



# Managing product returns to achieve supply chain sustainability: an exploratory study and research propositions



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## ABSTRACT

The aim of this article is to develop research propositions for product returns management using the Institutional Theory (INT) as the foundation for the study. The paper culminates with a research model based on this theoretical perspective to examine the input and output of product returns management as part of a comprehensive sustainability effort. The study is exploratory in nature based on five case studies of participating manufacturers in the automotive, and electrical and electronics industry in Malaysia. The interview results reveal that the five participating companies established a product returns management program to handle three types of product returns found in their organizations. This is not surprising because successful product returns management has a number of internal and external benefits to the firms. Our interviews also uncover that the abundant amount of product returns is pressing these companies to implement an effective product returns management program. Based on the primary and secondary data collected in this study, three propositions are developed for future research, which should be tested with a large empirical data set to strengthen the theoretical contributions and managerial implications of this study.

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## 1. Introduction

Product returns management plays a significant role in the sustainability of a firm's operations. Although the management of product returns has been traditionally focused on cost reduction (Rogers and Tibben-Lembke, 2001), the shrinking global supply of materials and environmental degradation have caused firms to rethink the need to salvage their product returns. Along with the implementation of environmental policies and regulations, many firms have begun to change their focus on reverse supply chains by launching recovery programs, such as repair, reuse, remanufacturing, remarking and refurbishing (Gobbi, 2011). In addition to providing attractive business opportunities, the recovery process could induce sustainable process development and gain competitive advantage in the market (Jack et al., 2010). Hence, managing

product returns in an effective and efficient way is gaining attention from the industry as well as among academics (Srivastava and Srivastava, 2006).

In relation to this, many concepts and practices for product returns in the reverse supply chains have been extensively discussed in the literature. Among the major concepts brought forward are industrial ecosystem, product life-cycle stages management, closed-loop supply chains, integrated supply chain management, and green or sustainable supply chains (Seuring, 2004). The main idea behind the concepts is to resolve environmental challenges across the supply chain through the extension of the product lifecycle, in which product returns are expected to create the utmost value during the reverse flow in a closed-loop supply chain (Mondragon et al., 2011). For example, Jayaraman and Luo (2007) described how product returns provide an opportunity for manufacturers to remarket the reusable products due to the large volume of returns that could exceed six percent of total sales. In addition, Stock and Mulki (2009) found that effective product returns management could yield higher profitability due to lower operating cost and higher salvage or retrieval value of

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returns. Furthermore, the economic, regulatory, and customer pressures motivate business executives around the globe to implement an effective product returns management program (Srivastava and Srivastava, 2006).

In practice, the vast majority of developed countries require manufacturers and importers to comply with legislation that has been introduced based on extended producer responsibility (EPR). For example, certain businesses must collect and repossess their defective or end-of-life (EoL) products. Moving in a similar direction, the Malaysian government established mandates to require its private sector, especially manufacturers to improve waste management by adhering to government programs initiated by the enactment of the Reduce, Reuse and Recycle (3R) practices (EPU, 2010). This paves the way for the Malaysian government to launch its EPR execution plan in the near future. Although the plan is still in the pipeline, its current focus is the implementation of incentives based on a deposit refund scheme and take back system. This EPR execution plan motivates consumers to return used, recyclable products in exchange for monetary incentives from the manufacturers who are obligated to take back EoL products (EPU, 2010).

Malaysia is a developing country that strives for higher development and economic achievement. A key driving force for the country to achieve its vision as a developed nation by 2020 is its distinctive competency in the industrial sector in Southeast Asia. Nevertheless, its rapidly flourishing industrial sector has adversely polluted its environment due to the escalating volume and diversity of toxic and hazardous wastes, pollution and rapid depletion of its natural resources (Abdullah, 1995; Lau, 2004; Agamuthu and Victor, 2011). The amount of scheduled waste generated by Malaysian businesses and the manufacturing industry has increased from 1.1 million in 2006 to 1.8 million metric tons in 2011 (JAS, 2011). The rapidly deteriorating environmental condition could gravely jeopardize Malaysia's ambition of becoming a developed nation because a polluted environment threatens the balance of economics and social growth, and sustainable development, which will particularly affect the economic and social aspects after the country attains developed status in 2020.

On a different perspective, Mohamed (2009) showed that from 2000 to 2005, at least 45 percent of industrial waste has been salvaged. The trend showed an increase in recovery rates from 35 percent in 2000 to 58 percent in 2004. The value of industrial waste recovered during this period was estimated at RM9.46 billion, or a volume of 3.4 million metric tons (Mohamed, 2009). Waste recovery is not only confined to cost saving in procuring new materials, but also helps to reduce energy usage during production and waste recovery (Zhang and Wang, 2014). Industrial waste recovery was carried out predominantly by the 119 industrial waste recycling firms permitted by the Ministry of Housing and Local Government across Malaysia (Mohamed, 2009). Hence, this indicates that there are ample opportunities to transform industrial waste into economic benefits. The large amount of recoverable materials should motivate manufacturers to become directly and proactively involved in various product recovery activities, including remanufacturing, re-use and recycling, instead of relying on a third party firm to handle their product returns.

Despite the importance of product returns, recent studies showed that most firms in Malaysia have taken a reactive approach to manage product returns (for example, Eltayeb and Zailani, 2009; Eltayeb et al., 2011; Olugu et al., 2010; Nik Ab Halim et al., 2011). This is mainly due to the lack of return capabilities (Eltayeb et al., 2011), high cost of returns operations (Eltayeb et al., 2011; Khor and Mohamed Udin, 2012) as well as the obstacles in obtaining

the sufficient volume and proper timing of the returns (Shaharudin et al., 2014). Since product returns management is not a part of their core competencies, many firms are ill-equipped to handle product returns. Although improper by modern standards, the traditional approach of firms in Malaysia is to refuse product returns due to the lack of a process to handle returns (Jayaraman and Luo, 2007). As a result, recovery tasks in Malaysia are handled by scrap contractors or junk dealers who lack any practical blueprint for sustainable operations (Mohamed, 2009), and whose operations are non-sustainable due to their inobservance of most environmental considerations (Mohamed et al., 2008). Their primary interest is to recover materials that have monetary value in the scrap market. As a result, only a limited portion of materials, such as plastic, steel, paper, glass and packaging, are recovered from returns (Mohamed, 2009). This has created another challenge in Malaysia – finding ways to recycle discarded materials from scrap contractors and junk dealers.

However, many environmentally responsible firms in Malaysia are proactively taking back their EoL products, though primarily for marketing purposes. Some firms have established incentive programs to encourage customers to trade-in their EoL products as partial payment for new products. In Malaysia, the level of extended producer responsibility adoption is still low because most companies accept returns through their own initiative (Agamuthu and Victor, 2011). Currently, companies that accept returns are limited to a handful of multinational firms, such as Motorola Malaysia, Nokia Malaysia, Dell Malaysia, Apple Malaysia and HP Malaysia. These firms have voluntarily implemented a product returns program as part of their corporate responsibility to protect the fragile global environment (Agamuthu and Victor, 2011).

Although understanding the input, process and output of returns management is the first step toward the adoption of environmental sustainability initiatives, there are limited studies concerning such matters, especially in developing countries. In addition, while the limited number of empirical studies (survey and exploratory) examining product returns compared to the vast mathematical modeling studies has hindered the progress of the overall effort toward theory verification and development in this area, new discovery in this area is imperative to ensure that manufacturers in Malaysia meet the sustainability vision instituted in the Tenth Malaysia Plan (2011–2015). This short-term plan, based on the concept of sustainable production activities, was designed to assist the government to achieve a balance between economic growth and environmental protection.

In summary, this paper explores the extent, drivers (input) and impacts (output) of product returns management among manufacturers in Malaysia. This study hopes to fill the research gap in that there is a lack of theory development research in product returns management (Carter and Ellram, 1998; Daugherty et al., 2001; Jahre, 1995), including empirical research in the reverse flow operations (De Brito and Dekker, 2003). This research aims to contribute to the literature by offering research propositions to examine product returns management, particularly in the context of Malaysia where firms are mostly irresponsive to sustainability (Albino et al., 2009).

The next section briefly reviews the background literature, followed by a discussion on theoretical development. The fourth section provides the research methodology, followed by a discussion on the results of the data analyses in the fifth section before presenting the development of the propositions in the sixth section. Finally, the paper provides a delineation of the discussions of the findings and the conclusion of the study.

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