Effective Performance Management Design on Remote Workforce Environment Using Integrated Seven Tools of Quality Control Analysis for Top Talent Employee Human Asset Value (HAV) Quadrant 1-4 in United Tractors

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Abstract*—The broad range of COVID-19 pandemic has impacted all level of industries all around the world include the way of performance management system of existing process, from work from office became work remotely. The goal of this research is to find an effective performance management design according to the conditions of the remote work environment by using the seven tools of quality control and Pearson test analysis. This research indicate that the existing performance management system are no longer suitable with the new normal condition since the remote workforce are dominating the circumstances and also reflect that current management system needs to be improve into system that could be accessed, controlled, and measured by management. Thus, the new design improves employee performance coverage from 84% to 95%, engagement rate increase from 56,3% to 77,2%, and turn over decrease from 83% to 58%.

Keywords*—performance management, seven quality control tools, pearson test analysis.

I. Introduction

Regarding to the government policy PERGUB NUMBER 380 of 2020 which is one of the main points conveyed the Limitation of Work, every business entity seeks to comply with the procedures that business activities should operates in a minimalist way. This certainly has an impact on the management of existing processes that are currently running, one of which is how the process of work that previously Work from Office (WFO) became Work from Home (WFH). Thus, this research was made by considering 89% of employees who work in WFH as a challenge for the company to be able to continue to keep company productivity by evaluate and improve performance management system in the new normal condition. This research utilizing the seven tools of quality control analysis method especially the fishbone chart diagram, in the objective organizations can find the most cause and effective factors in supporting remote work patterns so that employee performance will be more optimal [1].

Therefore, the objective of this research is to find an effective work performance management design according to the conditions of the remote work environment by using the seven tools of quality control analysis for the top talent HAV quadrant 1-4.

II. Literature Review

A. Remote Working Environment

The organization, employees who participate remotely will have communication needs that will divide from those who are fully work from office [2]. The 4 factors that going to effect for top talent, these being mastery experiences, vicarious experiences, physiological arousals and verbal persuasion or effects on behaviour through verbal exchanges. This means, while unintentional, if superior don't recognized or plan for distinct communication that required this for employee that work remotely this could affect performance direct to the business [3]. Doerr [4] said that in an ideal world, this type of workforce is determined by an increase in flexibility, autonomy, and empowerment, with employee participating fairly in collaborative relationship. However, this could be prompt as a homogeneity amongst flexible, remote employee across function, department, and or industries, functions and also

roles that may only exist in an ideal world of flexible or remote working environment.

B. Performance Management & Appraisal

Hare [5] said that performance appraisal, as a legal and formal process, is the focus of increase performance improvement, development of the employee and motivation using goal setting.

The performance management, when it is fully-realized as a holistic and comprehensive process bringing together many factors and elements that make the successful practice of people management using theory Armstrong & Baron's 2004 definition said that it is a process which brings contribution to the effective management of individuals and teams in the organization in order to achieve goals and high levels of organizational performance.

C. Seven Tools of Quality Control

There are several tools such as seven basic quality tools in management, which can help organizations to solve variant problems and process improvements in many aspect. The first time of seven basic tools is proposed from Dr. Kaoru Ishikawa in 1968, by publishing a book titled "Gemba no QC Shuho" that contain with managing quality through several techniques and best practices for companies in Japanese. These seven basic quality control tools, introduced by Dr. Ishikawa, there are: 1) Check sheets, 2) Graphs/ Trend Analysis, 3) Histograms, 4) Pareto graphs, 5) Causal diagrams, 6) Scatter diagrams; 7) Control chart.

D. Pearson Coefficient

Measuring dependence between random observations undoubtedly plays a central role in statistics. Since it is very difficult to fully understand and describe dependencies, one is often interested in condensing the strength of dependence into one single number. Such a number, which is typically defined on either of the intervals [−1, 1] or [0, 1] is called a correlation coefficient. For summary the Pearson Corelation test would be define as follow:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{n\sum x^2 - (\sum x)^2 [n\sum x^2 - (\sum y)^2]}} \quad (1)$$

Which,

r = pearson coefficient value
x = first variable value
y = second variable value
n = lots of data

The Pearson coefficient can be searched in python with the corr () function for all numerical variables in the KPI dataset. Pearson's results will show the strength of the relationship ranging from -1.0 to 1.0. An exact value of 1.0 in a correlation coefficient is a sign that there is a perfect positive relationship between the two variables.

III. Research Methodology

A. Workflow

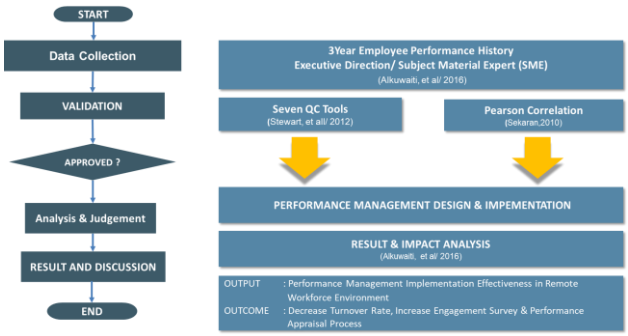


Fig. 1 Research methods

B. Analitical Method

Analytical methods will use the Seven Quality Control Tools as a mapping of employee performance management data sets taken from 2017-2019 as a database to be processed . The author will also use the Pearson Correlation test as a method of finding interrelationships between variables that arise so that they can be prioritized based on the highest interrelation points. To validate the result, author conduct focus group discussion with Subject Material Expert (SME).

IV. Result and Discussion

A. Initial Evaluation

the data taken in the evaluation of performance management, the authors begin by using employee performance data for the last three years 2017-2019. This dataset data the writer will process the data to what extent the achievement of performance management and between variables are related to one another.

For data cleansing and processing it is carried out from excel documents then import data using Python functions by calling the Pandas library. Then a Data Selection is carried out to separate data based on each unit and data separation for the attributes of Target, Plan on Review, Plan on Appraisal, Actual on Review, Actual on Appraisal, outlook, and Judgment. This data is then analyzed using the Correlation Matrix with a heatmap to determine the correlation value between each attribute as shown in Fig. 2.

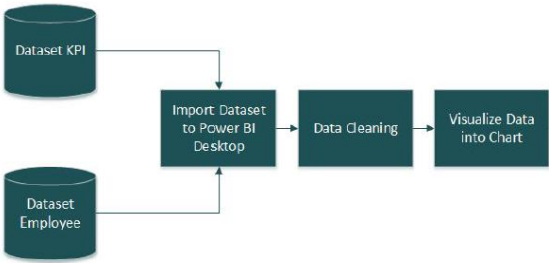


Fig. 2. Correlation flow process analysis

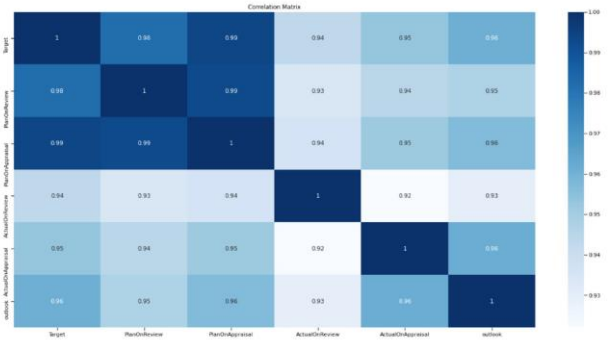
The performance appraisal is an assessment parameter to see talent in the organization and as a measure of

employee satisfaction/loyalty. So the authors try to test how the performance assessment of employees can be different each year based on the twenty three (23) parameters of the performance management cycle that are applied in the company.

B. *Quantitative Dataset Analysis (Rational Dataset)*

- This rational dataset identifies the variable with the highest level of correlation. The method used is using the Pearson Correlation Test with PowerBI tools. Rational datasets are performed automatically by Power BI Desktop to link datasets to one another using a single key reference. In this case, the Employee KPI dataset and the Employee dataset are linked using a key relation in the form of NRP.
- The Highest Inter-correlation. Correlation Matrix is a table that shows the correlation coefficient between variables. Each cell in the matrix shows a correlation between two variables. Correlation Matrix is represented using Heatmap to determine the strength of the variable. In this case the darker blue the Pearson value is 1.0 and the strength of the relationship is more positively correlated.
- After the correlation analysis is carried out (Table 1), there are three variables that become the main stress points in the design of performance management and these improvements : 1) Target, 2) Plan on Performance, 3) Year .

TABLE I
CORRELATION MATRIX BY HIGHEST CORRELATION



C. *Qualitative Dataset Analysis (Interview Subject Material Expert)*

The results of the focus group discussion with SME will be a design initiative which will then be followed up with "action" in the form of implementation in an improvement tool/product so that it can answer the challenges in the new normal era where remote working will be dominant. There are several initiatives that are output in this discussion with the design of the process of dividing concentration into three main dimensions that is People, Process, and Infrastructure.

D. *Project Integration & Implementation (System Blueprint)*

In the process of integrating the solutions that have been obtained, the authors use the stages of determining root-cause using the fishbone chart diagram tools with the framework of People, process, and infrastructure as a focus point to find pain points in the field, as shown in Fig. 3.

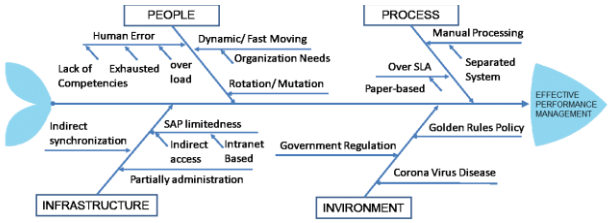


Fig. 3. Fishbone chart diagram root cause analysis

Fig.4 is showing the blueprint system, the author and Subject Material Expert (SME) conducted root-cause solution analysis using a Cluster Vote Discuss Decide (CVDD) methods.

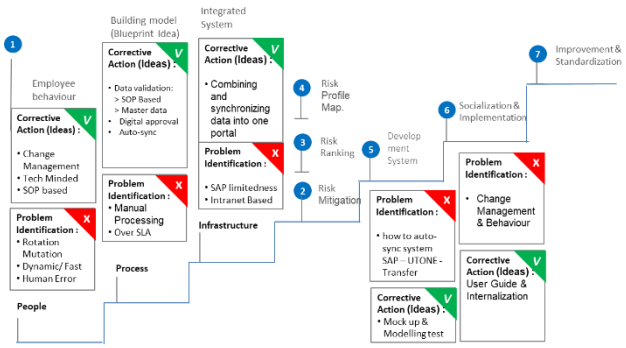


Fig. 4. Root cause – solution analysis using CVDD methods

UTONE Performance Management is a backbone that connects an integrated master database that integrates employee data (SAP) and Non SAP. Due to the limited scope of SAP, UTONE accommodates transactions in two directions and synchronizes with each other in real-time and seamless as shown in Fig. 5.

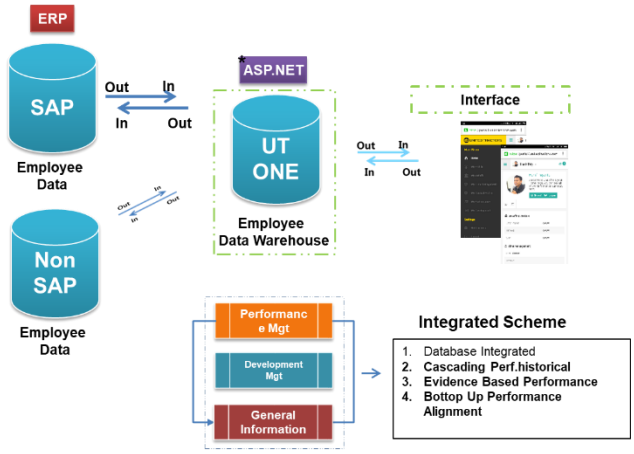


Fig. 5. Integrated performance management design

The implementation of the solution based on the blueprint strategy that has been announced is the existence of a digital-based integrated system The features of the UTONE Performance Management system accommodate the following key points : 1) Result Based Performance, 2)

Company to Individual KPI Alignment, 3) Performance Normal Curve Based Business Condition.

E. Analysis and Judgment (Result & Impact Analysis)

1) Performance Appraisal Achievement Increase : The increment of performance appraisal in 2020 improve to 95% from previously 84% (Reward and Performance Department, December 2020). This is based on UTONE Performance Management which provides easy access and monitoring of employee KPI achievement. *For papers with more than six authors:* Add author names horizontally, moving to a third row if needed for more than 8 authors.

2) Engagement Rate for Millenials Improve Improve to 77.2% from average 56.3% : This is because employees with previous assessments (2019) of performance management have a less "recognition" factor, in which on this case employees feel that their performance is not appreciated enough compared to the effort they gave. The main factor is that the system is still less transparent because it still uses a manual process mechanism (paper-based). With a digital mechanism, employees and management both can simultaneously evaluate and progress towards the achievement and the results obtained. To change the default, adjust the template as follows.

3) Turnover Decrease to 58% from 83% : The main highlight that underlies this achievement is based on employee satisfaction in terms of recognition given to the company. Performance appraisal also acts as a form of appreciation and recognition for employees who function as motivation drivers.

V. Conclusion

1) It is proven that there is a need to improve of performance management by the changing of the conditions of PESTEL analysis with a digital-based performance management mechanism (People, Process, Infrastructure). With the transformation in the assessment mechanism that previously used the 9 to 5 work performance method to become a remote working environment

2) Performance improvement design prioritizes performance based results supported by a management system that accommodates the phase of performance management needs in the new normal era with main features: performance management based on results, company to individual KPI alignment, normal-curve (bell curve) performance based on business conditions / data analytics

3) The implementation of the performance management system that has been carried out has a positive impact by increasing several test factors *:*

a) Performance coverage from 84% to 95%,

b) Increase of Engagement Rate from 56.3% to 77.2%,

c) Decrease of Turn Over for from 83% to 58%

4) Seven tools of quality control analysis can be a powerful method to find the root cause problem in terms of finding the best solution. Combining the result by using Pearson test analysis to prioritize the most effective impact.

Recommendation

The first recommendation is the need for a deeper study in the measurement of turn over analysis. This is because there are possible external factors that may occur, such as the impact of COVID-19. The next recommendation is to increase the validity of the study on variable performance management, in this case is the financial statement, the last recommendation is to do more in-depth study for Outlook and Judgment variables as performance management variables. This is because in its implementation there is still a conflict of interest so that the assessment becomes biased between objectivity and the interests of the superior when making the assessment.

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