

Optimization of Bills Assignment to Different Skill-Levels of Data Entry Operators in a Business Process Outsourcing Industry

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Abstract : Business Process Outsourcing has been one of the fastest growing and emerging industry in the Philippines today. Unlike most of the contact service centers, more popularly known as "call centers", The BPO Industry's primary outsourced service is performing audits of the global clients' logistics. As a service industry, manpower is considered as the most important yet the most expensive resource in the company. Because of this, there is a need to maximize the human resources so people are effectively and efficiently utilized. The main purpose of the study is to optimize the current manpower resources through effective distribution and assignment of different types of bills to the different skill-level of data entry operators. The assignment model parameters include the average observed time matrix gathered from through time study, which incorporates the learning curve concept. Subsequently, a simulation model was made to duplicate the arrival rate of demand which includes the different batches and types of bill per day. Next, a mathematical linear programming model was formulated. Its objective is to minimize direct labor cost per bill by allocating the different types of bills to the different skill-levels of operators. Finally, a hypothesis test was done to validate the model, comparing the actual and simulated results. The analysis of results revealed that the there's low utilization of effective capacity because of its failure to determine the product-mix, skill-mix, and simulated demand as model parameters. Moreover, failure to consider the effects of learning curve leads to overestimation of labor needs. From 107 current number of operators, the proposed model gives a result of 79 operators. This results to an increase of utilization of effective capacity to 14.94%. It is recommended that the excess 28 operators would be reallocated to the other areas of the department. Finally, a manpower capacity planning model is also recommended in support to management's decisions on what to do when the current capacity would reach its limit with the expected increasing demand.

Keywords : optimization modelling, linear programming, simulation, time and motion study, capacity planning

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