AIC Algorithm for Engaging Commitment

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Abstract. The paper explores factors affecting the Engaging Commitment of employees. Data used in the study was collected by CJ CGV Vietnam Company Limited in Ho Chi Minh City in 2021 through a survey of 160 employees. The research results of this paper use the optimal choice by the AIC algorithm for Engaging Commitment (ECO) showed that 02 independent variables Promotion opportunity (PO) and Team Work (TW) have a positive impact on Engaging Commitment (ECO). The impact level of these 2 variables on the dependent variable Engaging Commitment (ECO) in descending orders as follows: Team Work (0.4754), Promotion opportunity (0.1231). We also give conclusions for this paper based on the research results.

1. Introduction

According to the survey of Anphabe, the survey shows that up to 24% of the employees intend to quit their jobs, while the stable rate only ranges from 4-6%. This is considered a situation of concern, as most of the current reasons come from feeling disconnected from the organization and the regimes coming from the company not meeting their needs. Specifically, Anphabe showed that 19% of employees lack engagement and decide to leave and up to 31% of employees feel disconnected but do not leave the organization. The number is even more alarming when only 46.9% of employees feel connected with the organization [1]. Welfare and issues related to the corporate culture have been focused on for a long time. Creating a safe, trusting mentality helps employees have a desire to stick with the organization in the long run. A work environment with a great corporate culture helps to bring a comfortable working atmosphere to employees and helps them to want to contribute more than discouraged intentions and desire to quit. Surveys from Deloitte show that 94% of management and 88% of employees believe that different and interesting workplace culture is important to business success [2].

Sudiro et al. [3] investigate the relationships between compensation fairness and employee engagement, job involvement and employee engagement, organizational commitment, and employee engagement. The results indicate that compensation fairness and employee engagement and between organizational commitment and employee engagement. In summary, the objective of this article is to evaluate the influence of corporate culture on employee engagement commitment.

2. Method

2.1. Sample Approach

The required sample size depends on the analytical technique. There are many empirical formulas for calculating survey sample sizes accordingly. Hair et al. [4] assumed that the minimum sample size is 50, the best is 100, and the observed / measurement ratio is 5: 1. For the topic using regression analysis, the empirical formula will be n> 5 * P, where n is the minimum sample size and P is the number of independent variables present in the model. The research model of the article has the
number of observed variables is 30. From there, according to the above standard, the necessary sample size is \( n = 29 \times 5 = 145 \). However, the paper chose a sample size of 160 to analyze the data... Table 1 describes statistics of sample characteristics.

Table 1. Statistics of Sample

| Characteristics | Amount | Percent (%) |
|-----------------|--------|-------------|
| **Sex and Age** |        |             |
| Male            | 87     | 54.4        |
| Female          | 73     | 45.6        |
| Below 25        | 26     | 16.3        |
| From 26 to 30   | 76     | 47.5        |
| From 31 to 35   | 44     | 27.5        |
| Above 36        | 14     | 8.8         |
| **Education**   |        |             |
| Diploma         | 25     | 15.6        |
| Degree          | 135    | 84.4        |
| Below 1 year    | 24     | 15.0        |
| **Working time**|        |             |
| from 1 to 3 years | 84  | 52.5        |
| from 3 to 5 years | 35  | 21.9        |
| above 5 years   | 17     | 10.6        |

Table 1 shows that the survey was conducted on 160 office and management staff at CJ CGV Vietnam, according to respondents, there were 87 men, accounting for 54.4%, and women, accounting for 45.6% with 73 people shows that the difference between men and women is not too high. Most of the staff here are quite young because most of them have 76 employees from 26 to 30 years old, accounting for 47.5%; followed by 44 people from 31 to 35 years old, accounting for 27.5%; followed by employees under 25 years old accounting for 16.3% and only 8.8% of those over 35 years old. From here it can be seen that the company's main labor force are young people who graduated from 2 to 3 years, requiring a lot of experience. Looking at the statistics, it can be seen that the company requires resources with a high level of education. 25 people have a diploma accounting for 15.6% and 135 people have a degree accounting for 84.4%. In terms of seniority, it can be seen that most of them have 84 employees with 1 to 3 years of experience, accounting for 52.5%; 21.9% of employees work from 3 to 5 years; There are 15.0% of employees with less than 1-year experience, most of them are employees with experience and changing environment, the rest are new graduates; There are 17 employees the company has now worked for over 5 years, accounting for 10.6% and the senior employees mostly hold high positions in the company. We use the 5-point Likert scale to evaluate the level of consent for the related factors for 160 respondents. Therefore, this paper also uses the 5-point Likert scale to evaluate the level of consent for all observed variables, with 1: Disagree... and 5: Agree in table 2.

Table 2. Factor and item

| Factor                        | Code | Item                                                                 |
|-------------------------------|------|----------------------------------------------------------------------|
| **Information exchange**      | IE1   | You are always informed when the policy changes from the company side |
| IE2                           |      | Companies always provide enough information at work                  |
| IE3                           |      | You can easily exchange, consult when having problems at work        |
| IE4                           |      | The company always encourages communication between departments       |
| **Training and developing**   | TD1   | You are always allowed to participate in training programs from the company |
| TD2                           |      | You are trained in job skills before working                         |
| TD3                           |      | The promotion process at work is demonstrated                         |
| TD4                           |      | There are many opportunities for career development in the company   |
| Factor          | Code | Item                                                                 |
|-----------------|------|----------------------------------------------------------------------|
| **Reward**      | RE1  | Reward and fair interpersonal recognition policy                      |
|                 | RE2  | Commendation regime as committed from the company                     |
|                 | RE3  | You clearly understand the rewards and benefits                       |
|                 | RE4  | The work results correspond to the company's commendation             |
| **Promotion opportunity** | PO1  | Promotion is a matter of concern in the agency                        |
|                 | PO2  | I am well aware of the prerequisites for advancement                  |
|                 | PO3  | Promotion opportunities are fair for everyone                        |
|                 | PO4  | I have many opportunities for advancement in my current job           |
| **Team Work**   | TW1  | You enjoy working with everyone in the corporate department           |
|                 | TW2  | Colleagues are always ready to cooperate and work as a team           |
|                 | TW3  | The company always encourages and practices teamwork together         |
|                 | TW4  | Different groups always cooperate and support each other              |
| **Leadership**  | LE1  | You always receive attention, support, and guidance, easily promote and contribute your ideas to the leader. |
|                 | LE2  | Your superiors are friendly, easy to approach and share with employees|
|                 | LE3  | Leadership always creates fairness at work, protects reasonable interests for employees. |
|                 | LE4  | Superiors criticize, handle violations delicately, skillfully, highly constructive. |
| **Engaging Commitment** | EC1  | You always try to improve your working skills for the company        |
|                 | ECO2 | You believe in the company's development goals                        |
|                 | ECO3 | You are proud to be an employee of the company                        |
|                 | ECO4 | You accept all assignments of the company                             |
|                 | ECO5 | You are concerned about the company's fate                           |

2.2. Blinding

For the duration of the study, all study staff and respondents were blinded. No one from the outside world had any contact with the study participants.

3. Results

3.1. AIC Algorithm

AIC (Akaike's Information Criteria) was utilized to choose the best model by R software [5]. AIC has been used in the theoretical context for model selection. And when multicollinearity occurs, the AIC approach can handle multiple independent variables. As a regression model, AIC can be applied, estimating one or more dependent variables from one or more independent variables. An essential and useful measurement for deciding a complete and straightforward model is the AIC. Based on the AIC information standard, a model with a lower AIC is selected. The best model will stop when the minimum AIC value [6, 7].

| Table 3. AIC Algorithm |
|------------------------|
| **Model**              | **AIC**  |
| ECO = f (IE + ID + PO + RE + TW) | -157.6  |
| ECO = f (IE + PO + RE + TW)    | -159.45 |
| ECO = f (IE + PO + TW)        | -160.86 |
| ECO = f (PO + TW)            | -161.33 |

In the above results, R reports show every step of searching the optimal model. The first step is to start with all 05 independent variables with AIC = -157.6. The last step is to find a model, R stops with a
model of 02 independent variables (PO and TW) in table 3 with AIC = -161.33. According to the results from R software, Promotion opportunity (PO) and Team Work (TW) impact Engaging Commitment (ECO) is 30.93%. The above analysis shows the regression equation below is statistically significant [8]. $\text{ECO} = 1.6622 + 0.1231\text{PO} + 0.4754\text{TW}$

4. Conclusion

The results of the AIC Algorithm for the Engaging Commitment (ECO) showed that 02 independent variables Promotion opportunity (PO) and Team Work (TW) have a positive impact on Engaging Commitment (ECO). The impact level of these 2 variables on the dependent variable Engaging Commitment (ECO) in descending orders as follows: Team Work (0.4754), Promotion opportunity (0.1231). Employees want to engage with the organization when they have the necessary information and interact with each other. Looking at the results, we see that employees are more concerned with Promotion opportunity (PO) and Team Work (TW) than others. The explanation for this result can be seen that when employees intend to think of jobs mostly due to not having Promotion opportunity (PO) and Team Work (TW) to advance in the future then dissatisfaction in compensation policy or other factors. Because of the compensation or training factors, they can be changed and reflected easily, but the promotion opportunities are not easy to obtain, nor can this factor be changed at will. Information exchange (IE), Training and developing (TD), Reward (RE), and Leadership (LD) do not affect too much employee engagement, but employees are still interested in this issue.

Conflicts of Interest: The authors declare no conflict of interest.

Data Availability: The authors supplied data through emails.

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References

[1] Q. Nhu. (2019). Anphabe survey: The resignation rate may rise to 24% in 2019 and up to 50% of the employees are not loyal and less effortful (Vietnamese). Available: https://cafebiz.vn/khao-sat-anphabe-ty-le-nghi-viec-co-the-len-24-trong-nam-2019-va-co-toi-50-nhan-su-khong-trung-thanh-va-kem-no-luc-20191004004118535.chn

[2] Odclick. (2021). Enterprise culture is the assets of the organization (Vietnamese). Available: https://odclick.com/chuyen-san/tu-duy-va-cong-cu/van-hoa-doanh-nghiep-la-tai-san-cua-to-chuc/

[3] A. Sudiro, A. Adi, and R. Fakhri, "Engaging employees through compensation fairness, job Involvement, organizational commitment: The roles of employee spirituality," Management Science Letters, vol. 11, pp. 1499-1508, 2021.

[4] J. Hair, R. Anderson, R. Tatham, and W. Black, "Multivariate data analysis. New Jersey: Prentice-Hall Inc," 1995.

[5] D. S. Mai, P. H. Hai, and B. H. Khoi, "Optimal model choice using AIC Method and Naive Bayes Classification," presented at the IOP Conference Series: Materials Science and Engineering, 2021.

[6] K. P. Burnham and D. R. Anderson, "Multimodel inference: understanding AIC and BIC in model selection," Sociological methods & research, vol. 33, pp. 261-304, 2004.

[7] B. H. Khoi, "Factors Influencing on University Reputation: Model Selection by AIC," in Data Science for Financial Econometrics, ed: Springer, 2021, pp. 177-188.

[8] W. H. Greene, Econometric analysis: Pearson Education India, 2003.