IOP Conference Series: Materials Science and Engineering • *Open Access* • Volume 598, Issue 1 • 9 September 2019 • Article number 012022 • Joint Conference of the 6th Annual Conference of Industrial and System Engineering 2019, ACISE 2019 and 1st International Conference on Risk Management as an Interdisciplinary Approach 2019, ICRMIA 2019 • Semarang, Central Java • 23 April 2019through 24 April 2019 • Code 152221

Document type
Conference Paper • *Gold Open Access*

Source type
Conference Proceedings

ISSN
17578981

DOI
10.1088/1757-899X/598/1/012022

View more

Procurement Strategy in Power Plant Companies (Case study in the supply of water generator engine parts)

Pujotomo D. ; Suliantoro H.; Huseina A.F.
Save all to author list

[a] Industrial Engineering Department, Diponegoro University, Jl. Prof. H. Soedarto, SH, Tembalang, Semarang, 50275, Indonesia

Abstract

PT XYZ is one of the power generation companies that conduct electricity production process by utilizing energy coming from water to rotate turbine. The problem faced is about maintenance infrastructure that is delays procurement of spare parts item. One effort that can be done is to improve procurement efficiency. Procurement efficiency can be accomplished by designing a procurement strategy covering twenty-two important parts, by determining the type of relationship, contract type, contract term, operational strategy and employee characteristics of procurement of parts and helping to achieve efficiency in the procurement process of spare parts which often experience delays. The design is based on the coordinate point position of the spare parts item in Kraljic Portfolio Matrix

Source details

IOP Conference Series: Materials Science and Engineering

Scopus coverage years: from 2009 to 2021

(coverage discontinued in Scopus)

ISSN: 1757-8981 E-ISSN: 1757-899X

Subject area: Engineering: General Engineering | Materials Science: General Materials Science

Source type: Conference Proceeding

CiteScore 2021
1.1

SJR 2021
0.249

SNIP 2021
0.344

View all documents > | Set document alert | Save to source list | Source Homepage

CiteScore | CiteScore rank & trend | Scopus content coverage

¡ Improved CiteScore methodology

CiteScore 2021 counts the citations received in 2018-2021 to articles, reviews, conference papers, book chapters and data papers published in 2018-2021, and divides this by the number of publications published in 2018-2021. Learn more >

CiteScore 2021

$$1.1 = \frac{68{,}488 \text{ Citations } 2018 - 2021}{62{,}140 \text{ Documents } 2018 - 2021}$$

Calculated on 05 May, 2022

CiteScore rank 2021

Category	Rank	Percentile
Engineering — General Engineering	#194/300	35th
Materials Science — General Materials Science	#362/455	20th

View CiteScore methodology > | CiteScore FAQ > | Add CiteScore to your site

INDUSTRIAL AND SYSTEM ENGINEERING. ANNUAL CONFERENCE. 6TH 2019. (6TH ACISE 2019) (2 PARTS)

Item #: 050770

Details

Title:	6th Annual Conference on Industrial and System Engineering (6th ACISE 2019)
Date/Location:	Held 23-24 April 2019, Semarang, Indonesia.
Series:	IOP Conference Series: Materials Science and Engineering Volume 598
ISBN:	9781510894686
Pages:	988 (2 Vols)
Format:	Softcover
TOC Link:	View Table of Contents
Publisher:	Institute of Physics Publishing (IOP)
POD Publisher:	Curran Associates, Inc. (Dec 2019)

6th Annual Conference on Industrial and System Engineering (6th ACISE 2019)

IOP Conference Series: Materials Science and Engineering
Volume 598

Semarang, Indonesia
23 – 24 April 2019

Part 1 of 2

ISBN: 978-1-5108-9468-6
ISSN: 1757-8981

TABLE OF CONTENTS

PART 1

PART 2

Procurement Strategy in Power Plant Companies (Case study in the supply of water generator engine parts)

D Pujotomo [1], H Suliantoro[1], A F Huseina [1]

[1]Industrial Engineering Department, Diponegoro University, Jl. Prof. H. Soedarto, SH, Tembalang, Semarang, 50275, Indonesia

darminto_pujotomo@yahoo.com

Abstract. PT XYZ is one of the power generation companies that conduct electricity production process by utilizing energy coming from water to rotate turbine. The problem faced is about maintenance infrastructure that is delays procurement of spare parts item. One effort that can be done is to improve procurement efficiency. Procurement efficiency can be accomplished by designing a procurement strategy covering twenty-two important parts, by determining the type of relationship, contract type, contract term, operational strategy and employee characteristics of procurement of parts and helping to achieve efficiency in the procurement process of spare parts which often experience delays. The design is based on the coordinate point position of the spare parts item in Kraljic Portfolio Matrix consisting of supply risk dimension with 12 criteria and profit impact with 6 criteria. In the strategic quadrant, design is done by considering Supplier Perception Model consisting of dimension of level of attractiveness and value of business.

1. Introduction

Procurement is the process of obtaining goods or services to meet needs so that the process of activities can proceed according to planning. Procurement activities will be beneficial if the goods or services needed can be purchased at the best cost to meet the needs of buyers in quality, quantity, time and location [1]. The procurement process, suppliers are needed as providers of needs [2]. In obtaining appropriate needs, good management is needed between buyers and suppliers. Supplier relationship management that is well managed will affect the performance of the company's supply chain that will increase effectively [3].

PT XYZ is a subsidiary of the State Electricity Service (PLN) which is a State-Owned Enterprise (BUMN) which operates in the field of electricity production to distribution to PLN. PT XYZ is a generator that converts motion energy into electricity using water. Based on the initial interview, PT XYZ had a problem in the supply chain, namely in infrastructure maintenance activities, PT XYZ often encountered problems, one of which was the delay in procuring components. These problems occur due to several factors, namely incompatibility of usage specifications and delays in delivery. As a result, the electricity production process can be disrupted and incur additional costs. There are several costs that can be directly calculated and there are some uncountable costs that can have a large impact on the company's performance in the long term.

PT XYZ has a policy if the components/spare parts do not meet the specifications will be returned to suppliers and suppliers must replace these parts with additional time that affects the idle engine, electricity production will be reduced or the company must do overtime. Therefore, the planning to procure machine parts must be appropriate so as not to inhibit the electricity production process. The

IOP Conf. Series: Materials Science and Engineering **598** (2019) 012010 doi:10.1088/1757-899X/598/1/012010

Campus Sustainability Practice Assessment: An Empirical Finding from Jönköping University, Sweden

M M Ulkhaq[1,2], R S George Joseph[2], B Javed[2], and N R Nadekar[2]

[1]Department of Industrial Engineering, Diponegoro University, Semarang, Indonesia
[2]Jönköping International Business School, Jönköping University, Jönköping, Sweden

ulkhaq@live.undip.ac.id

Abstract. The role of higher education institutions (HEIs) nowadays in promoting sustainability has outspread over the past decades. This is a result of abundant declarations and conferences about the need for sustainability in higher education. As consequences, several HEIs have integrated sustainability into their curricula, research, programs, projects, partnerships, and assessments. The objective of the research is to assess the campus sustainability practice of Jönköping University, which is located in Jönköping, Sweden. The assessment includes three pillars of campus sustainability, i.e., environmental management, public participation and social responsibility, and research and teaching as well. The assessment is considered could yield various benefits, not only for the university but also for the stakeholders, surrounding society, as well as for the academic purposes.

1. Introduction

Since Stockholm Declaration in 1972—it is acknowledged as the initial declaration about sustainability in higher education, there is a growing number of higher education institutions (HEIs) which have incorporated sustainability into their research, curricula, operating activities, assessments, as well as reporting [1],[2]. The sustainability term could be viewed as an attempt to balance and harmonize the environmental concerns with social and economic issues [3]. In a more formal way, sustainable development can be defined as a "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" [4].

The HEIs are regarded to be in a unique position to address this challenge. Even though they mostly engage in education—not in the field of environment, social, and even not intended to gain much profit—but they are expected to offer an education to the students with knowledge that could have effects to the environment and influences on local communities [5]. Due to this circumstance, i.e., that HEIs could not embrace three pillars of sustainability (environmental, economic, and social); hence, a sustainable university is defined differently. There is a shared understanding that a sustainable university entails a balance between environmental issue, public participation and social responsibility, and teaching and research in policy formulation [6]. It does make sense as the economic pillar is substituted by teaching and research.

Several studies stressed out the need for sustainability in HEIs, see for example [7]-[9]. Some HEIs believe that this is a challenge to start formulating a sustainable campus program [10], while others employ to implement some established campus sustainability assessment tools or reporting, such as ISO 14001 (e.g., [11]-[13]), green building initiative [14], eco-management and audit scheme (EMAS) [15],

IOP Conf. Series: Materials Science and Engineering **598** (2019) 012098 doi:10.1088/1757-899X/598/1/012098

Managing Blood Safety and Availability: A Preliminary Investigation of the Blood Supply Chain Dynamics in Indonesia

L. Lusiantoro[1] and B. Tjahjono[2]

[1]Department of Management, Faculty of Economics and Business, Universitas Gadjah Mada, Indonesia[1].
[2]Centre for Business in Society, Coventry University, UK.

luluk.lusiantoro@ugm.ac.id

Abstract. This paper reports the findings from our preliminary investigation into the blood supply chain in Indonesia. The aim is to obtain factors influencing blood safety and availability, and ultimately to better understand its dynamics. A single embedded case study was adopted as a research design. Data were collected using six semi-structured interviews, walkthroughs, and written documents available from a blood centre and four associated hospitals in Yogyakarta. Template and within-case analyses were then used to analyse the data and, subsequently, to identify and categorise themes emerging from the data. Governmental and organisational policies, costs, donor management, stock management, and facilities are the main factors emerging from the data. These factors are interrelated and, collectively, they influence blood safety and availability across the blood supply chain.

1. Introduction

Managing blood safety and availability remains a challenging problem for the blood supply chain in Indonesia. In 2013, it was found that 3% of the total donated blood were contaminated by infectious diseases [1]. It is not uncommon to find some hospitals and blood centres (i.e. the Indonesian Red Cross – PMI) being out of stock when particular blood groups are needed. That condition could be even worse during national holidays when PMI could only supply 30% of the stocks needed every day [2]. PMI once claimed that on average it could only supply 70% of the national blood demand [3]. This uncertainty in blood safety and availability can lead to an increasing risk of losing patients' lives due to transfusion transmissible infections and delay of transfusion process.

Despite the urgency in providing reliable blood supply chain operations, the root causes of blood safety and availability problem in Indonesia have not been fully understood. Whilst lessons can be learnt from the extant blood supply chain literature (e.g. inventory optimisation, supply management, and distribution scheduling of blood products – [4]), context specific studies are still required to understand the dynamic of the blood supply chain operations and how it influences blood safety and availability in a unique setting of Indonesia. To address this gap, this paper attempts to answer the following research questions:

1. What are the contributing factors of the blood safety and availability problem in Indonesia?
2. How are the factors interrelated and how does the interrelation influences blood safety and availability in Indonesia?

Revisiting Supply Chain System with Deteriorating Items and Transportation Cost

C V Huang[1], Y D Huang[2] and H M Wee[1]

[1]Department of Industrial & Systems Engineering, Chung Yuan Christian University, 200, Chung Pei Road, Chungli 32023, Taiwan, ROC.
[2]Department of Marketing and (&) Distribution Management, National Pingtung University, 51 Min-Sheng E. (East) Road, Pingtung, Taiwan 90041.

jackhjv@yahoo.com.tw

Abstract. Supply chain system with deteriorating items and transportation cost with environmental consideration has recently become a popular research stream. This study revisits a supply chain system with deteriorating items and transportation cost. Processing the defective items, which increases cost, affects supply chain decisions. We present an integrated inventory model involving a three-stage supply chain and defective items with no shortage. We then derive the minimal total cost considering supply chain integration and deteriorating items. Numerical examples are provided to illustrate how these models can be applied in practice. Sensitivity analysis is performed to gain more insight on changing parameters in the numerical studies.

1. Introduction

Due to increasing globalization, firms face a highly rapidly changing industrial conditions. The objective of our study is to determine the optimal cycle time and the replenishment policy for the integrated system which minimizes the average total cost per unit time. The motivation for looking at such models comes from the competitive environment and greater information transparency between suppliers, manufacturers, and retailers in the supply chain. Some researches on three-stage supply chain model were done by the following researchers. Ben-Daya et al. [1] explored the joint economic lot sizing problem in the context of a three-stage supply chain. Sana et al. [2] investigated a three-stage supply chain consisting of multiple suppliers, multiple manufacturers, and multiple retailers. Neither of them considered deteriorating items and logistic cost. Chung et al. [3] developed an integrated two-stage production–inventory deteriorating product model, in which stock-dependent, imperfect items and just-in-time delivery were considered.

In this study, we developed a generalized mathematical model considering three-stage supply chain for deteriorating items considering transportation cost. Our objective is to minimize the total system cost per unit time. We illustrate the process with a numerical example and analyzed the sensitivity of crucial parameters to provide managerial insights.