

Application of modeling & simulation techniques to understand & improve the efficiency of back-office operations.

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Abstract

Any modern economy can be classified as follows: Primary Sector, which is made up of agriculture, mining, etc.; Secondary Sector consisting of manufacturing industries such as Iron & Steel; and finally the Tertiary Sector which encompasses the service industry.

In the post-war world and especially since the last two decades, the service industry has seen more investments, technological developments, employments and other advances than any of the other sectors.

A typical service organization consists of a Front Office where in the customer interacts with the organization, and a Back office where in all functions are devoted to running the organization and keep the front office running; In other words, the Front office is the Face of the organization, whereas the back office is its Brain.

Only recently, there has been much technological developments related to both front and back office management and functioning technologies; which involves shifting the back office to a distant land which is cheaper and faster in response, while modern communicational techniques maintain the link between the two sections. This, and other myriad reasons have led to numerous complexities and posed new challenges in maintaining the crucial link between Front & Back offices.

Modeling and Simulation is a technique in industrial engineering wherein any system can be conveniently reproduced even before it takes concrete shape, and effects of various consequences can be studied, to prevent real world errors or undesirable situations.

Using these techniques; based on the data pertaining to previous responses to the Front office, the Back office can project possible response patterns for the future and also project the process time and thus the delivery date by analyzing available resources, taking into account trend, seasonal and cyclic demand patterns, superimposing them with actual data and simulate the results leaving minimal room for any random components

E.g. In a restaurant, the groceries to be stocked for the next week can be determined by using the usage data of past few weeks, keeping into account seasonal and other components; Also, for a car service garage, the expected date of delivery of a car can be projected on basis of available resources like spares, personnel etc. for the immediate future.

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