

# **An optimal strategy for production capacity leveling with exponentially increasing demand and limited resources**

## **ABSTRACT**

A heuristic solution of dynamic capacity programming is developed when demand is increasing exponentially. Any urgent and massive products, like medical supplies (face mask, N95...) or new iPhone devices in the growth period of product life cycle, the market demand is increasing always by geometric progression. While the production capacity just can be increased by arithmetic progression due to limited resource. It is a serious problem how to match demand and supply. In this study, a level capacity programming is used to setup a dynamic and stable resources planning for an exponentially increasing demand. The purpose of this study is to help management to plan personnel and capacity to confront dynamic environment. A numerical example and sensitivity analysis are carried out to illustrate this theory.

**Keywords:** dynamic; finite time horizon; level capacity programming; operation management; sensitivity analysis