

A STUDY ON ADAPTATION OF HR CHALLENGES USING SENTIMENTAL ANALYSIS W.R.T ZONE 1, 3, 7 & 49 EXPORT ORIENTED COMPANIES

Dr. C. Evangeline¹, Dr. P.K. Dhanalakshmi², Ms. M. Nishanthi³, Ms. V Betsy Hannah⁴, Ms. T. Jayasri⁵

¹ Asso. Professor & HOD, Department of Management Sciences, St. Peter's College of Engineering and Technology, Chennai.

^{2,3,4,5} Asso. Professor, Department of Management Sciences, St. Peter's College of Engineering and Technology, Chennai.

Abstract: Export-oriented companies operate in a highly competitive global environment where workforce expectations and organizational demands change rapidly. Traditional HR practices are often unable to fully capture employee emotions and workplace challenges. Sentiment analysis has emerged as a powerful analytical tool that helps organizations understand employee feedback, attitudes, and behavioural patterns.

This study focuses on export-oriented companies located in Zones 1, 3, 7 and 49 and examines how sentiment-based HR practices can address workforce challenges. The findings reveal that employees face issues related to workload pressure, communication gaps, career growth concerns, and technological adaptation. Statistical analysis showed a strong positive relationship between emotional engagement and job satisfaction, highlighting the importance of supportive HR policies. Organizations that adopt sentiment-driven HR interventions can design flexible policies, improve employee engagement, and reduce turnover.

Overall, the study emphasizes the need for data-driven HR decision-making supported by AI and analytics. Integrating sentiment analysis into HR practices can help organizations create healthier work environments, enhance employee satisfaction, and achieve sustainable organizational growth.

Keywords: Sentiment Analysis, Human Resource Management, HR Analytics, Employee Engagement, Job Satisfaction, Employee Retention, Export-Oriented Companies, Data-Driven HR, Workforce Analytics, Organizational Performance

1. INTRODUCTION

In the contemporary business environment, export-oriented companies operate in a highly competitive and dynamic global market, where effective human resource management plays a crucial role in achieving organizational sustainability and growth. These organizations face numerous HR challenges such as employee attrition, work-related stress, low engagement, productivity issues, and the need to adapt HR practices to rapidly changing workforce expectations. Addressing these challenges requires a shift from traditional HR approaches toward more analytical and employee-centric strategies.

Sentiment analysis, an emerging application of data analytics in human resource management, enables organizations to systematically capture, analyse, and interpret employee emotions, opinions, and behavioural patterns expressed through feedback, surveys, and digital interactions. By understanding employee sentiment, organizations can gain deeper insights into workplace dynamics, identify hidden HR challenges, and respond proactively to employee needs. This data-driven approach enhances the ability of HR managers to design adaptable policies and interventions that align with employee expectations and organizational objectives.



The adaptation of HR challenges using sentiment analysis has become particularly relevant for export-oriented companies, where workforce diversity, operational pressure, and performance demands are significantly high. Zones 1 (Thiruvottiyur), 3 (Madhavaram), 7 (Ambattur), and 49 (Gummidipoondi) comprise a large number of export-oriented industries that contribute substantially to regional and national economic development. However, these zones also experience distinct HR challenges related to employee engagement, retention, workload management, and emotional well-being due to intense competition and global operational standards.

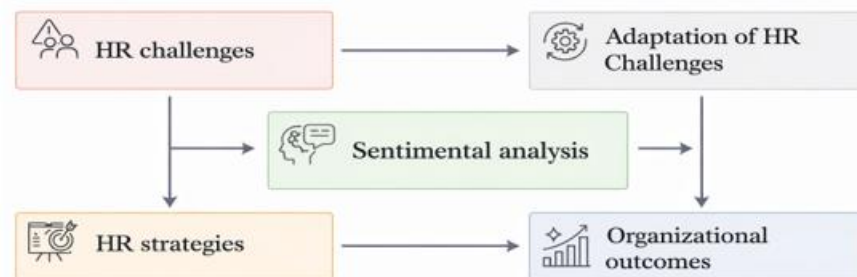
This study focuses on examining how sentiment analysis can support the adaptation of HR challenges in export-oriented companies located in Zones 1, 3, 7, and 49. By analysing employee emotions, feedback, and perceptions, the study aims to identify key HR challenge dimensions, assess the extent of data-driven HR decision-making, and evaluate the effectiveness of sentiment-based HR interventions. The research further explores the relationship between sentiment-driven HR practices and employee engagement, satisfaction, and retention.

The findings of this study are expected to provide valuable insights for HR professionals and organizational leaders by demonstrating how sentiment analysis can be effectively integrated into HR strategies.

2. RESEARCH QUESTIONS

1. What are the key HR challenges identified through the analysis of employee emotions and feedback?
2. How can sentiment analysis support data-driven decision-making in HR?
3. How can HR interventions be designed and adapted based on employee sentiment insights?
4. How does the use of sentiment-based HR practices influence employee engagement, satisfaction, and retention?

3. CONCEPTUAL FRAMEWORK:



4. REVIEW OF LITERATURE

- **Title:** HR Challenges in Industrial zones

Author: A.N. Mishra **Year:** 2015

Abstract: This study examines workforce diversity and operational pressures in industrial clusters. Adaptive HR policies and continuous feedback are shown to reduce workplace conflicts. The research highlights the importance of flexible HR strategies

- **Title:** Employee Retention Strategies in Indian Industries

Author: P. Kumar **Year:** 2015

Abstract: The study investigates factors affecting employee turnover. Career development opportunities and recognition programs are found to improve retention. Employee engagement is emphasized as a key factor in organizational success.

- **Title:** HR Analytics in Export-Oriented Firms

Authors: B. Ramesh & K. Sivakumar **Year:** 2019

Abstract: This research explains the role of HR analytics in workforce management. It shows that analytics improves decision accuracy and reduces turnover. The study highlights the shift towards digital HR strategies in competitive industries.

- **Title:** AI-Driven Employee Surveys and Sentiment Analysis

Author: S. Sarkar **Year:** 2024

Abstract: The study explores the use of AI tools to analyze employee feedback. It highlights how sentiment analysis helps understand workforce emotions and improve HR responsiveness. The research supports the adoption of AI-driven HR interventions

- **Title:** Strategic HRM in SMEs: Challenges and Opportunities

Author: K.S. Giridharan **Year:** 2017

Abstract: This research examines HR practices in export-oriented SMEs. It shows that structured HR systems enhance innovation and workforce engagement. Strategic HR management is identified as essential for sustainable growth.

- **Title:** Evolution of HR Analytics in India

Author: R Raj **Year:** 2024

Abstract: This review highlights the growth of HR analytics adoption in India. It explains how digital tools transform traditional HR functions. The study emphasizes the importance of sentiment analysis in modern HR decision-making.

- **Title:** Employee satisfaction in export companies

Author: Rajiv Sharma **Year:** 2014

Abstract: This study analyses employee perceptions in export-oriented firms. It finds that supportive leadership and fair evaluation systems improve job satisfaction. Open communication is identified as a key driver of employee commitment.

- **Title:** Globalization and workforce challenges

Author: N R Sheth **Year:** 2010

Abstract: The study examines the impact of globalization on HR functions in export industries. It identifies skill gaps and technological adaptation as major workforce challenges. The research emphasizes training and flexible HR strategies for global competitiveness

- **Title:** Employee Engagement in Manufacturing Industries

Author: S. V. S. Chaudhary **Year:** 2011

Abstract: This research explores factors influencing employee engagement in manufacturing sectors. Leadership communication, recognition programs, and supportive culture were found to enhance morale and retention. The study highlights the role of emotional understanding in HR practices.

- **Title:** Strategic Human Resource Management

Author: R.L Mathis **Year:** 2012

Abstract: The study explains the integration of HR strategies with organizational objectives. It highlights the importance of HR analytics and data-driven decision-making. Findings suggest that performance monitoring tools improve workforce efficiency and sustainability.

For the topic “A Study on Adaptation of HR Challenges Using Sentiment Analysis,” the literature can be built around two connected areas: employee sentiment/text analytics and HR challenges during organizational change. The following five articles are particularly relevant.

- **Čingienė, J., Tcherniak, D., & Sagot, B. (2015)**

“Sentiment Analysis of Write-in Comments Related to Organisational Change.” This study is highly relevant because it directly applies sentiment analysis to employee comments concerning organizational transformation. The researchers analyzed comments from an employee opinion survey involving more than 5,600 employees, with 2,262 employees providing comments about organizational change. The comments were classified into key themes and their tone was examined through sentiment analysis. The study demonstrates that employee comments can provide valuable information about how employees perceive organizational change and can help HR professionals identify positive, negative, and potentially resistant reactions to change. (

- **Lee, J., & Song, J. H. (2024)**

“How does algorithm-based HR predict employees’ sentiment? Developing an employee experience model through sentiment analysis.” *Industrial and Commercial Training*, 56(4), 273–289.

This study examines the use of sentiment analysis within algorithm-based HR and employee experience management. The researchers use text mining and sentiment analysis to evaluate employee reviews and identify factors associated with positive employee experiences. The study highlights the potential of data-driven HR practices to provide HR professionals with more objective insights into employee experiences and support evidence-based decision-making.

- **Shah, N., Irani, Z., & Sharif, A. M. (2017)**

“Big Data in an HR Context: Exploring Organizational Change Readiness, Employee Attitudes and Behaviors.” *Journal of Business Research*, 70, 366–378.

- This study investigates the application of big-data approaches to HR, particularly in understanding employee attitudes and readiness for organizational change. The research identifies factors such as salary, promotion, organizational loyalty, and organizational identity as relevant to employee job satisfaction and readiness for change. The study supports the importance of HR analytics in understanding employee attitudes and behaviors during organizational transformation.

- **Brown, M., Kulik, C. T., Cregan, C., & Metz, I. (2017)**

“Understanding the Change–Cynicism Cycle: The Role of HR.” *Human Resource Management*, 56(1), 5–24.

This study examines employee cynicism arising from organizational change and emphasizes the strategic role of HR in managing employee reactions. Based on data from 1,831 employees across 70 organizations, the study found that greater exposure to organizational change was associated with higher change cynicism. However, HR’s role as a strategic change agent reduced the negative relationship between organizational change and employee cynicism. The findings demonstrate why understanding employee emotions and perceptions is important when organizations adapt to HR challenges.

- **Nowrin Banu, A., & Nazeer Khan, S. (2026)**

“Exploring Green HRM through Employee Feedback Mining with Information Retrieval and Sentiment Analysis in Tamil Nadu IT Companies.” *Indian Journal of Information Sources and Services*, 16(1), 495–505.

This recent study provides a particularly relevant Indian context for the proposed research. It combines employee feedback mining, information retrieval, and sentiment analysis to examine Green HRM practices in Tamil Nadu's IT sector. Employee feedback was categorized into supportive, indifferent, and critical sentiments, while statistical techniques were used to examine employee satisfaction and differences across demographic groups. The study demonstrates how sentiment analysis can convert unstructured employee feedback into actionable HR insights.

5. RESEARCH METHODOLOGY:

The search of knowledge through objectives and systematic method of finding solution to a problem is called research. Research methods or techniques, thus refer to the methods the researchers use in performing research operations. Research Methodology is a way to systematically solve the research problem. The sampling size of this research study is 136.

The basic tools which are used to analysis and interpret for the collected data are:

- Percentage Analysis
- ANOVA
- Correlation

6. PERCENTAGE ANALYSIS

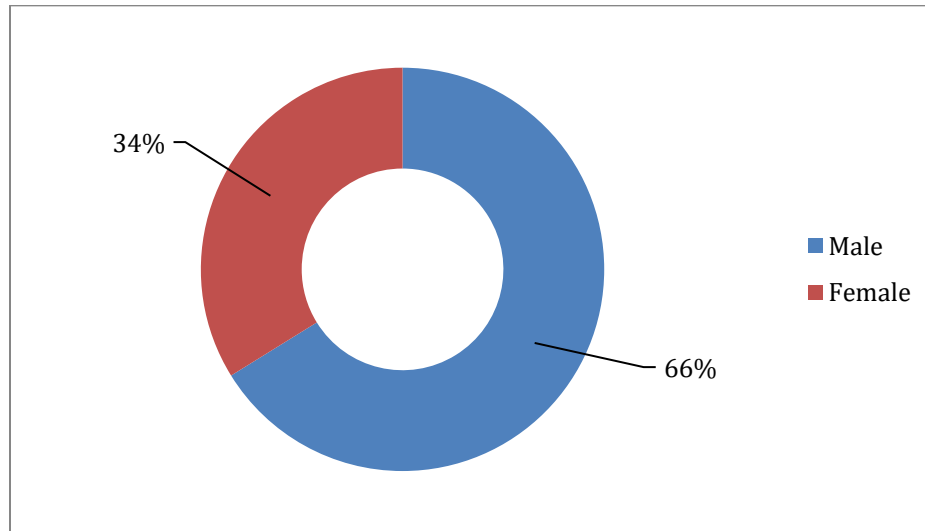
Three demographic variables can be consolidated into one table as follows:

6.1 Demographic Profile of the Respondents

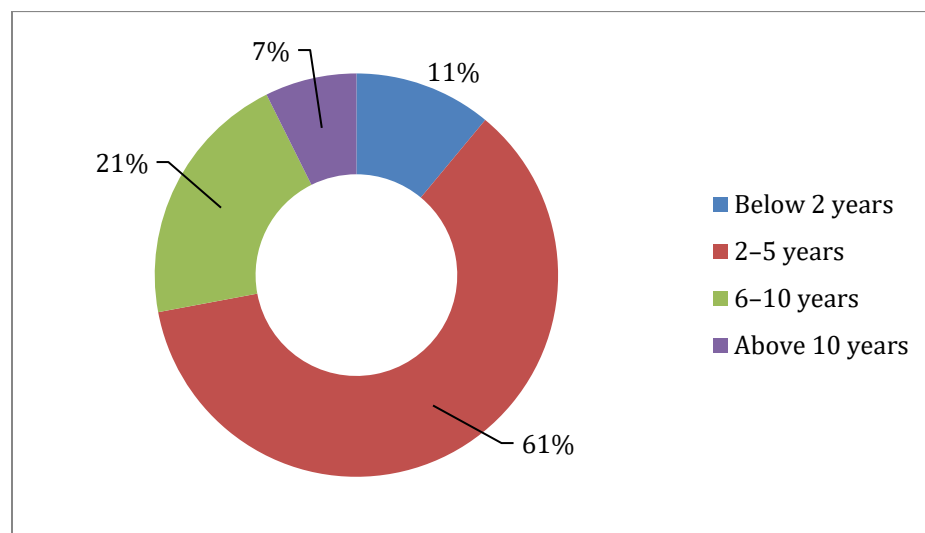
Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	90	66.18
	Female	46	33.82
	Total	136	100.00
Experience	Below 2 years	15	11.03
	2–5 years	83	61.03
	6–10 years	28	20.59
	Above 10 years	10	7.35
	Total	136	100.00
Zone	Zone-1	27	19.85
	Zone-3	29	21.32
	Zone-7	38	27.94
	Zone-49	42	30.88
	Total	136	100.00

Interpretation:

Table1 presents the demographic profile of the 136 respondents based on gender, work experience, and zone. The gender distribution indicates that 66.18% of the respondents were male and 33.82% were female, showing a higher representation of male respondents. In terms of experience, the majority of respondents (61.03%) had 2–5 years of experience, followed by those with 6–10 years (20.59%), below 2 years (11.03%), and above 10 years (7.35%). With respect to geographical zones, Zone-49 had the highest representation (30.88%), followed by Zone-7 (27.94%), Zone-3 (21.32%), and Zone-1 (19.85%). Overall, the sample represents respondents with varied levels of experience and geographical distribution, although respondents with 2–5 years of experience constitute the largest group.

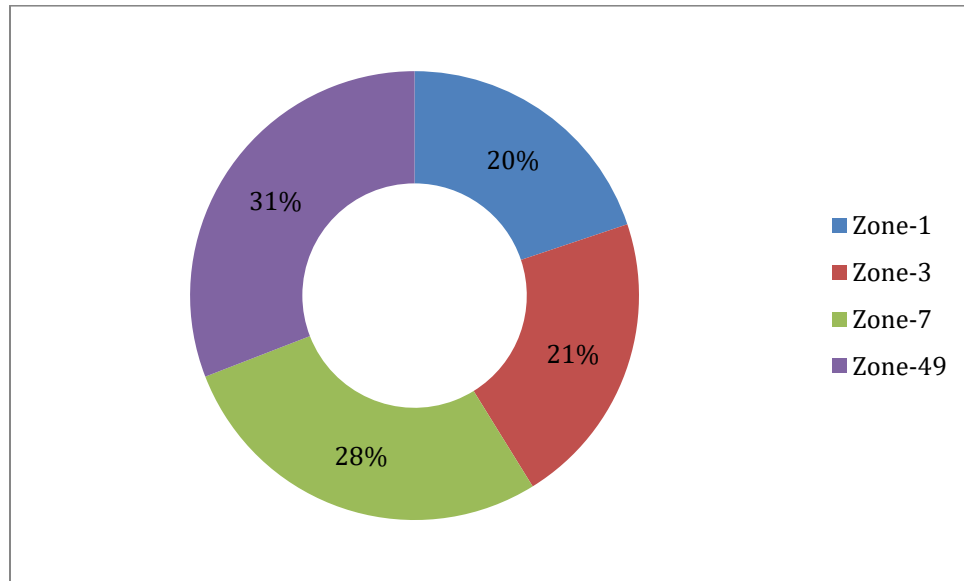
Figure 1**Interpretation:**

Male respondents constitute the majority, indicating a slightly male-dominated workforce in the study area. However, female participation is also notable, showing growing gender diversity. The presence of “Others” reflects inclusivity in organizational demographics. HR departments should ensure equal opportunities, inclusive policies, and emotional support systems for all genders.

Figure 2

Interpretation:

Employees with less than five years of experience dominate the sample, indicating a relatively new workforce. Mid-level experience employees also form a strong segment. Very experienced employees are fewer, which may influence organizational stability. HR initiatives such as mentorship and emotional support programs are essential for early-career employees.

Figure 3**Interpretation:**

The table shows the distribution of respondents across four industrial zones. Zone-49 has the highest representation with 30.88%, followed by Zone-7 with 27.94%, indicating stronger participation from these areas. Zone-3 contributes 21.32% of respondents, while Zone-1 has the lowest share at 19.85%. Overall, the responses are fairly balanced across zones, ensuring that the study reflects views from multiple industrial locations.

7. ONE-WAY ANOVA ANALYSIS

H₀: There is no significant difference in the level of emotional motivation and engagement among employees with different years of experience

H₁: There is a significant difference in the level of emotional motivation and engagement among employees with different years of experience

Years of Experience					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.774	4	.944	1.666	.162
Within Groups	74.218	131	.567		
Total	77.993	135			

Result: There is no statistically significant difference in emotional motivation based on years of experience in the export industry for this specific sample.

Interpretation

The one-way ANOVA was conducted to examine whether the level of emotional motivation and engagement differs significantly among employees with different years of experience. The results show a **between-groups sum of squares of 3.774** and a **within-groups sum of squares of 74.218**. The calculated **F-value is 1.666**, with a **significance value of 0.162**. Since the p-value (**0.162**) is greater than the 0.05 level of significance, the result is not statistically significant.

Therefore, the **null hypothesis is accepted** and the alternative hypothesis is rejected. This indicates that there is **no significant difference in the level of emotional motivation and engagement among employees with different years of experience**. The findings suggest that employees' emotional motivation and engagement do not vary significantly based on their experience level, and other factors such as organizational support, leadership, work environment, recognition, and job satisfaction may have a greater influence on their emotional motivation and engagement.

7. CORRELATION ANALYSIS

- H_0 : There is no significant relationship between emotional engagement and job satisfaction
- H_1 : There is Significant relationship between emotional engagement and job satisfaction

Variables	Emotional Engagement	Job Satisfaction
Emotional Engagement	1	0.65
Job Satisfaction	0.65	1

- $r = 0.65$ (strong positive correlation)
- p value $0.65 > 0.05$ so H_0 is rejected

8. Result

The correlation coefficient (r) is 0.65, indicating a moderate to strong positive relationship. The p-value is less than 0.05, so the result is statistically significant.

9. Interpretation

The correlation analysis was conducted to examine the relationship between **emotional engagement and job satisfaction**. The results indicate a **correlation coefficient (r) of 0.65**, showing a **positive and moderately strong relationship** between the two variables. This implies that employees with higher levels of emotional engagement tend to report higher levels of job satisfaction. Similarly, an increase in job satisfaction is generally associated with greater emotional engagement among employees.

The correlation value of **0.65** indicates that the relationship is positive and meaningful; however, the correlation coefficient alone does not establish statistical significance unless the corresponding **p-value/significance level** is provided. Therefore, based only on the given correlation matrix, the relationship can be described as **positively associated**, but the decision to accept or reject H_0 requires the significance value. If the correlation is statistically significant at the 5% level, **H_0 would be rejected and H_1 accepted**, confirming a significant relationship between emotional engagement and job satisfaction.

10. FINDINGS

- The study identified that employees in export-oriented companies experience multiple HR challenges related to workload pressure, communication gaps, and adaptation to technological changes. Sentiment analysis helped reveal emotional aspects that traditional HR methods may overlook.

- Percentage analysis indicated that a majority of respondents belong to the 21–30 age groups, showing a young workforce that expects career growth opportunities, supportive management, and a positive work environment.
- ANOVA results showed differences in emotional motivation across experience categories, suggesting that employee engagement levels vary depending on years of experience in export-oriented industries.
- Correlation analysis indicated a positive relationship between emotional motivation and HR sentiment factors, meaning that supportive HR practices improve employee satisfaction and organizational commitment.
- The findings highlight that employees value career development, transparent communication, and recognition systems as key factors influencing retention and workplace satisfaction.
- Sentiment analysis provided deeper insights into employee emotions such as stress, motivation, and adaptability, supporting the importance of data-driven HR decision-making.
- Export-oriented companies in Zones 1, 3, 7, and 49 require adaptive HR strategies due to global competition, technological transformation, and diverse workforce expectations.

11. SUGGESTIONS

- Organizations should implement AI-based sentiment analysis tools to continuously monitor employee feedback and identify workplace concerns at an early stage.
- HR departments must focus on employee emotional wellbeing by introducing stress-management programs, counselling support, and flexible work practices where possible.
- Career development initiatives such as skill-based training, up skilling programs, and clear promotion policies should be strengthened to improve motivation and retention.
- Management should enhance communication channels by encouraging transparent feedback systems, regular employee surveys, and open discussions between leadership and employees.
- Export-oriented companies should adopt data-driven HR analytics to support strategic decision-making and improve workforce planning.
- Recognition and reward programs must be implemented to appreciate employee contributions and increase engagement levels.
- HR teams should design customized interventions based on employee experience levels, as analysis showed variation in motivation across different groups.
- Continuous digital transformation and AI integration in HR practices are recommended to improve efficiency, reduce bias, and support proactive workforce management.

12. CONCLUSION

This study examined the adaptation of HR challenges using sentiment analysis with reference to Zone 1, 3, 7, and 49 export-oriented companies. The findings demonstrate that integrating sentiment analysis into HR practices provides deeper insights into employee emotions, engagement levels, and workplace challenges. Statistical analysis

confirmed that employee motivation, HR sentiment, and organizational practices are interconnected, highlighting the importance of data-driven HR strategies.

The research concludes that export-oriented organizations must shift from traditional HR approaches toward technology-enabled and employee-centric models. By leveraging sentiment analysis, organizations can improve decision-making, enhance employee wellbeing, and develop adaptable HR interventions that support long-term organizational performance and sustainability.

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