Presented at the DLSU Research Congress 2014
De La Salle University, Manila, Philippines
March 6-8, 2014

Aggregate Planning Tools for Make-or-Buy Decisions: An Industrial Engineering Suggestion

Eric A. Siy

Department of Industrial Engineering
De La Salle University
2401 Taft Avenue, Manila, Philippines
email: eric.siy@dlsu.edu.ph

Abstract: A routine managerial accounting problem is the make-or-buy decision: to make a needed industrial subcomponent/material in-house, or to outsource/buy/purchase such items, but too often, the decision is treated as a one-time cost consideration problem without taking into account often the advantages of long-term production capacities of the "making" company. This paper proposes an evaluative tool that utilizes the Aggregate Planning Transportation model problem from the applied mathematics field of Operations research, that will enable production planners or small business managers to take long-term perspectives on cost minimization on the make-or-buy decision. Operations Research (or Management Science) has been a source for applied mathematical tools in the practice of Industrial Engineering. The paper suggests that the transportation problem only takes the variable costs considerations for producing a subcomponent in-house, but does not consider the fixed costs concerns that the Assignment problem can solve. Total costs for a planning horizon of more than one-period would be the objective of this evaluation tool. Numerical examples would be provided as to show the relative combinations of production demand that would best utilize this aggregate planning model. This should provide a human-centric computational tool that only requires a basic business graduate's academic training in management science.

Keywords: Make-or-buy; Long-term decisions; Aggregate Planning Model; Transportation Model; Assignment Model