

Impact of Operational Drivers on Repurchase Intention in e-fulfillment

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Abstract

This study empirically examined the relationship between repurchase intention of customers and order procurement, order fulfillment and reverse service exchanges processes of e-fulfillment in an online retail environment. After controlling for customers' preferential brands, partial least squares structural equation modeling (PLS-SEM) analysis showed that operational drivers (ease of return, product quality information, condition of product on arrival and product availability) of e-fulfillment significantly affect repurchase intention. In terms of their relative contributions (considering relative importance and performance) towards improving repurchase intention of customers these variables can be arranged in descending order as: product quality, ease of return, condition and availability. The results help e-tail operations managers to decide on prioritizing their decisions related to order procurement, order fulfillment, and product returns processes of e-fulfillment to enhance customer retention. In addition, this study also contributes to academic literature by linking service operations and reverse logistics interfaces in e-fulfillment in the context of end consumers.

Keywords

Online retail, e-fulfillment, order fulfillment, repurchase intention

1. Introduction

e-tailing industry emphasized on increasing and retaining customer base by offering standardized products, product variety, product assortment, delivery quality, preferred delivery time slots, order accuracy, etc. Apart from these, return and prompt exchange policies have triggered growth in online shopping. Growth in this channel is primarily driven by internet penetration and mobile service penetration in India. With the introduction of Cash on Delivery option, consumers trust has also increased in this channel. It also helped e-tailers to convert first time buyers as loyal customers. Customers prefer Internet because of various factors like convenience, cheaper, wider product varieties, larger reach and 24/7 availability. Customers visit stores to get the touch and feel of the product but use internet to get the cheapest deal. Value sales through this channel were primarily driven by apparel, footwear, personal accessories and eyewear, media products, books, etc. Online retailers offer large variety of products, services and discounts to increase traffic on their websites. Order fulfillment becomes an important aspect for retaining customers. e-fulfillment is defined as the collection of purchasing, warehousing, delivery and sales stages of supply chain [1]. Purchasing includes ordering final products from all suppliers; and warehousing deals with storage and handling of these products. Delivery is defined as the physical transportation of products to customers and finally, sales are the interface between customer demand and forecasting. When the products are shipped to customers' home, that is, home delivery, it is termed as the "last mile"[1]. Service differentiation, that is, flexible delivery time windows is the key driver in e-fulfillment[2]. [3] proposed five distinct processes of e-fulfillment- order capture, order processing, pick and pack, ship; and after sales service and returns handling. Thus, they included products returns as part of fulfillment, which is relevant for e-tailing. The study opted for purchasing, order capturing, order processing, warehousing, delivery, and returns handling as the processes of e-fulfillment. Researchers and practitioners have identified the e-fulfillment process as the most critical operations for e-tailers. The basic research question that we address in this study is: How does performance along the dimensions of e-tailers' operational drivers relate to repurchase intention in online retailing?

2. Literature Review

Order procurement variables involving product ordering information in terms of website search, product quality, product availability, product information, product assortment [4-7] significantly affects online purchase experience and leads to online customer satisfaction and customer loyalty [8-9]. Order fulfillment in terms of physical distribution service quality [10-11] are potent predictors of customer satisfaction and repurchase behaviour [12-13]. Reliable fulfillment requires the right product to be available at the right time for timely delivery to customers' orders [14]. The management of product returns and reverse exchanges are important for cost reduction, customer acquisition and enhanced profitability for any organization [15]. Effectively managing product returns may lead to customer satisfaction, repeat purchase and customer loyalty [16-17].

E-tailers can also benefit by offering customized shipping and promotions for different customer segments. [18] conducted an exploratory study for determining the operational drivers of customer loyalty. They collected data for electronics food retailer from online ratings site (www.bizrate.com) and concluded found three order procurement factors (website navigation, product information and price) and order fulfillment factors (product availability, timeliness of delivery and ease of return) significantly affects customer loyalty. [19] studied the customer satisfaction with order fulfillment processes across product types. They classified the products into three categories- convenience (e.g., groceries), shopping (e.g., apparels) and specialty (e.g., electronics) and collected data from an online ratings website (Bizrate.com). They concluded that customers have higher satisfaction levels for convenience and shopping goods than specialty goods. [20] evaluated pre-purchase, transaction-related and post-purchase services of e-business on customer loyalty. They found that pre-purchase services (search support and product evaluation) have limited effect on customer loyalty whereas transaction-related services like billing transparency and post-purchase services like order-tracking, on-time delivery and customer support significantly affects customer loyalty.

3. Conceptual Model and Hypothesis

Ordering information includes product quality and website ease. e-business quality refers to a simple and understandable website and making transactions as easy and transparent as possible, while delivering what the customer ordered and it also includes website ease assessing specific aspects of navigation, sequence of steps, and ease of search on website for ordering a product online [5, 21]. Order procurement in terms of product availability, product information, product assortment is an important determinant of shopping satisfaction in e-tailing [5, 9]. E-tailers offer excellent assortment of products, information about products whether they are in stock, alternatives if they are out-of-stock, etc. Product Quality refers to the physical quality of the goods in the eyes of the customer; the degree of choice or assortment; and the ability of the grocer to keep these in stock and/or make appropriate substitutions [5]. Thus we propose our first hypothesis:

H1: Order procurement positively influences repurchase intention (where order procurement variables consist of (i) e-business quality, and (ii) product quality).

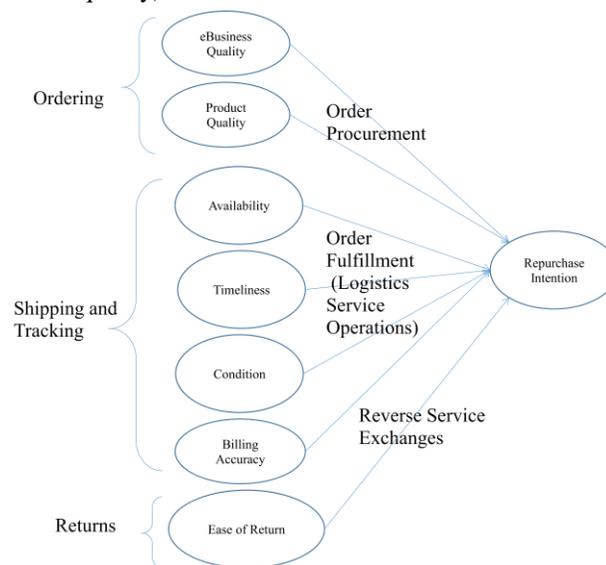


Fig.1. Conceptual Model

Shipping and tracking information is captured by physical distribution service quality construct; relevant service quality in e-fulfillment [11]. Physical distribution service quality comprises of availability, timeliness and condition [10] Availability refers to inventory capability; whether the product is in-stock at the point of order placement and if not, when it is going to be available or what kind of substitution may be made [22]. Timeliness refers to whether products or services were delivered on time [13]. Condition refers to whether the products of service ordered [13] It is about the accuracy and quality of order [22]. An important operation of e-tailer managers is accounting operation. Billing Accuracy refers to correctly charging customers for the right products and services at the right price [13, 23]. These arguments lead to our second hypothesis:

H2: Order fulfillment positively influences repurchase intention (where order fulfillment consists of (i) availability, (ii) timeliness, (iii) condition, and (iv) billing accuracy).

Reverse service exchanges occur when products are returned to the e-tailer by a customer or replaced to a customer by the e-tailer. It is about how a retailer deals with damaged, unwanted or faulty products, how many channel options consumers have to return products and how promptly products can be collected or replaced [22]. Product returns have increased due to internet penetration and booming e-tailing. e-tailers offer “No questions asked”, easy return policy, etc. to entice customers for online shopping. Thus, we propose the following third hypothesis:

H3: Reverse service exchanges (ease of return) positively influences repurchase intention.

4. Methodology

Measurement for dependent and independent variables were adopted from the existing literature. The questionnaire consisted of two parts: qualifying and main study. Qualifying part filtered those respondents who had experienced online shopping and encountered return/replace experience. Previous studies in online retailing rely on student responses because young adults are the most active web users [10, 23-24]. Individuals in the age group of 15-35 years of age are active internet users (76%) in India¹. Purposive sampling [25] was used for the study because young generation (18-24 years) are active internet users and are prone to go for online shopping². Seven in-depth interviews were carried out with individuals, who frequently purchase online products and have returned the product more than once. All the constructs and items were formally tested. Ten academicians and seven e-tail managers were involved for comments pertaining to the content domain. Their feedback was used in simplifying and rewording several items. Thus face and content validity of the survey’s scale items was carried out for improving the general quality of the research design. A pilot survey was administered to post-graduate participants of Indian Institute of Management, Indore to assess the reliability and validity of the construct. 70 potential respondents participated, out of which 60 were valid responses, resulting in 76.00% response rate. The Cronbach’s alpha of each construct was above the suggested minimum of 0.70 [26]. Main study comprised of 310 respondents, some chocolates were offered as an incentive for engaging participants in the survey After cleansing, a total of 279 valid responses were obtained resulting in 90.00% response rate, which is consistent with sample size requirements for PLS estimation [27].

TABLE I
RELIABILITY AND VALIDITY

	AVE	Composite Reliability	Cronbachs Alpha
eBusiQ	0.6022	0.8995	0.8697
ProdQ	0.5096	0.8038	0.6778
Avail	0.6413	0.9144	0.8875
Time	0.8732	0.9718	0.9637
Cond	0.6916	0.8974	0.8501
Billacc	0.7163	0.9378	0.9207
Return	0.615	0.9164	0.8913
RepurInt	0.793	0.9387	0.9131

¹ Source: www.comscore.com.

² Source: Internet Retailing in India: Euromonitor International, March 2013.

A. Structural Model Assessment

PLS-SEM (Partial Least Squares-Structural Equation Modeling) path modeling [28-29] was used to test the hypotheses using smartPLS 3 software [30]. First, reflective measurement models were tested for their reliability and validity. In the course of indicator reliability assessment, two items were deleted because they exhibited loadings below 0.708. Table I shows that composite reliability of the constructs were higher than minimum requirement of 0.70 and construct convergent validity (Average Validity Extracted AVE) were higher than 0.5 value [31]. [32] criterion demonstrated the square root of AVE values of all the reflective constructs were higher than the interconstruct correlations, indicating discriminant validity (Table II). Furthermore, all indicator loadings were higher than their respective cross loadings, providing further evidence for the discriminant validity.

TABLE II
CORRELATION AND DISCRIMINANT VALIDITY

	eBusiQ	ProdQ	Avail	Time	Cond	Billacc	Return	RepurInt
eBusiQ	0.78*							
ProdQ	0.29	0.71						
Avail	0.38	0.34	0.80					
Time	0.35	0.23	0.53	0.93				
Cond	0.23	0.26	0.39	0.33	0.83			
Billacc	0.47	0.20	0.38	0.40	0.20	0.85		
Return	0.40	0.31	0.40	0.45	0.42	0.38	0.78	
RepurInt	0.35	0.45	0.49	0.46	0.48	0.30	0.60	0.89

*Square root of AVE across diagonal

B. Path Model Assessment

After the constructs have been confirmed as reliable and valid, next step is to assess the structural model results. Table 3 shows the path coefficients obtained by applying a nonparametric bootstrapping routine [33] with 279 cases and 5000 samples. One order fulfillment variable (product quality), two order fulfillment variables (availability and condition) and reverse service exchanges (ease of return) significantly influence repurchase intention. Thus, hypotheses H1.2, H2.1, H2.3 and H3 are accepted. However, hypotheses H1.1, H2.2 and H2.4 are not accepted. This may be because customer found no significant difference in website related features, billing accuracy and timely delivery of products and services among the e-tailers. The examination of the endogenous constructs' predictive power has substantial R square values (Table III). Blindfolding was used to cross validate the model's predictive relevance for each of the endogenous constructs, the Stone-Geisser's Q² [34-35]. Running blindfolding technique [27] with an omission distance of eight yielded cross-validated redundancy values of the endogenous construct greater than zero (repurchase intention 0.406).

TABLE III
PATH COEFFICIENT

	Original Sample (O)	Standard Error (STERR)	T Statistics ((O/STERR))	P Values
eBusiQ -> RepurInt	0.027	0.049	0.559	0.576
ProdQ -> RepurInt	0.228	0.055	4.136	0.000
Avail -> RepurInt	0.147	0.071	2.081	0.037
Time -> RepurInt	0.108	0.073	1.479	0.139
Cond -> RepurInt	0.169	0.068	2.483	0.013
Billacc -> RepurInt	-0.012	0.051	0.238	0.812
Return -> RepurInt	0.356	0.081	4.385	0.000
R Square (RepurInt)	0.528	0.045	11.701	0.000

C. Impact Performance Matrix Estimation

Further investigation was carried out to analyse the relative importance of operational drivers on repurchase intention. The importance-performance matrix analysis (IPMA) was generated using smartPLS 3 software[27] taking the performance of each construct into account (Fig. 2). Table IV shows the importance and performance of each exogenous variable. Since product quality has lower performance but higher importance, e-tail managers should focus on improving product quality. Again, ceteris-paribus ease of return needs improvement for increasing repurchase intention. Then, the focus should be on availability and condition of products.

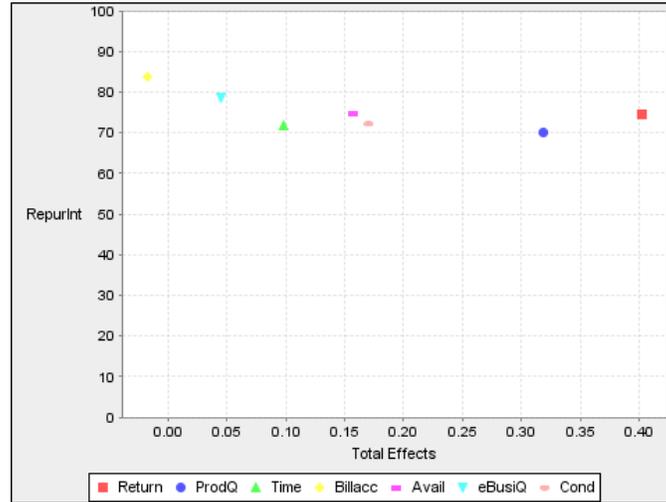


Fig.2 Impact Performance Matrix

Thus, order procurement, reverse service exchanges and order fulfillment variables is the descending order of their relative contribution toward improving repurchase intention of customers.

TABLE IV
CONSTRUCT TOTAL EFFECT AND PERFORMANCE ON REPURCHASE INTENTION

	Total Effect (Importance)	Performances
eBusiQ	0.046	78.556
ProdQ	0.327	66.121
Avail	0.159	74.773
Time	0.104	71.5
Cond	0.177	72.058
Billacc	-0.053	83.789
Return	0.399	74.773

5. Conclusion

The aim of this study was to develop conceptually, and test, a comprehensive model for determining the critical role of operations management in gaining the repurchase intention of e-tailers' customers, which is essential for routing e-tailers onto the path of sustainable profitability. The linkage between order procurement, order fulfillment and reverse service exchanges processes of e-tailers with repurchase intentions is the main contribution of this study. Specifically, the findings indicate that ease of return; product quality; availability and condition of products have a statistically significant association with repurchase intention of customers. In terms of their relative contributions towards improving repurchase intention of customers these variables can be arranged in descending order as: product quality, ease of return, condition and availability. From the practical standpoint, these results are consequential and decisions related to order procurement, order fulfillment and returns process are made in

consultation with operations management. The study shows e-tail managers to focus on returns process for gaining customer retention. It also shows that the product related information is more significant than website related features. The results help e-tail operations managers to decide on prioritizing their decisions related to order procurement, order fulfillment, and product returns processes to enhance customer retention. In addition, this study also contributes to academic literature by linking service operations and reverse logistics interfaces in e-fulfillment in the context of end consumers.

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Biography

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