CHAPTER 49

Modeling of Organizational Performance using Machine Learning

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ABSTRACT

Identifying the performance factors of organizations is of utmost importance for labor studies for both empirical and theoretical research. The present study investigates the essential intra- and extra-organizational factors in determining the performance of firms using the European Company Survey (ECS) 2019 framework. The evolutionary computation method of genetic algorithm and the machine learning method of Bayesian additive regression trees (BART), are used to model the importance of each of the intra- and extra-organizational factors in identifying the firms' performance as well as employee well-being.

Keywords: *Employee Compensation, Affective commitment, Continuous commitment, and Normative Commitment.*

INTRODUCTION

Organizational performance evaluation and quality improvement are essential for labor research and development [1,2,3]. One of the tasks of a manager is monitoring organizational performance [4,5]. Organizational performance is a broad concept covering what a company produces or the services that it provides [6,7,8]. In other words, organizational performance refers to how the mission, tasks, and organizational activities of the organization are carried out and in what quality [9,10]. Organizational performance evaluation is one of the issues that the business and academic communities have paid a lot of attention to, and numerous books and articles have been published on the subject [11,12,13]. Performance evaluation is an effective measure and essential for resource management because not only does it ensure the organization's mission is achieved with optimal performance, but also that the interests of employees and society are met [14,15,16]. The need for organizational growth and employee excellence urges an effective evaluation system [17,18,19]. Naturally, the development and implementation of such a performance assessment process would support organizations in achieving their goals by increasing the effectiveness of employees [11,20,21,22]. The literature suggests two approaches for performance

assessment, i.e., subjective criteria approach and objective criteria evaluation approach [23,24,25]. In the objective approach, the actual figures of the organization are used, but in the subjective approach, the perceived responsiveness is used [26]. Ramstad [27] concludes that a subjective indicator of productivity is essential for measuring productivity for a comparative analysis of different organizations and for producing results with better applicability. There is evidence in the literature that managerial factors are one of the factors influencing the performance of a firm [28]. Managerial factors identify how managers define the organization's ideals and mission and facilitate access to them, create the values needed for long-term success, and apply them through appropriate activity and behavior. These factors can directly or indirectly affect the performance and the working practice of companies [29]. Human resources are another factor whose impact on the performance of firms has been studied and confirmed [30,31].

Established in 1992, Quality Knit Wears Private Limited is a leading manufacturer and exporter of a wide range of high quality knitted garments situated in Madurai, 170 kms south east of Tirupur, knitwear hub of India. The company entered the new millennium, carrying with it a reputation as the quality supplier of best knitwear and related products.The product line of Quality Knit Wears Private Limited ranges from Under garments, Shorts, T-Shirts, Night wear, Casual wear and other value added garments, as per specification of the customers.The company has manufacturing facility at Madurai and Tirupur. Moreover a new factory with state of the art of machinery in garment making and finishing is coming up at Madurai Integrated Textile Park, situated at Vadipatti nearby Madurai.Quality Knit Wears Private Limited has always been on the forefront when it comes to assimilating new technologies and machinery into their existing facilities. They are capable to customize the products on various parameters and meet specifications of the customer. The Company is supported by dedicated team of managerial, technical and supervisory personnel in its entire endeavor.

Compensation refers to the benefit the employees receive in exchange for their work. It is composed of the basewage or salary and incentives or bonuses and benefit. Compensation is a fundamental factor in attracting and retaining the best employees in the organization.

Every employees need to be compensated for their efforts based on volume of predication. Compensation refers to all forms of financial rewards received by employees. Compensation dissatisfaction can lead to absenteeism, turnover, low performance, job dissatisfaction, strikes and grievances. Employee compensation may influences employee commitment. The commitment of employees towards organization improves the organization effectiveness. Organisation gives compensation in order to fulfill requirement of employee, so it makes the employee feel that organization is concerned for the employee. By three ways employees are committed to the organization. They are affective commitment, continuance commitment and normative commitment. Affective commitment refers to an employee is emotionally attachment to the organization. This leads to employee' willingness to stay long time in an organization, continuance commitment makes the employee to remain in the organization for a long period of time. The employee feels that they might loss the benefits which they won't expect from another organization. The employees with normative commitment feel a sense of obligation towards the organization even though they are unhappy with the job, or even if they desire to pursue better opportunities.

They feel that they should stay with the organization, because it's the right thing to do. Compensation plays a major role in influencing the commitment of employees. Compensation helps the employee to stay back in the organization. Every employee's needs are met by the compensation they receive. Hence in this study we analyze the impact of compensation on all the dimensions of employee's commitment.

REVIEW OF LITERATURE

Francis J. Gorman (1999) states that in October of 1999, congress proposed the most significant and far reaching amendments to the long shore's men and harbor workers' compensation since federal

compensation benefits were first made available in 1927. This act brought major alterations in the level of benefits, administration by the secretary of labor and procedure within the compensation system. The jurisdictional scope of the long shore's men act has been expanded, third party rights have been redrawn and security against loss actions have been eliminated. As a result of this changes made in the harbor workers' compensation act, the patterns of federal compensation practice and maritime personal injury legal proceedings are completely altered and it increased occasions for the court to comment on the effect of these amendments.

Armstrong and Brown (2007) suggest that management of compensation is a constituent of Human resource management. It encourages the attainment of employees and follows a deliberate way to worth individuals for their successful reach. Due to its concern in human resource development it is added to HRM activities. This suggestion terminates that its work are only to bring optimistic employment relation and involves intellectual agreements through which the compensation for people can be easily acknowledged.

Boyd, Salamin (2001) Even though many researches are conducted regarding the compensation of employees, only a few are known by the deliberate compensation system which is lined up with the organization plan of action. Still the subject is unclear, even though many analyses are done on this subject. Salary structure was found to be oriented with the divisional strategies. Furthermore, the most important factor which affects the compensation was found to be the position hold by the employees in the company. It is totally to be blamed forth impact brought on the reward system.

Barry Gerhart and George T. Milkovich (2021) this study lies on literature of compensation of strategy andanalyse compensation ideas which includes Base salary, incentives and bonus more or less 16,000 top and middle level managers and 200 firms in compensation are found using longitudinal data. The supposition is made to analyze base pay and pay mix. This study concludes that organization shows less liability when it comes to salary conclusion and differ in pay mix than salary level.

Natalie J. Allen, John P Meyer (2000) states that commitment of organization is studied in two ways involving three component models. It states that the employee's commitment relies in three phases. First, the affective commitment of organization defines that the employees are emotionally attached with the organization. Second, the continuance commitment of organization defines that the employees perceive the need to stay with their organization because of their income and fringe benefits which they won't get these benefits in another organization. Lastly, the normative commitment of organization defines how employees feel to stay in the organization. The employee who committed normatively with organization feels that they should stay in theirorganisation. In first study, scales are used to measure these elements. Relationships between the components of commitment with its variables considered their predecessor were explored in Second study. Canonical correlation analysis is used to find the result.

RESEARCH OBJECTIVES

To conduct the company study, the following objectives were drafted:

- To study the impact of compensation organization commits.

- To identify the compensation pattern provided to the employees.

- To identify the employee commitment level of employees in manufacturing sector.

- To understand how compensation improve the motivation of the Employees.

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- To identify the problem of compensation system of the organization.

- To find out employees preference regarding compensation which they like to have in future

SCOPE OF THE STUDY

- The study has been undertaken to find out effectiveness of employee commitment in the organization.

- To find out the actual drawback involved in compensation that can be evaluated through this study.

- This study is used to bring out the solution for the problems faced by the employees utilize the compensation.

- Through the study, company would be able to know the present commitment level of employee on compensation

HYPOTHESES OF THE STUDY

It means tentative generalization of the validity of which remains the tested. In short it deals with certain assumptions made in the study.

1. Null Hypothesis: A hypothesis which assumes that there is no significant difference between sample statistics and population parameter is called null hypothesis. It is denoted by Ho.

2. Alternative Hypothesis: A hypothesis which assumes that there is a significant difference between sample statistics and population parameter is called alternative hypothesis. It is denoted by H1.

RESEARCH DESIGN AND METHODOLOGY

This study deals with the influence of compensation or the organization commitment of administration staff. The study includes three dimensions of organization commitment namely affective commitment, continuous commitment, and normative commitment. The data was collected from 120 administration staff in the manufacturing industry. Regression analysis was used to analyze the data. Research Design describes the study and focus at finding Employee Compensation and Employee Commitment in Integral Coach Factory Chennai.

A.   Primary data

In this study, the primary data was collected through structured questionnaire. Questionnaire is implemented to collect the primary data from 120 selected sample respondents in organization.

Secondary data

Except the primary data, the secondary data was also collected for the study. Websites, books were referred for this purpose from the library to promote proper understating of the study.

5)   DATA SOURCES

Data was taken mostly through primary data. However company and product profiles were referred too. A structured UN- disguised interview schedule was designed to collect data source. The schedule method was opted since the method would help to concise amount of information.

STATISTICAL TOOLS APPLIED

Statistical tools like simple percentage and chi square used in the compilation and computation of data.

- Percentage Analysis

- Chi-Square Test

- Correlation Analysis

The primary data had was collected from the samples from various areas and have been properly arranged, edited and tabulated in a systematic format and analyzed by using appropriate statistical tools. A bipartite correlation and liner regression analysis were carryout using SPSS.

LIMITATION OF THE STUDY

1. It is difficult to find out the definite situation inside the company.

2. Employees may not be able to provide proper information regarding compensation system of the organization.

DATA ANALYSIS AND INTERPRETATION

TABLE: 1.1 EMPLOYEE BENEFITS AND ADVANTAGES OF ORGANIZATIONALCOMMITMENT

Sl.No	Satisfaction Level	No of Respondents	Percentage
1	High employee productivity	35	29.2%
2	Reduced absenteeism	42	35.0%
3	Excellent team players	21	17.5%
4	Strong advocates	22	18.3%
Total		**120**	**100.0%**

Source: Data collected from primary

The above table shows that, 29.2% of the respondents are High employee productivity, 35.0% of the respondents are reduced absenteeism, 17.5% of the respondents are excellent team players, and remaining 18.3% of the respondents are Strong advocates. Maximum 35.0% of the respondents are reduced absenteeism.

TABLE: 1.2 FACTORS AFFECTING IN THIS EMPLOYEE BENEFITS AND ORGANIZATIONAL COMMITMENT

Sl.No	Satisfaction level	No of Respondents	Percentage
1	Encourages involvement	47	39.2%
2	job and trusts	42	35.0%
3	Goals and objectives	20	16.7%
4	company offers	11	9.2%
Total		120	100%

Source: Data collected from primary

The above table shows that, 39.2% of the respondents are Encourages involvement, 35.0% of the respondents are job and trusts, 16.7% of the respondents are Goals and objectives, and remaining 9.2% of the respondents are company offers. Maximum 39.2% of the respondents are Encourages involvement.

IMPLICATIONS

Identity of recognition improves the employee commitment towards the organization. Essentially, each individual wants to be recognized and appreciated as a valued person, particularly by the employer. The benefits can be handled by cafeteria approach. Due to the difference in Gender, age, marital status, educational qualification, there is a chance of differences in their choice of a particular benefit. This is known as the cafeteria approach. Lack of Medical Reimbursement in the organization will lead to less Employee commitment. The benefits should satisfy real needs of the workers. This means that the organization must first determine what the employee's real needs are with the active participation of workers. Obtain feedback from employee and, conduct employee compensation surveys often. Ask employees what they want more in their positions, and what they want less. This help them to show that organization were concerned. Crèches can be developed to improve the commitment of women employees. The organization can provide their employees with simple rewards which may bring them with large outcome towards their excellence. Employers should praise and recognize their employees in a specific manner.

CONCLUSION

Achieving the goals of an organization depends on the ability of human resources to perform the assigned goals. Human resource is often regarded as a critical aspect in achieving organizational objectives and enhancing their efficiency. Thus, enhancing both performance and employees' well-being at the same time is an unavoidable need for sustainable businesses' success too. Consequently, the present study identifies the factors affecting the formation of firm performance and employee well-being and ranks them based on their importance. For this purpose, the theoretical framework and the dataset of the ECS 2019 were used to propose a novel model based on machine learning. Findings from the genetic algorithm and BART machine learning model disclosed that work organization and innovation are the most important variables in enhancing both firm performance and increasing employee well-being. In other

words, this study shows that the influence of an employee's talents in boosting the performance of the firm is smaller than the impact of cooperation with business partners. Companies that outsource more tasks have reported improved employee well-being as well. This means that in the firms whose structure is more adaptable to working with other partners, their employees report better levels of satisfaction and motivation.

Furthermore, among the external environmental elements, it was revealed that innovation is the one that has had the largest influence on both organizational success and employee well-being. This research demonstrates that the firms who have established methods to exploit innovation have both reported superior organizational performance and their employees have exhibited more willingness to work in such contexts. Thus, it is suggested that organizations, in order to increase their performance, on the one hand, pay more attention to collaboration and outsourcing, as well as job complexity and autonomy, and on the other hand, provide an environment for producing and implementing innovation in organizations.

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