E-ISSN 2503 - 1430
ISSN 2541 - 3090

Journal Of Industrial Engineering Management
(JIEM Volume 6. No 3 Tahun 2021)

DETERMINATION OF THE OPTIMAL NUMBER OF EMPLOYEES USING THE FULL TIME EQUIVALENT (FTE) METHOD AT PT. XYZ

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Article history:
Submit 07 Oktober 2021
Received in from 13 Oktober 2021
Acceted 11 November 2021
Avilable online 20 Desember 2021

ABSTRACT

Determining the optimal number of employees in a company is a basic condition that must be concern into account when drafting a work plan. The work design process ultimately aims for balance the physical and mental aspects of humans in completing certain tasks so that. Determination of the number of employees whit the existing workload will support employees performance in perform their duties optimally. The purpose of this research is to determine the optimal number of salesman based on the workload calculated using the Full Time Equivalent method. Based on the results of research at PT. Xyz used the method FTE is know that the workload of the 4 salesman is classified as overloaded. Where is sales I has a workload of 1.48, sales II has a workload of 1.70, sales III has a workload of 1.66, sales IV get a workload of 1.42. Based on the table of labor requirements to the FTE value, the number of initial salesman was 4 sales and the addition of the number of salesman is as many as 10 salesmen. So, the optimal number of salesmen in Makassar city is 14 salesmen.

Keywords: Workload, Work Effectivenees, Full Time Equivalent

Published By:
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DOI : http://dx.doi.org/10.33536/jiem.v6i3.1071

I. PENDAHULUAN

Determination of the optimal number of employees in a company, is a basic condition that must be considered in preparing work plans. The work design process ultimately aims to balance the physical and mental aspects of humans in completing certain tasks so that the determination of the number of employees with the existing workload will support employee performance in carrying out their duties optimally.

In research (Tho'in, 2016) according to Jhon, et al, (2018) Every company certainly needs competent people to advance its company. In a world dominated by the service sector, the importance of human capital cannot be denied. To get a return on investment (Return on Investment) physical and technological resources, companies are highly dependent on the competence of workers. In a broad sense, human capital, which is defined as the skills, dexterity, and knowledge of a group of people, is the main determinant of economic growth today.

One of the problems experienced by PT. XYZ, namely the non-optimal performance of employees (*salesmen*) in placing orders at outlets because the distance between each outlet area visited by salesmen is not in accordance with the visiting hours to the outlet and the target outlet that must be visited in a day. So that salesmen experience fatigue in maximizing the target of visits per day and time when ordering at each outlet. This problem has been experienced since the covid-19 pandemic which resulted in the company reducing salesmen from 6 people to 4 people. This reduction is done to reduce the company's expenses. However, this reduction actually resulted in a decrease in revenue turnover from ordering goods because the workload received by the salesman was too heavy. So this research is focused on measuring workload to determine the optimal number of employees so that salesmen can meet company targets and maximize orders during visits to outlets.

According to BKN (2001), the workload is the average frequency of each type of work in a certain period of time. Estimating the workload of each each organizational unit can be done based on calculations or based on experience. As for Hasibuan (2005), workload analysis is determining the number of workers required to complete a job in certain period of time.

In research (Rama Adi, 2020) according to Nilasari (2016) FTE is the number of working hours of full-time or full-time employees during a certain period of time, for example in one month or one year (Nilasari, dwi. 2016). The FTE method is a way of calculating the observed input and output of employees and then calculated based on the unit of time (Karo & Adianto, 2014).

II. RESEARCE METHODS

2.1 Time and Place

This research was conducted for 1 month in April-May 2021, this research was conducted at PT. XYZ Makassar City, South Sulawesi.

2.2 Data Collection

2.2.1 Primary Data

Primary Data in this study were obtained directly from the object of research through observation, namely as follows:

1. *Allowance* Data
2. Working Time

2.2.2 Secondary Data

Secondary Data in this study were obtained from existing data such as corporate documentation data and other information related to the research. Secondary data in this study are as follows:

1. Number of Salesman
2. Workload of *Salesman*
3. Visits Data
4. Working Hours Data

2.3 *Full Time Equivalent* Method

The data used in this study using *a Full Time Equivalent* (FTE):

1. Calculating for Cycle Time and Adequacy Data
2. Uniformity Test
3. *Rating Factor* Test
4. Calculating Activity Processing Time
5. Calculating Workload

III. RESULTS AND DISCUSSION

Calculating Cycle Time and Sufficiency of Data

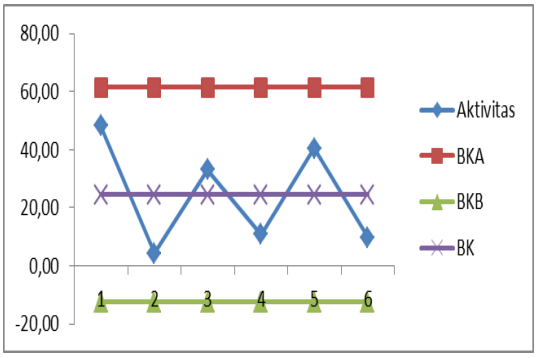
Table 1. Cycle Time and Sufficiency of Salesman Data

Sales	No	Activity	Intensity	WS	N	N'	DES
Sales 1	1	Driving	Daily	48.27	8	0.85	Enough
	2	Arrived at The Shop	Daily	4.26	8	6.60	Enough
	3	Check Stok in Warehouse	Daily	33.20	8	1.32	Enough
	4	Make an Order	Daily	10.84	8	0.64	Enough
	5	Queue	Daily	40.48	8	0.12	Enough
	6	Deposing order to Admin	Daily	9.81	8	0.65	Enough
Sales 2	1	Driving	Daily	52.45	8	1.65	Enough
	2	Arrived at The Shop	Daily	3.76	8	4.41	Enough
	3	Check Stok in Warehouse	Daily	46.51	8	0.12	Enough
	4	Make an Order	Daily	10.84	8	0.64	Enough
	5	Queue	Daily	45.85	8	0.61	Enough
	6	Deposing order to Admin	Daily	11.36	8	1.53	Enough
Sales 3	1	Driving	Daily	51.00	8	1.06	Enough
	2	Arrived at The Shop	Daily	5.22	8	5.30	Enough
	3	Check Stok in Warehouse	Daily	34.67	8	1.11	Enough
	4	Make an Order	Daily	11.89	8	2.43	Enough
	5	Queue	Daily	46.23	8	0.15	Enough
	6	Deposing order to Admin	Daily	10.97	8	1.45	Enough
Sales 4	1	Driving	Daily	47.84	8	1.45	Enough
	2	Arrived at The Shop	Daily	4.47	8	0.80	Enough
	3	Check Stok in Warehouse	Daily	27.23	8	2.38	Enough
	4	Make an Order	Daily	13.78	8	1.77	Enough
	5	Queue	Daily	45.94	8	0.48	Enough
	6	Deposing order to Admin	Daily	11.26	8	0.08	Enough

3.2

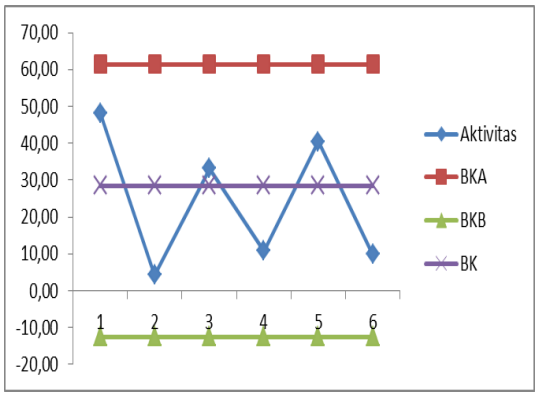
3.3 Data Uniformity Test

At this stage, the first data test is data adequacy test, there are 2 factors influencing namely the level of confidence (k) and the level of accuracy (s). The level of confidence used is 95% or equal to 2 and the level of accuracy used is 10% or 0.



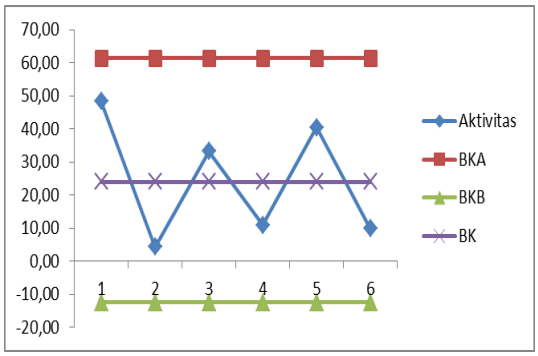
Graph 1. Uniformity of Sales Data 1

From graph 1 shows that there is no data that is out of control limits. This means that the data obtained is uniform.



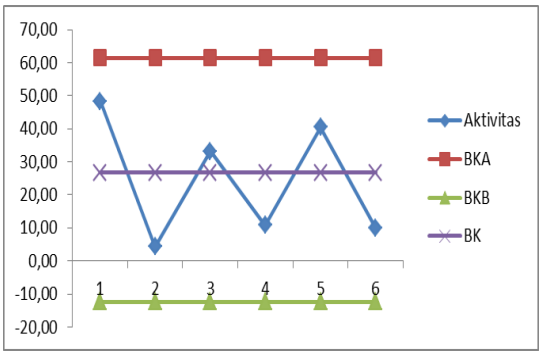
Graph 2. Uniformity of Sales Data 2

From graph 2 shows that there is no data that goes out of control limits. This means that the data obtained is uniform.



Graph 3. Uniformity of Sales Data 3

From graph 3 shows that there is no data that is out of control limits. This means that the data obtained is uniform.



Graph 4. Uniformity of Sales Data 4

From graph 4 shows that there is no data that is out of control limits. This means that the data obtained is uniform.

3.4 Rating Factor Test

The adjustment factor or *performance rating* is the activity of assessing or evaluating the operator's work speed. By doing this rating, it is expected that the measured working time can be normalized again. The method used is the method *westing haouse*. The *performance rating value is* assessed according to direct observations made by researchers on the performance of each salesman in each element.

Sales	No	Activity	Intensty	KP	UH	KJ	KS	RF
Sales 1	1	Driving	Daily	0,06	0,02	0,02	0,01	1,11
	2	Arrived at The Shop	Daily	0,00	0,02	0,02	0,00	1,04
	3	Check Stok in Warehouse	Daily	0,03	0,02	0,02	0,01	1,08
	4	Make an Order	Daily	0,03	0.02	0,02	0,01	1,08
	5	Queue	Daily	0,00	0,00	0,02	0,00	1,02
	6	Deposing order to Admin	Daily	0,03	0,02	0,02	0,01	1,08
Sales 2	1	Driving	Daily	0,06	0,00	0,02	0,00	1,08
	2	Arrived at The Shop	Daily	0,00	0,00	0,02	0,00	1,02
	3	Check Stok in Warehouse	Daily	0,00	0,02	0,02	0,00	1,04
	4	Make an Order	Daily	0,00	0,02	0,02	0,01	1,05
	5	Queue	Daily	0,00	0,00	0,02	0,00	1,02
	6	Deposing order to Admin	Daily	0,03	0,02	0,02	0,00	1,07
Sales 3	1	Driving	Daily	0,06	0,00	0,02	0,00	1,08
	2	Arrived at The Shop	Daily	0,00	0,00	0,02	0,00	1,02
	3	Check Stok in Warehouse	Daily	0,03	0,02	0,02	0,00	1,07
	4	Make an Order	Daily	0,00	0,02	0,02	0,01	1,05
	5	Queue	Daily	0,00	0,00	0,02	0,00	1,02
	6	Deposing order to Admin	Daily	0,00	0,02	0,02	0,01	1,05
Sales 4	1	Driving	Daily	0,06	0,00	0,03	0,00	1,09
	2	Arrived at The Shop	Daily	0,00	0,00	0,02	0,00	1,02
	3	Check Stok in Warehouse	Daily	0,00	0,02	0,02	0,01	1,05
	4	Make an Order	Daily	0,03	0,02	0,02	0,00	1,07
	5	Queue	Daily	0,00	0,00	0,02	0,00	1,02
	6	Deposing Order to Admin	Daily	0,03	0,02	0,02	0,01	1,08

Table 3. Activity Process Time All Work

Sales	No	Actyvity	Intensity	RF	WS	WN	WB
Sales 1	1	Driving	Daily	1,11	48.27	53,58	61.62
	2	Arrived at The Shop	Daily	1,04	4.34	4.51	5.18
	3	Check Stok in Warehouse	Daily	1,08	33.20	35.86	41.24
	4	Make an Order	Daily	1,08	10.84	11.70	13.46
	5	Queue	Daily	1,02	40.48	41.29	47.48
	6	Deposing order to Admin	Daily	1,08	9.81	10.59	12.18
Sales 2	1	Driving	Daily	1,08	40.39	50.88	59.52
	2	Arrived at The Shop	Daily	1,02	3.76	3.84	4.49
	3	Check Stok in Warehouse	Daily	1,04	30.36	48.37	56.60
	4	Make an Order	Daily	1,05	10.84	11.38	13.31
	5	Queue	Daily	1,02	27.75	46.77	54.72
	6	Deposing order to Admin	Daily	1,07	11.36	12.15	14.22
Sales 3	1	Driving	Daily	1,08	51.00	49.47	58.87
	2	Arrived at The Shop	Daily	1,02	5.22	5.33	6.34
	3	Check Stok in Warehouse	Daily	1,07	34.67	37.09	44.14
	4	Make an Order	Daily	1,05	11.89	12.48	14.86
	5	Queue	Daily	1,02	46.23	47.15	56.11
	6	Deposing order to Admin	Daily	1,05	10.97	11.52	13.71

Sales 4	1	Driving	Daily	1,09	56.51	46.40	54.29
	2	Arrived at The Shop	Dailiy	1,02	4.47	4.56	5.33
	3	Check Stok in Warehouse	Dailiy	1,05	46.36	28.59	33.45
	4	Make an Order	Dailiy	1,07	13.78	14.75	17.26
	5	Queue	Dailiy	1,02	45.94	40.00	46.80
	6	Deposing order to Admin	Dailiy	1,08	11.26	12.16	14.22

Based on the table above, it can be seen that the *performance rating* or RF work element value is the average of each salesman. These values are obtained from observations according to therating system *Westinghouse*.

3.5 *Full Time Equivalent*

Workload calculation is based on total standard time each *salesman* a day and working time per day. The calculation of the workload *salesman's* that can be seen in each is in the table above. The following is an example of the calculation to get FTE at sales work station 1:

Total Element Hours = Frequency x Standard Time x Number of Working Days/60

Hours / Year = 200 x 61.62 minutes x 285 days /3600 = 848.35

FTE = (Total working hours of elements per year) / Effective working hours per year

FTE = 975.65 / 1938 = 0,50

Table 4. Value of FTE Each Sales

Sales	Score FTE
Sales 1	1.48
Sales 2	1.70
Sales 3	1.66
Sales 4	1.42

Based on the table above, sales 1 gets a workload This is excessive because the total FTE of all activity elements is above > 1.28, namely 1.48, which is classified in thecategory *overload* , therefore recommendations need to be made. For sales 2, they have an excessive workload, this is because the total FTE of all activity elements is above > 1.28, namely 1.70, which is classified in thecategory *overload* , therefore recommendations need to be made. For sales 3, they have an excessive workload, this is because the total FTE of all activity elements is above > 1.28, namely 1.66, which is classified in thecategory *overload* , therefore recommendations need to be made. And for sales 4 they have an excessive workload, this is because the total FTE of all activity elements is above > 1.28, namely 1.42, which is classified in thecategory *overload* , therefore recommendations need to be made.

IV. CONCLUSION AND SUGGASTION

4.1 Conclusion

Based on the research objectives to be achieved in calculating the workload using the FTE method:

1. Based on the research that has been carried out at PT. XYZ on the salesman section, it can be concluded that the *overload* workloadreceived in sales 1 gets an excessive workload, this is because the total FTE of all activity elements is above > 1.28, namely 1.48, which is classified in thecategory *overload*. In sales 2, the workload is excessive, this is because the total FTE of all activity elements is above > 1.28, which is 1.70, which is included in the category. Sales 3 has an excessive workload, this is because the total FTE of all activity elements is above > 1.28, namely 1.66, which is classified in thecategory *overload*. Sales 4 has an excessive workload, this is because the total FTE of all activity elements is above > 1.28, which is 1.42, which is classified in thecategory *overload*.
2. Based on the results of the FTE calculation, it is known that the workload of the 4 salesmen is classified as overloaded. Based on the table of labor requirements for the FTE value, the number of initial salesmen is 4 sales and the addition of the number of salesmen is 10 salesmen. So thenumber of *salesmen* optimalin Makassar City is 14 *salesmen*.

4.2 Suggestions

There are several suggestions for improvement that can be taken into consideration for further research, namely:

1. Further research can use other workload calculation methods to calculate the optimal number of labor requirements and costs incurred.
2. Further research can determine the division of tasks into eachstore in *sales* each region in Makassar City.

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