



MODELLING CALL DISTRIBUTION IN CALL CENTRES

R. Marlon Abeykoon, G.S.N. Meedin, H.U.W. Ratnayake*

Department of Electrical and Computer Engineering, The Open University of Sri Lanka

Call centres have become popular among many industries as a method of centralizing information services by providing customer support and streamlining business processes. A call center typically has different call queues implemented for incoming calls based on their business requirements. But the call distribution to the desired call center agent is not always fair and efficient which results in low productivity and efficiency. This research introduces an effective, efficient and fair call distribution model to use in call centers.

To achieve the desired target, a suitable forecasting model was identified to forecast an hourly average call waiting time of calls in all the implemented queues in a call center. A simulator was implemented to simulate the call queue and thereby to test the proof of the concept. The extracted data were transformed into an algorithm written in Python and fed into the Holts Winter algorithm's additive method. Then a solution was introduced to capture the unpredictable scenarios where forecasting of the average call waiting time can differ from the predicted values. To guarantee fair call consumption, an algorithm was introduced for the allocation of calls from different queues to a common pool.

The histograms drawn for the data before and after applying the model show that the distribution is changed from negative skewness to a positive skewness which concludes that the model has improved the call distribution.

It can be concluded that call distribution can be optimized by reducing the call waiting time in queues, if all the calls in different queues are treated equally at all situations. Considering unpredictable situations and the last few months' calls waiting trends, the call allocation can be highly optimized.

Keywords: Call center, Performance, Call distribution model, Fairness

**Corresponding author: marlonabeykoon@gmail.com*