

# Author's Accepted Manuscript

Replenishment, production and quality control strategies in three-stage supply chain

R. Hlioui, A. Gharbi, A. Hajji



[www.elsevier.com/locate/ijpe](http://www.elsevier.com/locate/ijpe)

PII: S0925-5273(15)00130-9  
DOI: <http://dx.doi.org/10.1016/j.ijpe.2015.04.015>  
Reference: PROECO6064

To appear in: *Int. J. Production Economics*

Received date: 19 June 2014  
Revised date: 23 January 2015  
Accepted date: 28 April 2015

Cite this article as: R. Hlioui, A. Gharbi, A. Hajji, Replenishment, production and quality control strategies in three-stage supply chain, *Int. J. Production Economics*, <http://dx.doi.org/10.1016/j.ijpe.2015.04.015>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

*replenishment, production and quality control strategies in three-stage supply chain*

**R. Hlioui<sup>a</sup>, A. Gharbi<sup>a\*</sup>, A. Hajji<sup>b</sup>**

<sup>a</sup> Department of Automated Production Engineering, Production System and Control Laboratory, École de technologie supérieure. Université du Québec, Montreal, QC, Canada

<sup>b</sup> Department of Operations and Decision Systems & CIRRELT, Laval University, Québec, QC, Canada

Abstract

In this paper, we propose to jointly integrate and coordinate production, replenishment and quality inspection decisions in a three-stage supply chain control problem. The transformation stage produces one final product type and responds to a stable market demand. After a random lead time, the supplier delivers raw materials in batches which may each contain a certain proportion of defective items. When a lot of raw materials is received, a lot-by-lot acceptance sampling plan is applied, and then a decision is taken with regards to a 100% screening or discarding of the sampled lot. In this article, we focus on the existing interaction between the applicable quality control decisions and the replenishment and production control decisions. The objective is to determine a control policy for production, replenishment and quality activities which minimizes the total cost, including purchasing costs, production and quality inspection costs, as well as the inventory/backlog costs. A simulation model and a response surface methodology are used to find the optimal parameters of the proposed policy. The obtained results show that the integration of 100% screening or discarding decisions in a new “hybrid” one is more beneficial, and guarantees a better coordination at a lower cost.

Download English Version:

<https://daneshyari.com/en/article/5079675>

Download Persian Version:

<https://daneshyari.com/article/5079675>

[Daneshyari.com](https://daneshyari.com)