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A Propose Conceptual Model to Determine Optimal Number of Educational Staff in A Faculty (Case Study: A College in Surabaya)

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ABSTRACT

Humans are assets / equity (capital) that need to be considered, developed, and managed in a corporation. It needs management in order to improve the efficiency, effectiveness, and productivity of human resources. The efficiency and effectiveness can be measured by workload analysis with the job description approach for each position assumed by the relevant human resources. University is a educational institution that certainly has a complex organizational structure. This study aims to develop a conceptual model as reference for the policy makers to determine optimal number of educational staff in a faculty. A literature study and direct observation have been carried out in this research. Using workload analysis approach used by the Indonesian government in determining the number of civil servant formation, i.e. Kep.Men.Pan No KEP/ 75/M.PAN/7/2004. We develop a conceptual model on educational staff activity in a faculty by direct observation.Due to the number of educational staff is not optimal, then we propose a conceptual model which used as a framework to calculate the utilization of each positions. That are the number of person proposed, one person as head of administration (W_s= 88%), one person as head of general subdivision (W_s= 75.5%), one person as head of academic subdivision (W_s= 165 %), and two persons as executive staff (W_s= 172%).The idea to generate this research is caused by the university has staffing problem. Then to solve this problem this research has been carried out based on taking data directly.

Key words: educational staff, workload analysis,determine optimal

1. INTRODUCTION

Human Capital Management became one important role in the process of achieving the vision and mission of an organization. The term Human Capital Management shifts general term that has been used by several organizations namely Human Resource Management. Human Resource Management is the management of human resources; in this case the man is only exploited and explored by users to meet their business processes. Unlike the Human Capital Management, which has a broader meaning.Namely human capital as a business process agency / organization. Human capital in the business world should continue to be developed so that the effectiveness, efficiency, and productivity are increasing [1].

According [2], with their effectiveness, efficiency, and productivity, companies can find out how to optimize resource use and can support the achievement of the target which has been run by company. Optimization of resources associated with this, it is often done by a company either services or manufacturing industry is the efficiency in terms of human resources (HR). Efficiency in the HR field is related to the workload to be borne in an organizational unit within an organization. To improve efficiency in the areas of human resources, can be done in various ways.

In line with the [2], for increasing efficiency in the field of human resources, the efficiency is related to the work activity and the time it takes employees to complete their tasks in accordance with the Job Description provided by the management [3]. The method can be used to measure efficient and effectiveness of the Work Load Analysis. Work load analysis is an overview of the workload required in an organization in a company. With this method is also useful in providing information about the allocation of resources in the completion of their employee workload.

The workload is a consequence of the activities provided to workers. Activity workers can basically be divided between physical activity and mental activity. In practice workloads encountered a combination of physical workload and mental workload [4].

August 17, 1945 Surabaya University has six faculties unit, four bureaus, and eight other supporting agencies. In this research will focus on determining the optimum number of academic staff in the Faculty of Engineering. Faculty of Engineering is one of the faculties who have a number of students, lecturers and education staff in University ABC. Thus, in the service process, both academic services and administrative services should be more attention. In addition to relating to quantity, in determining the needs of education personnel should also be considered in terms of the quality of human resources required. So the workload analysis becomes an important role in the determination and evaluation of manpower needs [5].

In recent periods, organizational structure University ABC has experienced several changes. This organizational structure instability caused by various factors. One of the factors that cause a reshuffle of the organization is the lack of standardization of the determination of the optimal employee based on the duties and functions of each position. Determining the optimal number of employees begins with an analysis of the workload, both brought closer to the work load of physical and mental workload.

Figure Error! No text of specified style in document.**:** Workload Graph Position in Staff of University ABC (Widiasih & Nuha, 2018a)

One approach that can be used in the measurement of workload analysis with the physical approach is the job description. Analysis of the workload with the job description can be done by using work sampling method. In formulating the workload analysis, needs to be supported by the organization's vision and mission adjustments. Analysis of the workload with a physical approach, there will be a gap is high on the work load of each - each employee positions at the university. [6] conduct research workload analysis approach employees with job description, concluded that the structural position that has the duties and functions of direct support in achieving the vision and mission of the current period. Results from these studies can be seen in Figure 1.

With reference to research [2], the approach used to measure the workload analysis in this study is the approach to workload per office in accordance with KEP/75/M.PAN/7/2004 and for mental work load calculation used calculations by NASA-TLX subjective, Approach to measuring mental workload by NASA-TLX is also corroborated by the research that has been done by [7] by measuring the mental burden of employees using the NASA-TLX questionnaire.

The results of measurements of physical work load and mental workload is converted in determining the optimal amount of labor. By optimizing the number of employees as well as map the competencies, skills and expertise needed in an office, it will be to achieve efficiency of employees. Planning the optimal employee needs to be developed with some of the proposed scenarios and simulated by ARENA. The advantages of simulation ARENA is able to determine the level of productivity (utilization) of resources (employees) from various variance of the main tasks and functions performed [8].

This study will review the results of research of [7]who has gained the level of workload with job description approach using work sampling method. Results workload will be reevaluated to determine the optimal number of employees in accordance with Kep.Men.PAN No. KEP/75/M.PAN/7/2004. The optimal number of employees developed a conceptual model as a staffing framework in a faculty.

In this research development planning model optimal staffing in a faculty, University ABC has two objectives to be achieved. First, getting optimal number of educationalstaff needed at several positions in a faculty, University ABC based on KEP/75/M.PAN/7/2004. Second, getting a model conceptual as planning framework in determining the optimal number of educational staff in faculty.

1.2 Workload Analysis

Work Load Analysis is the main parameter in determining the optimal amount of labor [9], it comparing the two approaches in the determination of the amount of labor based on work load and work force analysis. In the result, work load analysis is one approach to get the best solution. Work load analysis is done by defining the job description. Job description is an elaboration of the duties and functions of each position. Process work load analysis of data tailored to the technical methods and measurement procedures for the work stopwatch time study or work sampling[10-12].

Workload analysis can also be brought closer to the mental work load; one of the many methods used in the analysis of the mental burden is NASA-TLX. NASA-TLX (National Aeronautics and Space Administration Task Load) is a method that was developed from the collaboration of NASA-

Ames Research Center and San Jose State University. A factor to be measurements in this method is Mental Demand (MD), Physical Demand (PD), Temporal Demand (TD), Performance (P), frustration Level (FR). Mental load measurement can be used as a parameter in work load analysis that can be collaborated with the job description. So that these parameters can be converted in to determine the manpower needs[8].

In line with [5], considering the workload based on the job description in accordance with Kep.Men.PAN No. KEP / 75 / M.PAN / 7/2004 as physical workload and NASA-TLX as mental load measurement to obtain optimal amount of labor. Optimal labor needs to be well planned, because this will affect the productivity of labor. After getting the optimal workforce simulation using ARENA software to determine the respective utilization of labor. In addition to the above two approaches, other approaches to determine the optimal amount of power is to calculate the standard time. Standard time is the normal time required by a worker in completing a job by considering allowance[7].

Optimal amount of labor that have been obtained must be allocated based on the competencies required at each position. Assignment of employees, allocation of workload and scheduling of employees is not a new problem. But often it often becomes a problem for an institution / organization. Allocation of employees' workload can be resolved by developing a mathematical model with an objective function inequality between individual employee workload and employee cost minimization [9].

1.3 WorkloadMeasurement Using Kep.Men.Pan Approach (KEP/75/M.PAN/2004)

In the calculation of the workload according to Kep.Men.PAN No. KEP/75/M.PAN/7/2004 (MENPAN, 2004), determined that in the calculation of employee formation, there are three aspects to be addressed:

1. Workload

The workload is an essential aspect that became the basis for the calculation. The workload needs to be set through the program - the program of work units then elaborated into a target job for each position.

2. The average standard Capability

The standard average ability can be measured as standards capability of the unit of time results. Standard capabilities of units of time called Norma Time Standard meanwhile ability of a unit called the Norma Results.

Norma time is one time unit used to measure how the results obtained. The formula is:

NORMA TIME = (One x Time) / Results (1)

3. Working time

Working time is meant here is someone that effective working time, which means that working time is effectively used for work. Effective working time consists of effective working days and working hours effectively.

a. An effective working day is the number of days in the calendar minus holidays and leave. The calculations are as follows:

The number of days according to the calendar day .....
The number of days a week in the first year day .....
The number of days in the year ..... 1 day
Leave in one year the number of days .....
Holidays and furlough days .....
Effective working day ..... day

Note:

Holidays can be a national holiday and a day off regionalism. Therefore, for each region can count them.

b. Effective working hours is the number of formal working hours reduced by lost work time because they do not work (allowance) as waste water, unwind, meal breaks, and so on. Allowance is estimated to average - average about 30% of the number of hours of formal job. In calculating the effective working hours should use size 1 week. Here is an example of calculating the effective working hours:

The number of formal working hours 1 week 400 minutes
Allowance 30% x 400 minutes 120 minutes
Effective working hours 1 week 280 minutes

Total hours worked is calculated formalized within 1 week 8 hours per day times 5 days.

One of the methods used in the calculation of the number of employees in accordance with the approach Kep.MENPAN workload per-assignment office which is a method for calculating the needs of employees in positions whose work abstract or varied. Results varied means to work in positions of many kinds. In this study, the result of abstract labor is defined as the job description of an employee.

The information that needs to be able to calculate with this method are:

1. Description of duties (job description) and the amount of load for each task.
2. Task completion time.
3. The number of effective working time per day - average.

For the calculation formula is as follows:

$$\text{Number of Staff} = \frac{\sum \text{Total Working Time Used}}{\sum Total\ Avalaible\ Time} \quad (2)$$

2. METHODOLOGY

At this preliminary stage and the preparation. In this study begins with the study of literature and field. The study of literature is made by a literature search related to the problem or object of research. Literature search can be done

through primary sources and secondary sources. For primary sources, literature research carried out by examining the object directly. As for the secondary source Author book University ABC, literature search performed by a source or reference from books, journals, research reports earlier. Related materials or literature search conducted, among others, the basic principle of the workload, work measurement, calculation workload based KEP/75/M.PAN/7 /2004 as well as the calculation of the workload analysis.

A field study conducted by direct observation of the research object. Within the scope of this study observed is educational staff working in a faculty, University ABC. At present, the management has never been analyzing workload on employees by considering the job description has been given each position.

Field studies were also conducted with interviews to the object of study as a preliminary survey on the study. Furthermore, in this stage after the literature study and field study it can be concluded for the formulation of the problem and research objectives.

This study uses two sources of data, primary data and secondary data. The primary data is the result of observation or observation data field interviews circuitry using questionnaires of KEP/75/M.PAN/7/2004. Secondary data are the existing supporting data, such as organizational duties, organizational structure, and existing data educators in a faculty.

The organizational structure, duties and functions of the organization at the University ABC that is used is still valid. As for the organizational structure of education personnel in the Faculty of Engineering can be seen in Figure 2 below. Study focused on the pad structure below is contained.

The data on the actual condition of education personnel can be seen in Table 1 below:

Table 1: The Number of Staff

No.	Position	Number
1	Head of Administration	1
2	Head of Academic Subdivision	1
3	General Head Subdivision	1
4	Executive staff	15
	Total	**18**

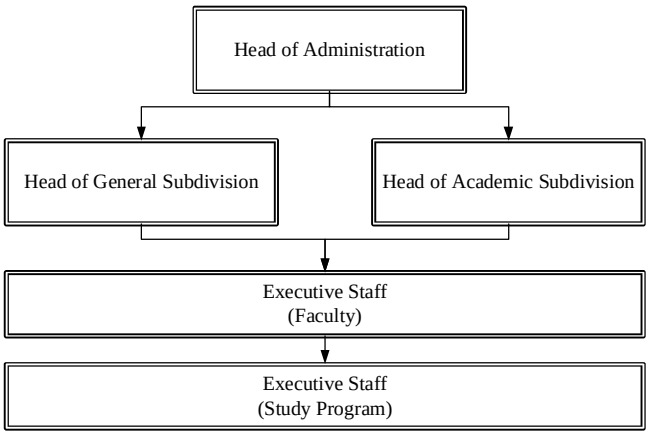

Figure 2: Organizational Structure Personnel Faculty of Engineering

3. RESULT AND ANALYSIS

Based on the results of calculations from the determination of the number of educational staff with the Kep.Men.Pan No KEP/75/M.PAN/7 /2004 approach, the following results are obtained inTable 2.

Table 2. The Proposed Number of Staff Based on Workload Analysis

	Workload (%)	Existing (person)	Proposed (person)
Head of Administration	88	1	1
Head of General Subdivision	75.5	1	1
Head of Academic Subdivision	165	1	1
Executive Staff	172	15	2

The four positions studiedabove; there are two positions that have abnormal workload values. Namely to the academic sub-section with 165% and executive staff with 172%.

4. CONCLUSION

From the research that has been carried out until the stage of collecting and processing data on workload analysis on the basis of KEP/75/M.PAN/7/2004 obtained required number of academic staff as follows: 1 Head of Administration, 1 Head of General, 1 Head of Academic,and 2 Executive Staff. The results of processing these data need to be replicated and clarification by investigators directly at each position.

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