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A Framework for Investigating Reverse Logistics Capability of E-Tailers

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***Abstract*—**Environmental concern and consumer rights have entailed e-tailers to adopt better strategies to facilitate product returns from customers. As the demand for reverse logistics (RL) continues to grow, little is known about what motivates e-tailers to enhance their RL capabilities and about the role RL capabilities plays in enabling e-tailers to achieve better customer satisfaction and economic performance. Based on resource-based theory and institutional theory, this article proposes that the following factors play a critical role in influencing the RL capability of e-tailers: (a) Financial resource commitment to RL, (b) managerial resource commitment to RL, and (c) institutional pressure to implement RL. Based on the role of these factors, the study provides a framework and propositions that serve to guide future research addressing the link among resources, institutional pressure, and RL capability.

***Keywords*—**Reverse logistics, e-tailing, resource-based theory, institutional theory.

I. Introduction

WITH advances in information technology and the popularity of the Internet, online shopping has increased; however, as more people shop online, issues related to e-commerce draw more attention. Compared to physical stores, many e-tailers have lower startup costs and can provide consumers with the convenience of always being open. However, there is limited human interaction with online stores; consumers cannot touch and feel products via the website, and there is no opportunity to contact with salespeople in person. As a result, e-tailers often face higher RL costs due to service recovery.

RL encompasses planning, implementing, and controlling the efficient and cost-effective flow of raw materials, in-process inventory, finished goods, and related information from the point of consumption to the point of origin for recapturing value or for proper disposal [1]. RL provides consumers with post-purchase services such as product return, replacement, repair, and recycling. Across all industries, RL ranges from about 3% to 50% of total shipments [1]. Richardson notes that effective RL can be a competitive advantage in differentiating online stores [2]. A study conducted by BizRate.com [3] reveals that RL is an important service feature offered by online stores; if product returns or exchanges are mishandled, consumers are less willing to repurchase at that store. Studies show that up to 94% of shoppers do not buy again from online stores with bad return policies [4]. The Gartner Group estimates that up to 36% of products available for sale online have been returned [5].

According to [6], return rates for online sales are substantially higher than those from brick and mortar stores, reaching up to 30% in certain item categories. In addition, Rogers and Tibben-Lembke report an average return rate of 50% for the magazine publishing industry [7]. The cost of product returns can reach twice the product's original value; this shows that RL services and operating capabilities are important issues for online store [8]. Although RL can be a differentiating advantage for e-tailers due to lower operating costs, many operators do not recognize its importance. Several issues are involved in RL: Sustainability, consumer protection laws, shortening product life cycles, goods obsolescence, product recovery operations, consumer requirements and decrees, and increased value from recycled goods. E-tailers should have better RL capabilities to reduce operating costs and enhance business performance [9]-[12].

Daugherty et al. and Cullen et al. have investigated the link between RL program and business performance by adopting the resource-based theory (RBT) [13], [14]. RBT is based on firms' views [15], and considers how resource arrangement within companies determines operational efficiency and profitability [16]. In this view, organizational decisions and performances are determined by the availability of resources and capabilities. In addition, RL activities have a significant relationship with the external environment, based on institutional theory, regarding environmental concerns and societal pressures [17]. This encourages acceptance of certain norms of organizations [18], such as consumer-oriented protections regulated by government. With increasingly stringent environmental regulations and raised environmental awareness, companies have a greater responsibility to protect the environment [19], [20]. Therefore, a comprehensive understanding the motives for enhancing RL capabilities should include both internal and external perspectives. However, there is no such unified view on how these internal and external factors influence e-tailers' RL capabilities. In this study, we incorporate institutional theory and RBT to fulfill the gap. The research objectives are to investigate: (1) The link between the resource commitment and RL capabilities, (2) The relationship between the institutional pressure of implementing RL and RL capabilities; and (3) The specific dimensions of e-tailers' RL capability. A framework and propositions are proposed to guide future research addressing the link among resources, institutional pressure, and RL capability of e-tailers.

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II. Literature Review

A. Reverse Logistics

RL is the process of moving products from their original place to other places to increase product value. According to [21], the RL process involves returning of unwanted products and then reselling of the returned products. Prahinski and Kocabasoglu define RL as a series of activities necessary to retrieve a returned, used or damaged product from the point of consumption to either dispose of it or recover economic and/or environmental value [22]. Thus, RL has been viewed as an effective way to improve resource productivity, reduce the negative impact to environment, and improve economic performance and environmental performance. Cohen shows that RL can help enterprises cut costs by 40%-60% depending on the method of reproduction [23]. For example, Hewlett-Packard (HP) has had an ink cartridge recycling program since 1990, which has helped improve company's reputation as well as cut production costs.

Daugherty et al. point out several critical points regarding RL success: (1) Support from business administration and financial resources, (2) Improving customer relationships and complying with business regulations, and (3) Company stakeholder satisfaction [24]. Richey et al. propose that RL effectiveness should be measured according to revenue improvement, production flexibility, and service quality [25]. Moreover, Bowersox et al. point out that there are several factors influencing companies to adopt RL programs. First, the most important reason to implement a RL program is to improve revenue and lower costs; also, RL affects companies' customer service [26]. Second, the government has initiated environmental friendly laws that require companies to play an important role in enhancing social responsibility regarding the environment protection. Therefore, environmental friendly behavior of corporate can influence RL programs. Third, enterprises are members of society; the environmental friendly behavior can influence business ethics as well as social responsibility. Carter and Ellram concern the organizational environment and classify factors influencing RL into four categories: requirements, inputs, outputs, and competiveness. Requirements are governmental regulations and influences of other societal bodies; inputs are supplier influences; outputs are customer influences; and competiveness describes actions of competitors [27]. Daugherty et al. emphasis that IT support is critical to enhancing RL practices [24].

Online stores allow customers to view and buy products via the Internet. There are many advantages to online stores versus physical stores: greater access to global customers, greater ability to scale market promotions globally, and customers can take advantage of significant shopping assistance while making prompt buying decisions [28]. However, there also exist problems in doing business via the Internet [8]. First, customers are limited to the presentation of products only and cannot touch, listen to, or smell products; therefore, shopping online may increase product misunderstandings of buyers. As a result, the return rate of products bought online can increase, along with perceived risks [29]. Reportedly, the product return rate for online shopping can be as high as 75% [30]. Second, satisfactory customer service is critical for customer retention. Third, the costs of RL operations are high. These result in several hidden costs and therefore online stores need to understand the value of effective RL and its impact on business.

B. Resource-Based Theory

RBT argues that resources are fundamental elements for composing an organization. In other words, an organization is viewed as a bundle of tangible and intangible resources [16]. By leveraging resources, organizations can build unbreakable competitive advantages and prevent new market entrants. Barney proposes that enterprises can gain long-lasting competitive advantages by accumulating resources and non-substitutable capability [31]. Grant illustrates that inner resources and capabilities can lead strategic direction and can be an important foundation for obtaining revenue [32]. Conner points out that different strategic resources within organizations are associated with different products, service quality, and performance [33]. An enterprise's success is closely linked to how well inner resources are integrated and used. Therefore, this theory can be used to help companies identify, differentiate, and develop their organizational core and unique resources to sustain competitive advantages.

Barney argues that resources are the assets, capability, business flow, properties, information, and knowledge that organizations control and utilize to implement strategies. These resources can be used for improving organizations' efficiency and effectiveness [31]. Prahalad and Hamel propose the concepts of core resource and core competence. They view core competence as companies organizing and coordinating different skills to maintain long-term competitiveness [34]. Amit and Schoemaker further point out that competence is an enterprise's ability to assign internal resources to achieve the best arrangement [35]. Competence is based on information and knowledge and is only feasible by taking the basis of the administrative flow to sustain competitive advantage. Therefore, RBT is characterized by organizations' internal thinking. Organizational competitiveness should be sustained by effective arrangement of internal resources [32].

Differences in companies' strategic resources are causally related to differences in product/service features and differences in performance [33]. Allocation of sufficient resources is critical to a firm's success. This is especially important for RL since reverse flows are different from standard forward logistics and need additional resources to deal with special handlings [25].

C. Institutional Theory

Resource-based viewpoint suggests that an organization make decisions that are shaped by the internal economic context of organization, Institutional theory posits that decisions of an organization are shaped by the external social context of the organization [36]. Institutional theory is viewed as the most important theory for describing and explaining organizational behavior [37]. Institutional theory focuses on the interrelated relationships between organizations and the

environment. Selznick first introduced the concept of formalization (institutionalization) and linked it with the process of how organizations adapt to the environment and adjust their internal business flow to meet the requirements of external competition [38]. In other words, institutional theory focuses on influences from the societal environment, including the interrelated relationships between other organizations, standards, and society's expectations.

According to [39], organizations are embedded in a complex societal environment and are required to act according to societal norms, rules and values. Organizations can act correctly to fulfill society's needs, and at the same time, organizations can grow and thrive by obtaining the required resources and capabilities. DiMaggio and Powell present three predominant sources of institutional pressures on organizations: Coercive pressure (from government regulations), normative pressure (from consumers), and mimetic pressure (from competitors) [37]. Further, Scott documents three environmental factors influencing the formalization process of organizations: first, regulations or laws are used to sustain order and peace in society [40]. For example, disseminated water and gas should be measured as required by law; therefore, organizations should function to meet the requirements of the law. Second, regarding the normative environment, organizations should operate by respecting societal requirements. For example, companies that respect public expectations of environmental friendliness may keep the faith for continuously promoting the concept of RL. Finally, the cognitive environment regards understanding the world's faiths and cultures, and the meanings reflected by the human beings living in society. Therefore, institutional theory can explain how organizations can sustain value and differentiated advantages and meet society's requirements. Organizations should act according to societal expectations and government regulations to obtain long-lasting competitiveness and required resources. Ginsberg posits that there is a need to integrate the resource-based and institutional theories to fill the gap regarding the lack of consideration in the societal context in terms of organizations' traditions, networking, and pressures from expected norms [41]. Several researchers also have supported this perspective [36], [37], [40].

III. A Framework For RL Capability

The RBT and institutional theory are incorporated in this study for investigating the antecedents of e-tailers' RL capabilities and performances. The research model (Fig. 1) covers the issues of organizational commitments as well as the external pressures of implementing RL in e-tailing sector. The research model is divided into three parts: internal resource commitments (including financial resource commitment and managerial resource commitment), perceived external pressure to set up RL capabilities; and RL capabilities (including formalization, IT support, and flexibility) [24], [42], [43]. In the following section, the research propositions are detailed.

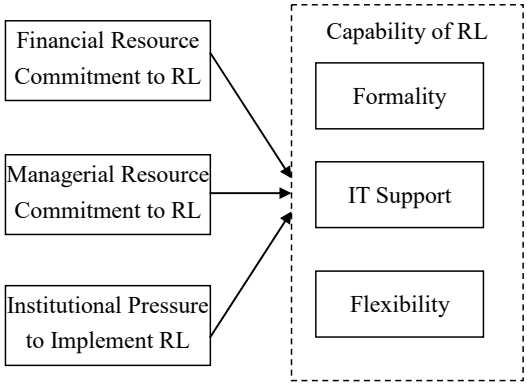

Fig. 1 Linking resource commitment and institutional pressure to RL capability

IV. Research Propositions

Based on the resource-based viewpoint, Olavarrieta and Ellinger show that resources are important elements to help organizations create values and sustain competiveness in the long term [44]. RL processes often require a series of intricate multilayered steps that are different from standard outbound flows of product, additional resources will be needed to develop efficient returns [25]. Resource commitment to RL should be a priority because development of RL offers a strategic way of developing lasting linkages with customers [45]. Daugherty et al. point out that RL is a resource-intensive activity requiring sufficient equipment and skills for promoting RL programs [13]. Allocation of sufficient financial and managerial resources has been identified as an essence to the development of a good RL system.

Previous research has shown the ability to innovate leading to superior performance when resources are committed to a project [46]. Christmann proposes that formalization and flexibility are major dimensions of innovation [47]. Sufficient resources are needed to effectively operate RL programs with a formalized and flexible system [25]. Logistics managers have also found that information technologies are among the best tools available for improving logistics service. Thus, many firms have devoted resources to information technologies that improve responsiveness and process control [25]. Customers order online for the convenience; however, they do not always like what they get. E-tailers must accommodate returns and make the return process as easy as possible for their customers to overcome the perceived risk of ordering a product sight unseen or with limited description. By committing financial and managerial resources to the information technology used in RL processes, e-tailers may improve communications, integrate information across the firm's activities, and improve responsiveness to customers.

Rohan et al. report the case of RL of IBM's end-of-lease personal computers and identify key successful factors in this case including clear responsibility control over end to end process, dedicated RL division, process visibility, and flexibility in capacity [48]. Carter and Ellram illustrate that stakeholder commitment, managerial support, and reward system influence RL programs [27]. A case study of Chinese

automobile manufacturers reveals that the formalization and flexibility of RL is highly correlated to the success of RL implementation [25]. Accordingly, RL performance will be influenced by formalization, IT support, and flexibility regarding RL operations. As well, according to the RBT, financial and managerial resource commitment is closely related to requirements of RL development. Therefore, the following research propositions are proposed:

- P1: An e-tailer's financial resource commitment to RL will have a positive impact on RL capability.
- P1.1: An e-tailer's financial resource commitment to RL will have a positive impact on RL formalization.
- P1.2: An e-tailer's financial resource commitment to RL will have a positive impact on IT support to RL.
- P1.3: An e-tailer's financial resource commitment to RL will have a positive impact on RL flexibility.
- P2: An e-tailer's managerial resource commitment to RL will have a positive impact on RL capability.
- P2.1: An e-tailer's managerial resource commitment to RL will have a positive impact on RL formalization.
- P2.2: An e-tailer's managerial resource commitment to RL will have a positive impact on IT support to RL.
- P2.3: An e-tailer's managerial resource commitment to RL will have a positive impact on RL flexibility.

Institutional theory proposes that an organization can improve its abilities to grow and survive in a competitive environment by satisfying its various stakeholders [37]. Institutional development is the process organizations use to adapt to the environment to ensure compliance with government regulations, rules, and principles [38]. It also drives organizations to consider requirements before making business decisions. Oliver finds that organizations ensure legal compliance before making strategic decisions [18].

Regulations are generally considered the greatest source of external influence on a firm's RL activities [49]. If organizations make aggressive progress toward environmental protection and view RL as a prerequisite to implement their business plans, it will transform the pressure of environmental protection into a societal benefit. In the European Union, several countries have asked manufacturers to recycle product packaging [50], while several companies have initiated product recycling programs. These companies view RL as a strategic way to maintain their business image and attract customer attention. Kodak, for example, has initiated a product return program, and Hewlett-Packard is very active in highlighting environmental protection regarding product recycling and developing the required infrastructure [51].

Formalization is the process of promoting organizations to adapt to the environment to survive in the market, and can help organizations make the right decisions [52]. The formalization of an organization concerns interrelations between departments in dealing with business issues internally [53]. DiMaggio and Powell agree that organizations make the right decisions to respect regulations and that the process of isomorphism (to society) helps organizations survive and sustain [37]. Wright and McMahan list several factors that influence organizations to become formalized: (1) government regulations or mergers with other companies, (2) approval by other organizational bodies, (3) rewards obtained by other organizations, and (4) imitation of other benchmarking organizations [54].

Research conducted by Closs and Savitskie provides evidence that IT capabilities significantly influence overall logistics competence [55]. Increasingly, firms are finding it necessary to develop capabilities related to the use of IT [25]. Teo et al. posits that mimetic, coercive, and normative pressures existing in an institutionalized environment could influence organizational predisposition toward an IT-based linkage [56]. Thus, institutional isomorphism occurs in the structures, interactions, practices, and dominion of the firms participating in e-commerce, where the parties join forces to manage their logistical activities.

With the requirements of different bodies, a flexible RL system is necessary to enhance RL effectiveness. For example, the Home Shopping Network (HSN) in the U.S. supports effective product recycling and provides a high level of flexibility for dealing with various RL issues. Reportedly, 20% percent of HSN products are returned and the HSN system helps the company achieve customer satisfaction by providing effective RL services [57].

Based on the above discussion, this study assumes that organizations will be motivated to set up standardized and reactive RL processes under institutional pressures regarding the formalization, IT support, and flexibility of RL operations. Therefore, the following research propositions are proposed:

- P3: An e-tailer's perceived institutional pressure of conducting RL will have a positive impact on RL capability.
- P3.1: An e-tailer's perceived institutional pressure of conducting RL will have a positive impact on RL formalization.
- P3.2: An e-tailer's perceived institutional pressure of conducting RL will have a positive impact on IT support to RL.
- P3.3: An e-tailer's perceived institutional pressure of conducting RL will have a positive impact on RL flexibility.

V. Conclusions And Recommendations

In contrast to the significance of RL in e-tailing practice, there are few researches addressing the distinct capabilities that lead to superior RL capability. We have demonstrated through the extant literature that, for e-tailers, formalization, IT support, and flexibilities are critical constituents of RL capability. Results also indicate that both the committed resources and the perceived institutional pressure affect each constituents of e-tailers' RL capability. The framework developed in this study is a basis toward an understanding of the antecedents of RL capability in e-tailing sector. However, the effectiveness of this framework still remains to be empirically tested. The theoretical propositions presented in this article offer potential directions for future research on investigating antecedents of RL capability. Each of the major constructs needs to be examined to ascertain the strength and nature of the relationship with e-tilers' RL capability. It is noted that several constructs

and their effects on each dimension of RL capability have not had the deserved attentions or obtained support empirically. Future research should focus on each of the linkages identified in committed financial resource- RL capability, the committed managerial resources- RL capability, and institutional pressure-RL capability.

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