strength and direction of the linear relationship between the independent and dependent variables. In this model, the R value is 0.810, indicating a strong positive correlation between organizational performance and employee performance. As organizational performance improves, employee performance tends to improve as well.
- **R Square (R^2):** The R-squared value represents the proportion of the variance in the dependent variable (Employee Performance) that can be explained by the independent variable (Organizational Performance). In this case, R-squared is 0.656, which means that 65.6% of the variance in employee performance can be explained by organizational performance. This is a relatively high R-squared value, indicating that organizational performance is a significant predictor of employee performance.
- **Adjusted R Square:** The adjusted R-squared value adjusts the R-squared value for the number of predictors in the model. It helps account for the complexity of the model. In this case, the adjusted R-squared is 0.655, which is very close to the R-squared value. This suggests that the independent variable (Organizational Performance) is a strong predictor of employee performance, even after considering model complexity.
- **Std. Error of the Estimate:** This represents the standard error of the residuals, which is a measure of the model's accuracy in predicting employee performance. A lower value indicates a better fit of the model to the data. In this model, the standard error of the estimate is 0.31650.

ANOVA (Analysis of Variance):

The ANOVA table tests the overall significance of the regression model. The key statistics in the ANOVA table are as follows:

- Regression: This section examines the variance explained by the regression model. The sum of squares for regression is 79.427, and it has 1 degree of freedom.
- Residual: This section examines the unexplained variance (residuals) in the model. The sum of squares for residuals is 41.671, with 416 degrees of freedom.
- Total: This section represents the total variance in the dependent variable. The total sum of squares is 121.098, with a total of 417 degrees of freedom.

The high F-statistic value (792.917) and the associated p-value (0.000) in the ANOVA table indicate that the regression model is statistically significant. It suggests that the independent variable (Organizational Performance) significantly contributes to explaining the variance in the dependent variable (Employee Performance).

Coefficients:

- The coefficients section provides information about the relationship between the independent and dependent variables.
- Constant: The constant represents the intercept of the regression equation. In this model, the constant is 0.750.
- Organizational Performance: This is the coefficient for the independent variable. In this case, the coefficient is 0.821, indicating that for every unit increase in Organizational Performance, Employee Performance is expected to increase by 0.821 units.
- The t-statistic for Organizational Performance is 28.159, and the associated p-value is 0.000. This suggests that Organizational Performance is a highly significant predictor of Employee Performance.

The regression analysis indicates that there is a strong positive relationship between Organizational Performance and Employee Performance. The model is highly significant and explains a substantial portion of the variance in employee performance. As Organizational Performance improves, employee performance is expected to improve as well.

Discussion

The study's findings reveal valuable insights into the composition and self-reported performance of employees within the oil and gas industry in Gujarat, particularly in the context of the post-COVID-19 "new normal." The significant gender imbalance, with a majority of male respondents, underscores the industry's need for more inclusive practices and efforts to promote gender diversity. The prevalence of respondents within the 35 to 55-year age range indicates a mature and experienced workforce, although the presence of younger and older employees signals a degree of age diversity. The diverse mix of designations within the industry, from field employees to machine operators, employers, and administrative staff, highlights the multifaceted roles present. These findings collectively paint a picture of the industry's demographic diversity and the need for strategies that cater to different employee groups.

Furthermore, the self-reported performance aspects underscore the industry's resilience during the pandemic. Employees' high confidence in consistently meeting performance goals and their strong sense of contribution to their companies' overall success reflect their commitment and adaptability. Their satisfaction with personal performance, ability to meet project deadlines, and proactive approach to skill development indicate a dedicated and motivated workforce. Additionally, the collaborative spirit and belief in their role's positive impact on the company's success and safety reflect a shared sense of responsibility. These positive self-perceptions are vital for maintaining productivity and ensuring operational stability, particularly during challenging periods like the COVID-19 pandemic.

The regression analysis presents a crucial insight into the relationship between Organizational Performance and Employee Performance. The strong positive association highlights that enhancing the organization's performance can directly influence and improve employee performance. This underscores the strategic importance of organizational initiatives and practices in driving employee productivity and success in the post-pandemic landscape.

Findings and Conclusion

The findings of this study offer valuable insights into the demographics and perceptions of employees in the oil and gas industry in Gujarat, particularly in the post-COVID-19 era. The survey, which encompassed 418 participants, highlighted a significant gender disparity, with 80.1% of the respondents being male, while females made up 19.9%. This gender imbalance underscores the need for efforts to promote greater gender diversity within the industry. In terms of age, the majority of respondents fell within the 35 to 55-year age group, comprising 40.4% and 36.6% of the total respondents, respectively. This demographic composition indicates a predominantly mature and experienced workforce in the sector. Notably, the survey also included younger employees (12.4%) and individuals above 55 years (10.5%), showcasing age diversity within the industry. The study further explored the varied designations of the participants, categorizing them as "Field Employee," "Machine Operators," "Employers," and "Administrative Staff." The data revealed a diverse mix of roles, with a significant representation of field employees (43.3%) and machine operators (36.4%). Administrative staff and employers accounted for 11.0% and 9.3%, respectively. This diversity emphasizes the broad spectrum of positions within the oil and gas industry, covering roles from fieldwork to administrative and managerial positions.

Additionally, the survey assessed employees' self-reported performance in various key aspects, with participants providing their perspectives on their organization's performance. On average, respondents expressed high confidence in consistently meeting their job performance goals during the pandemic (mean score of 4.2440) and believed that their work contributed positively to their company's overall success (mean score of 4.2057). This strong sense of contribution to organizational success and productivity was evident throughout the findings. Employees also reported proficiency in adapting to changing work conditions and requirements (mean score of 4.2488), demonstrating their adaptability during challenging times. The mean score of 4.2177 indicated that employees felt well-supported and adequately resourced to perform their jobs effectively. Moreover, a high level of satisfaction with their own performance was reported, with a mean score of 4.1675. Respondents perceived themselves as consistently meeting project deadlines and milestones (mean score of 4.2321), actively seeking opportunities for skill development and growth in their roles (mean score of 4.2225), and collaborating effectively with colleagues to achieve collective goals (mean score of 4.2392). They also reported feeling motivated and engaged in their work (mean score of 4.1962) and believed their performance positively impacted the overall success and safety of operations in the oil and gas industry (mean score of 4.2177). These positive self-perceptions regarding performance are vital for maintaining productivity and resilience, especially in the face of challenges such as the COVID-19 pandemic.

Furthermore, the study conducted a regression analysis to explore the relationship between Organizational Performance and Employee Performance, revealing a strong and highly significant positive relationship. The model explained a substantial portion of the variance in employee performance, with Organizational Performance being a highly significant predictor. This suggests that as Organizational Performance improves, employee performance is expected to improve as well.

This study provides a comprehensive view of the demographics and self-perceived performance of employees in the oil and gas industry in Gujarat, shedding light on both strengths and areas for potential improvement. The findings highlight the importance of addressing gender disparities, leveraging age diversity, and understanding the varying perceptions of different designations within the industry. Additionally, the strong link between Organizational Performance and Employee Performance emphasizes the significance of organizational strategies and practices in driving employee productivity and success, particularly in the context of post-COVID-19 adaptations.

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