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E- LOGISTICS- AN OPPORTUNITY FOR CUSTOMER RETENTION

Dr. Surbhi Gambhir

ABSTRACT

Research Objective – The paper aims to examine the impact of logistics variables as an opportunity for e- commerce players to widen their market share, to retain and satisfy their customers. The study aims at understanding the core reasons of consumer engagement for purchasing apparel online and how logistics can add up to it in reference with demographic variables. It contributes in expanding marketer’s knowledge for the field of consumer behaviour by cooperating the role of logistics in knowing consumer perception and decision making.

Methodology – The paper opted for an exploratory research using a self-structured questionnaire. The required data is collected from 110 respondents in the National capital region. Both primary and secondary sources of data are used to gain a better understanding. ANOVA and regression are used for testing hypothesis.

Findings – People with in the age group of below 20 want speedy delivery while purchasing online whereas those in the age group of 50 and above want commodities to be delivered at their door. People engaged in any service want product to be delivered speedily and are not affected by higher charges, business class people want product to be delivered at their door step. Logistics possess a great role in return of a product which is induced by design of the apparel. Its quality, information and description. People are more towards returning the product back if the product shown and that what is delivered does not match.

Implications – Because of the chosen research approach, the research results may lack generalisability. The paper includes implications for the development of a powerful logistics system for customer satisfaction.

Value – This paper fulfils an identified need to study how opportunity of a good logistics system can be enabled.

Keywords: logistics, Consumer Behaviour, Online Shopping.

I. INTRODUCTION

E-commerce is an activity involving transactions via internet. These transactions include anything ranging from ordering of a good or a service online to banking services to the payment of mobile or electricity bills or marking reviews for a product. Study by Mostaghel (2006), defines e-commerce as, “The sharing of business information, maintaining business relationships and conducting business transactions by means of telecommunications network”. E-commerce in India is expanding its wings day by day. It had changed the way

business used to be done. From traditional brick and mortar shops, people are gradually moving to online shopping. Online shopping is one of the most growing domain with the use of internet. Internet usage with service providers offering plans at lower costs, use of smartphones, demographic features and most importantly logistics are the main elements that directly impacts the growth of e-commerce. The mushrooming growth of internet and technology gives everyone an equal opportunity to grow and expand. There are many factors that can lead to making or breaking of e-commerce players as Vecchiato et al., 2014 is of the view that about 70% of the fresh products that are introduced all over the world fails within six months of their launch, because companies somewhere fails to recognise the real interests of the consumers, their needs, taste, and factors that affect their purchasing behaviour. In this regard many researchers have found logistics as a deciding factor for the success and growth of e-commerce. According to McKinsey & Company, "Large e-commerce players, as well as various start-ups, have identified last-mile services as a key differentiator. In fact, the variety of delivery options and the perceived quality of the delivery service are major decision-making criteria for online customers and hence directly affect e-commerce players' success in the marketplace". **Logistics** hereby is simply defined as, "having the right item in the right quantity at the right time at the right place at the right price in the right condition to the right customer. (Malik, Susan; 2010). Research proves that a company with well working supply chain is preferred more by the consumers over and above other businesses.

II. LITERATURE REVIEW

Internet offers every information whether it is checking the price of the product, its availability, getting information about the producer, comparing product prices from different websites or checking the delivery time or allocating the status of the order, everything can be known with the help of a single click. Consumers are stepping towards e-commerce as it provides a lot more benefits to them over and above traditional brick and mortar for example-product at lower prices, discounts and offers, door step delivery, 24*7 availability of goods, tracking of orders and many more. In this fast changing and competitive era, it is not easy to survive and specially when a large number of companies are offering almost similar and yet somewhat different products, it has become a key discipline to persistently innovate and differentiate goods and services from those of the rival companies in order to survive in the market. In such a context, study by Mai Quynh (2015) posits that for making a customer purchase again and again logistics need to be strengthened specially for product return process and it should be different for different types of products. According to Rao et al. (2011), logistics affects consumer's loyalty and repurchasing behaviour. It also determines the success and failure of e-commerce players for instance any failure to match up with the needs and demands of the consumers can negatively affect their loyalty (Cheung et al., 2005). Every business strives for earning profits, for this all the e-commerce players are competing over each other whether it is a competition between Amazon and Flipkart or Amazon and Walmart, every e-commerce player is working hard towards catching a greater share of market. In such a regard logistics channels can prove to be fruitful, for instance, the mobile app which is mostly used by millennials in 2017 was Amazon (35% users) (source: business insider). Downloading an application is the first step, next the moment customer orders a

product, some want the product on the very same day whereas some are comfortable with waiting. After the customer is done with ordering the product, then preparations starts on making the product available to the customer, customers might be located to a popular location or in a remote area so in order to reach the customer e-commerce players have to strengthen their last mile delivery. According to PwC TechWorld report, “E-commerce players are revamping their technology strategies to maintain their competitive edge. Most e-commerce platforms are upping their investments in areas such as conversational commerce, artificial intelligence (AI), virtual reality (VR)/augmented reality (AR) and analytics technologies”. According to McKinsey & Company, “the market is not just large, it is also highly dynamic, with growth rates in 2015 ranging between 7 and 10 percent in mature markets, such as Germany or the US, and almost 300 percent in developing markets such as India. In a country like India where the number of e-commerce users are increasing day by day it is hard for the e-commerce players to manage deliveries as the consumer want goods to be delivered quickly and with minimum charges. In reference to a research conducted by Mckinsey and company in China, Germany and US, “Almost 25 percent of consumers are willing to pay significant premiums for the privilege of same-day or instant delivery. This share is likely to increase, given that younger consumers are more inclined (just over 30 percent) to choose same-day and instant delivery over regular delivery. However, the remaining 70 percent of consumers still prefer the cheapest option of home delivery”. Consumers whether young or old will be paying only when they get satisfied from the logistics service. Enhancing a company’s logistics service quality can act as a stimulus for building close relations between company and its customers. Researchers acknowledge many factors of logistics service quality for instance three facets of service quality first being the quality of a service which gets measured by the amount of satisfaction that the customer gets. Second is how this quality should be measured, better the service provided higher will be the satisfaction, third being quality of a service shows philosophy on which a firm operates. Research has proved the quality of logistics depends upon availability and timeliness. Many researchers argued that the concept of logistics service will be more clear if studied from customer’s point of view.

Following the customer satisfaction many e commerce players are focussing on logistics as a key to strengthen their share. Amazon has its own logistics service undertaken by Amazon Transportation Services (ATS) along with this it also uses third party logistics namely Blue Dart, Fedex corp. and GATI. Flipkart has its own logistics arm known as E-Kart. Every e-commerce player is widening up their supplier network with the help of logistics to satisfy the customers.

III. OBJECTIVE OF THE STUDY AND HYPOTHESIS

Logistic service is a strong factor affecting online shopping behaviour. Mentzer et al. (1997) clubbed logistic service quality into two major components i.e., quality of physical distribution and quality of customer service. The present concept focuses on these two aspects customer satisfaction as of key importance, according to Mentzer et al (1989) there are two complementary elements of logistics service namely marketing customer service

which includes the effectiveness of logistics in generating utility of time and place and of product. The another element physical distribution consists of cost of procurement, its storage, distribution and its maintenance. The goal of this paper is to address the gap between what the customer expects and what the company's perceive for logistics in reference to online shopping. The paper considers three variables of logistics service namely delivery charges for studying cost and distribution influence, door step delivery and time taken for delivery for studying time and place utility and their influence on demographic factors.

On the basis of above objectives following hypotheses are postulated for this research:-

H₀: Speed of logistics service is influenced by age.

H_a: Speed of logistics service is not influenced by age.

H₁: Age influences cost of delivery.

H_{a1}: Age does not influence cost of delivery.

H₂: Door step delivery is influenced by age.

H_{a2}: Door step delivery is not influenced by age.

H₃: Occupation does have an influence on speed of logistics service

H_{a3}: Occupation does not pose any influence on speed of logistics service.

H₄: Occupation has a strong influence on delivery charges.

H_{a4}: Occupation does not influence delivery charges

H₅: Door step delivery is affected by occupation of a person.

H_{a5}: Door step delivery is not affected by occupation of a person.

H₆: Speed of logistics service is influenced by locality.

H_{a6}: Speed of logistics service is not influenced by locality.

H₇: Charges of delivery are influenced by locality.

H_{a7}: Charges of delivery are not influenced by locality.

H₈: Speed of logistics service influence online shopping behaviour.

H_{a8}: Speed of logistics service does not influence online shopping behaviour

H₉: Online shopping behaviour is influenced by door step delivery.

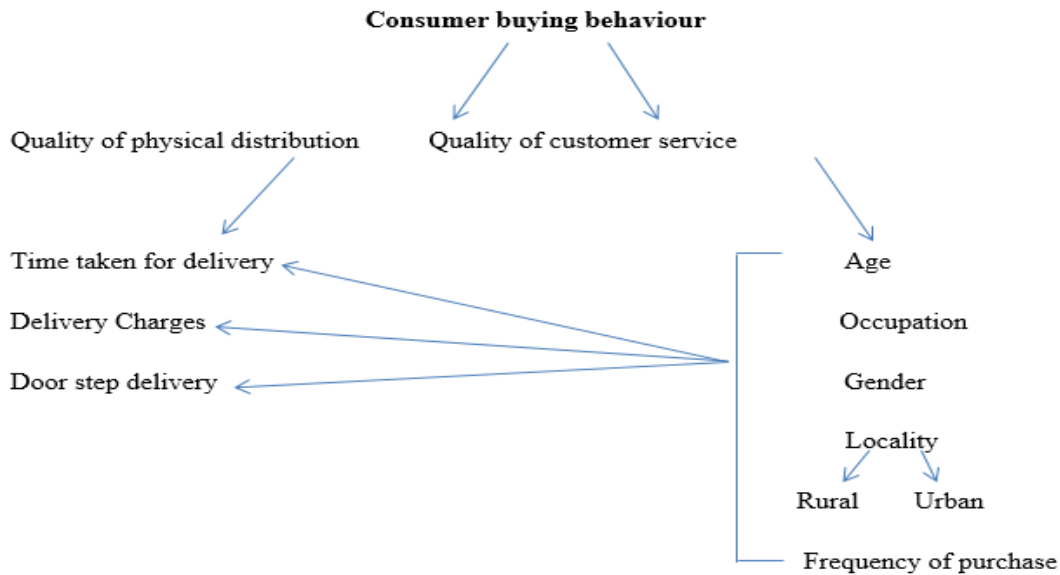
H_{a9}: Online shopping behaviour is not influenced by door step delivery.

H₁₀: Delivery charges can affect online shopping behaviour.

H_{a10}: Delivery charges can not affect online shopping behaviour

H₁₁: logistics and Apparel related factors induce returns.

H_{a11}: logistics and Apparel related factors does not induce returns.



IV. METHOD & METHODOLOGY

A self-structured questionnaire is used to collect data. The questionnaire was divided into different parts these were, 1. Demographic variables 2. E-commerce and Logistics variables 3. Apparel variables 4. Company variables and 5. Behavioural variables. Some of these variables are taken from earlier research during literature review. Product quality, delivery time from Chan, Wolfe and Fang (2003). Delivery, product information and delivery charges from Thirumalai & Sinha (2005).

Respondent Profile: Data for this study was collected from respondents over different age, occupation and education level in Delhi-NCR for online purchase of apparel in particular.

Sample design: convenience and random sampling had been used to collect data.

Sample size: Total 110 respondents data had been used.

Pilot Study: A pilot study with specific variables was undertaken and put to test. A sample of 76 respondents was chosen for the purpose. This pilot study paved the way for further exploration of new areas and few areas of in-significance were ignored.

Reliability and Validity

A reliability coefficient is a measure of how well a test measures achievement. It enables the researcher to understand and investigate the properties of measurement of scales and the components that compose the scales.

Cronbach's alpha — the most widely used internal-consistency coefficient is thus used to calculate the reliability of the data.

Validity: Kaiser-Meyer-Olkin Measure of Sampling Adequacy is used to commute the validity of the collected data. The test measures adequacy of sample for each variable and for the complete data. It varies between 0 and 1 whereby value closer to 1 indicates better results and closer to that of 0 indicated that sample is not valid.

Analysis of reliability and validity

Table 1 Reliability : Cronbach's Alpha For Pilot Study

Case Processing Summary			
		N	%
Cases	Valid	76	100.0
	Excluded ^a	0	0
	Total	76	100.0
Cronbach's Alpha		.796	

Table 2 Validity: Kaiser-Meyer-Olkin Measure of Sampling Adequacy for the Pilot Study

Variables	Kaiser-Meyer-Olkin measure of sampling adequacy
Demographic	.756
Apparel related	.408
E-Commerce and logistics	.509
Company related	.639
Behavioural	.715

Table 3 Reliability : Cronbach's Alpha for Total Sample after Improvement

Case Processing Summary			
		N	%
Cases	Valid	110	100.0
	Excluded ^a	0	0

	Total	110	100.0
Cronbach's Alpha		.843	

Table 4 Validity: Kaiser-Meyer-Olkin Measure of Sampling Adequacy for Total Sample after Improvement

Variables	Kaiser-Meyer-Olkin measure of sampling adequacy
Demographic	.657
Apparel related	.767
E-Commerce & logistics	.707
Company related	.790
Behavioural	.723

With reference to table no 1 and 2 ,The Cronbach's Alpha for the Pilot Study is .796 but the validity measured through Kaiser-Meyer-Olkin Measure of Sampling Adequacy for Apparel (.408) and E-commerce (.509) related variables showed low value. In order to improve the validity some corrections had been done in the questionnaire. Some questions were deleted and the improved results are shown in table 3 and 4.

V. DATA ANALYSIS AND INTERPRETATION:

Table 5 Demographic details:

Total sample size was 110, of which 54.5 are males and 45.5 are females. In reference to table number 5 the demographic details of the respondents are shown whereby 20.9 % are of

Age	Freq uenc y	Perce ntage	Occu pation	Freq uenc y	Perce ntage	Qualifi cation	Freq uenc y	perce ntage	Loc alit y	Freq uenc y	perce ntage
Belo w 20	23	20.9	Profes sion	28	25.2	Gradua te	27	24.5	Rur al	39	62.7
21- 30	34	30.9	Busin ess	17	15.5	Post Gradua te	42	38.2	Urb an	69	35.5
31-40	26	23.6	Servic e	29	26.4	MPhil	10	9.1	Oth ers	2	1.8
41-50	12	10.9	Home maker	16	14.5	Others	31	28.2	Tot al	110	
50 & above	15	13.6	Other	20	18.1						

below 20 age group, 30.9 % are between 21-30 years, 23.6 % population belongs to 31-40 age group and 10.9% to 41-50 age group and 13.6 % respondents are above 50 years. Further

it shows that 24.5 % people are graduate, 38.2% are post graduates whereas only 9.1% respondents are of M.Phil. and remaining 28.2% are in others category. In the locality of the respondents majority of the data is being collected over people living in urban areas with 62.7% and 35.5 of rural areas while 1.8% are in the others category further, 25.5% respondents are in profession, 15.5% in business, 26.4% in service, whereas 14.5% are homemakers and 18.1% belonged to others.

Test of Normality: It is used to determine whether the sample taken has been drawn from a normally distributed population or not. As most of the variables are not distributed normally except few, therefore non-parametric tests are used to measure the hypothesis.

VI. HYPOTHESIS TESTING

H₀: Speed of logistics service is influenced by age.

Impact of speed of delivery on different age groups

Table 6.		ANOVA				
		Sum of Squares	Df	Mean Square	F	Sig.
Speed of delivery	Between Groups	22.989	4	5.747	3.236	.015
	Within Groups	186.475	105	1.776		
	Total	209.464	109			
Descriptive						
		N	Mean	Std. Deviation	Std. Error	
Speed of delivery	below 20	23	3.5652	1.44052	0.30037	
	21-30	34	3.4118	1.39518	0.23927	
	31-40	26	3.1154	1.24344	0.24386	
	41-50	12	2.5000	1.38170	0.39886	
	50 and above	15	2.2667	1.09978	0.28396	
	Total	110	3.1182	1.38625	0.13217	

H₁: Age influences cost of delivery.

Impact of delivery charges on different age groups.

Table 6.1		ANOVA				
		Sum of Squares	Df	Mean Square	F	Sig.

transport charge	Between Groups	2.422	4		.528	.716
	Within Groups	120.497	105	1.148		
	Total	122.918	109			

H₂: Door step delivery is influenced by age.

Impact of door step delivery on different age groups.

		Sum of Squares	Df	Mean Square	F	Sig.
Door step delivery	Between Groups	44.768	4	11.192	5.299	.001
	Within Groups	221.787	105	2.112		
	Total	266.555	109			

Analysis of H₀, H₁, H₂ : Impact of speed of delivery, delivery charges and door step delivery varies significantly among the 5 age groups $F(4,105) = 3.236$, $p < 0.05$, hence we can infer that people in the age group of below 20 want speedy delivery as they show a higher relevance whereas for people in the age group of 50 and above time taken to deliver does not matter they want things to be delivered at their door step $F(4,105) = 5.299$, $p < 0.05$. Transport charges does not affect the age, thus accepting the null hypothesis.

Impact of speed of delivery, delivery charges and door step delivery on occupation

H₃: Occupation does have an influence on speed of logistics service.

		Sum of Squares	Df	Mean Square	F	Sig.
Speed of delivery	Between Groups	31.556	4	7.889	4.656	.002
	Within Groups	177.907	105	1.694		
	Total	209.464	109			

H₄: Occupation has a strong influence on delivery charges.

		Sum of Squares	Df	Mean Square	F	Sig.

transport charge	Between Groups	2.092	4	.523	.454	.769
	Within Groups	120.826	105	1.151		
	Total	122.918	109			

H₅: Door step delivery is affected by occupation of a person

Table 7.2		ANOVA				
		Sum of Squares	Df	Mean Square	F	Sig.
Door step delivery	Between Groups	27.498	4	6.875	3.019	.021
	Within Groups	239.056	105	2.277		
	Total	266.555	109			

Analysis H₃, H₄ & H₅: Time taken to deliver the product, amount charged for it and door step delivery are also influenced by the occupation of a person, thus accepting the hypothesis. People in service want things to be delivered fast whereas people engaged in business want goods to be delivered at their door step. The results didn't show any influence of delivery charges on occupation of a person. Where the homemakers, professionals and others are not influenced by speed and charges of logistics there the job and business people are highly affected by the same.

H₆: Speed of logistics service is influenced by locality.

Impact of locality on speed of logistics service.

Table 8.		ANOVA				
		Sum of Squares	Df	Mean Square	F	Sig.
Speed of delivery	Between Groups	2.170	2	1.085	.560	.573
	Within Groups	207.293	107	1.937		
	Total	209.464	109			

H₇: Charges of delivery is influenced by locality.

Influence of Locality on delivery charges.

Table 8.1		ANOVA				
		Sum of	Df	Mean	F	Sig.

		Squares		Square		
transport charge	Between Groups	2.176	2	1.088	.964	.385
	Within Groups	120.742	107	1.128		
	Total	122.918	109			

Analysis: The results show that the people of rural and urban area are not affected by the speed of delivery and the amount charged. They are comfortable with the number of days taken to deliver the product and also shows the willingness to pay transport charges.

People of different age were not willing to pay higher transport charges for a small purchase where as people of rural area accepting the fact of cumbersome and backward ways are not affected by transport charges.

H₈: Speed of logistics service influence online shopping behaviour.

Influence of Speed of logistics service and its charges on frequency of purchase.

Table 9.		ANOVA				
		Sum of Squares	Df	Mean Square	F	Sig.
Speed of delivery	Between Groups	21.546	5	4.309	2.385	.043
	Within Groups	187.917	104	1.807		
	Total	209.464	109			

H₉: Online shopping behaviour is influenced by transport charges.

Table 9.1		ANOVA				
		Sum of Squares	Df	Mean Square	F	Sig.
transport charge	Between Groups	5.299	5	1.060	.937	.460
	Within Groups	117.619	104	1.131		
	Total	122.918	109			

H₁₀: Door step delivery can affect online shopping behaviour.

Table 9.3		ANOVA				
		Sum of Squares	Df	Mean Square	F	Sig.

Door step delivery	Between Groups	30.984	5	6.197	2.736	.023
	Within Groups	235.571	104	2.265		
	Total	266.555	109			

Analysis: Impact of speed of delivery, delivery charges and door step delivery influence consumers in a significant manner like people are willing to purchase things on monthly basis if they are delivered at their door step and quickly. They are willing to pay the delivery charge just to get the product quickly at their door.

H₁₁ : Speed of logistics and apparel related factors can induce returns by consumers.

For assessing the impact of apparel related factors and speed of logistics on returns regression analysis is used for which following is the model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5$$

Where Y is the dependent variable i.e., returns.

β_0 is the value of Y when all of the independent variables (X_1 through X_6) are equal

to zero, and β_1 through β_6 are the estimated regression coefficients.

X_1 is speed of delivery

X_2 is satisfaction from the product

X_3 is product information

X_4 is size of apparel

X_5 is design of apparel

X_6 is quality of the cloth

X_5 is fitting of the apparel

X_5 is product description

Below are the results in of regression model in **table 10**:

Model Summary ^b						
Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate	Durbin-Watson
1	.758 ^a	.575	.542		.825	1.898

a. Predictors: (Constant), speed of delivery, satisfaction, product information, size, design, quality, fitting, product description

b. Dependent Variable: return

The reference to the above table which shows the multiple linear regression model summary and overall fit statistics we find that the adjusted R^2 of our model is .542 with the $R^2 = .575$. This means that the linear regression explains 57.5% of the variance in the data. The Durbin-Watson $d = 1.898$ which is between the two critical values of $1.5 < d < 2.5$. Therefore, we can assume that there is no first order linear auto-correlation in our multiple linear regression data. Since R is 75.8% we can say model fits the data very well.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	93.096	8	11.637	17.094	.000 ^b
	Residual	68.759	101	.681		
	Total	161.855	109			

a. Dependent Variable: return

b. Predictors: (Constant), speed of delivery, satisfaction, product information, size, design, quality, fitting, product description.

The above output table 11 is for F-test. The linear regression's F-test has the null hypothesis that the model explains zero variance in the dependent variable. The F-test is highly significant, thus we can assume that the model explains a significant amount of the variance in returns.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.494	.364		-1.355	.178
	Quality	.588	.111	.473	5.316	.000
	Satisfaction	.076	.078	.078	.974	.333
	Size	.101	.077	.096	1.315	.192
	Fitting	.138	.089	.130	1.547	.125
	Design	-.220	.091	-.185	-2.421	.017
	product description	.250	.093	.252	2.690	.008
	Product information	.173	.099	.118	1.744	.084
	Speed of	.042	.060	.048	.700	.486

	delivery					
a. Dependent Variable: return						

With reference to the above table quality, design, product description and product information are the significant predictors. It can also be seen that quality of the apparel has a higher impact on returns as compared to design and product description (.473 vs -.185 & .252).

VII. CONCLUSION

People over different ages, areas and profession vary significantly in their perceptions and life styles. Where some people show excitement to opt for online shopping there some house makers show least interest. Some people add goods to the cart and then cancel it because of high delivery charges or time taken for delivery. This paper will help the e commerce players to know the consumer reaction on different aspects of online shopping and their perception of why they want to opt or neglect the same. People in the age group of below 20 are ready to pay delivery charges even for a small purchase whereas other age groups show their unwilling attitude as they are of the perception that rather than paying this much amount of delivery on each item they would better purchase it from brick and mortar shops which discourage online shopping by them. Among the occupation, where people in job want things to be delivered fast, they don't show any concern about the delivery charges imposed by the company there house makers are highly influenced by the delivery charges. Consumers also showed interest that they can frequently make online purchases if the e-commerce players deliver things to them quickly at their door step and that too with minimum or no delivery charge. The gap between what the consumer expects and what the e-commerce players are providing can be solved. For a customer product at lower price with no delivery charge is always welcomed they don't want to take the company's profit or losses into consideration. Those who want it any how on the same day are willing to pay even higher charges. The paper also address the role of logistics in return. The main causes of why the consumer return a particular product are its Quality, description, design and information. The consumer feels that sometimes the product shown and that what is delivered are not same which encourage them to return the product. E-commerce players need to work on these issues so that with more strong logistics a greater segment of consumers can be captured and satisfied.

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