

## Automated System for forecasting and capacity management in BPO

Anuraag Anand<sup>1,\*</sup>, JB Simha<sup>2</sup> and Shinu Abhi<sup>3</sup>

<sup>1,2,3</sup>REVA Academy for Corporate Excellence, REVA University, Yelahanka, Bengaluru, 560064

### Abstract

In the virtual world, every decision made by executives today need forecasting. Sound forecasting of demand and variations are no longer an extravagance but a necessity, since Operations in the organizations have to deal with the seasonality, sudden changes in capacity management, cost-cutting strategies of the competition, and enormous dynamics of the economy.

This paper details the development of a Forecasting and Capacity Planning model to empower operations to consistently forecast incoming volume for scheduling/rostering. A combination of past process-specific data, algorithmic forecasting, Subject Matter Expert (SME) inputs, and modelling results in a forecast with a daily accuracy of up to 85% per month out and approximately 95%-98% per week. The tool leverages the generated forecast to envisage capacity and resource planning. This Capacity Planning tool gives the capacity requirement for the forecasted volume, scheduling, and staffing. The tool has been deployed across 150+ client area. POC (Proof of Concepts) was done across all domains to test the tool and as expected the tools is generating the forecast and schedule with the accuracy of 96.77%.

**Keywords:** Data models, capacity modelling, extrapolation, knowledge models, prediction intervals, predictive validity, regression analysis, time series data

Received on 05 September 2023, accepted on 16 November 2023, published on 23 November 2023

Copyright © 2023 Anand *et al.*, licensed to EAI. This is an open access article distributed under the terms of the [CC BY-NC-SA 4.0](https://creativecommons.org/licenses/by-nc-sa/4.0/), which permits copying, redistributing, remixing, transformation, and building upon the material in any medium so long as the original work is properly cited.

doi: 10.4108/ew.4460

### 1. Introduction

Capacity planning [1] refers to the process of translating number of resources required to meet the demand to process the transactions. This real-time study is about the challenges faced by the delivery units in a BPO i.e., Business Process Outsourcing. Delivery units or the operations' who struggles to meet client requirements in absence of automated system to manage the capacity requirement. They miss the Service Level Agreements (SLAs) as they are not able to manage inflow volume of the transactions. Despite of all technological advancement and automation, there is a lack of ability to gauge accurate volume inflow. There is a considerable variation in processes today due to seasonality /cyclical components present in the process, in absence of accurate volumetric details received from the clients. This has led to

inaccurate capacity estimation causing longer cycle time/breach in SLAs and eventually in client dissatisfaction. This is the common issue observed in all delivery units across all the domains like Finance and accounting, Resources, Utilities, Insurance, and Healthcare.

As a result, operations are being capacitated to the best efforts to meet the client requirement, leading to inefficient resource management impacting Operating Deals Economic (ODE) directly and leading to revenue leakage. These further impacts client satisfaction. The current methods need to be tweaked to accommodate the volume spikes. This is largely depending on the gut feeling of the managers. This results in multiple forecasts across the processes. These multiple forecasts without any baselining lead to misalignment with the forecast at the organizational level.

Owing to the ongoing issues, the need of the hour is to create an end-to-end system, which not only forecasts but can

\*Corresponding author. Email: [anuraaganand26@gmail.com](mailto:anuraaganand26@gmail.com)











