REASON FOR USING THE RFID TECHNOLOGY BY THE APPAREL RETAILERS

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Introduction

Radio frequency identification technology plays a vital role in the supply chain process of many sectors, especially apparel trade. The RFID technology has given many benefits, viz., a real time tracking of cargo on the move, the smart labels have given immediate identification of the cargo in any warehouse or outlet, identifying in any shelf, easy procedure during check in and check out (Panian 2007). Hence forth, RFID is uniquely defined as, the technology which converts analog to digital which uses radio frequency waves to transfer data between moving object and the reader to identify monitor and to locate the cargo product (Mesaric and Dujak, 2009). In todays competitive environment RFID is widley used in retail, transport, medicine, manufacturing, construction and logistics (Rento et al. 2009). With the help of RFID infrastructure the business managers were able to get timely and quality information which prevents financial loss, fraud reduction and quick decision making (Dunkovic et al 2010). The retailers use RFID in their business in order to increase sales volume, reducing the cost of procurement and retaining existing customer (Druzijanic 2014).

Need for the study:

There exist many apparel retailers in the Coimbatore, Tiruppur, Erode districts. These apparel retailers deals with varied items viz women, men, children and multiple apparels. These retailers have their own branches across these three districts also. They use the RFID technology for varied purpose. This study is intend to know for what purpose the RFID technology is used by the apparel retailers.

Research methodology:

A 25 apparel retailers were selected at convenience without considering the sales output from Coimbatore, Tiruppur, Erode districts forming a total sample of 75. These retailers were given a single page questionnaire including demographic information and the reason for using the RFID technology. The opinion were analyzed through factor analysis and the result were discussed.

Items included in the scale

RFID is used for tracking and tracing, replenishing, receiving, check in and check out, forecasting the demand, checking the goods returned, shipping, picking, ordering, transport and warehousing.

Analysis and interpretation

Table 1: KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.541
Bartlett's Test of Sphericity	Approx. Chi-Square	495.638
	df	55
	Sig.	.000

Table 2: Communalities		
	Initial	Extraction
Tracking and tracing	1.000	.536
Replenishing	1.000	.716
Receiving	1.000	.744
Check in and check out	1.000	.786
Forecasting the demand	1.000	.786
Checking the goods returned	1.000	.549
Shipping	1.000	.742
Picking	1.000	.669
Ordering	1.000	.644
Transport	1.000	.696
Warehousing	1.000	.717
Extraction Method: Principal Component Analysis.		

In Table 1 Bartlett"s test of sphericity and KAISER MEYER OLKIN measures of sample adequacy were used to test the appropriateness of the factor model. Bartlett"s test was used to test the null hypothesis that the variables of this study are not correlated. Since the approximate chi - square value is 495.638 which is significant at 5% level, the test leads to the rejection of the null hypothesis.

The value of KMO statistics (0.541) was also large and it revealed that factor analysis might be considered as an appropriate technique for analysing the correlation matrix. The communality table showed the initial and extraction values.

Table 3: Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.606	32.780	32.780	3.606	32.780	32.780	3.142	28.567	28.567
2	2.038	18.530	51.309	2.038	18.530	51.309	2.325	21.138	49.706
3	1.842	16.748	68.058	1.842	16.748	68.058	2.019	18.352	68.058
Extraction Method: Principal Component Analysis.									

Table 3, presents the factor extraction with satisfactory Eigenvalue score greater than 1 and the percentage of variance explained by these factors. First factor accounts for 32.780 percent of the variance extracted. Second factor accounts for 18.530 percent and third factor contributes about 16.748 percent of the total variance. All the three factors explain 68.058 of total variance, which is significantly good enough to explain the construct validity of the eleven items to the construct.

Table 4: Rotated Component Matrix				Labelled as
	Component			
	1	2	3	
Check in and check out	.856			
Checking the goods returned	.704			Unique usage
Tracking and tracing	.681			
Shipping		.826		
Ordering		.716		Value usage
Picking		.707		
Forecasting the demand			.844	
Replenishing			.855	
Receiving			.819	Compatibility
Transport			.770	
Warehousing			.695	

Factor 1: Unique usage

The total variance explained has revealed that the factor has explained a variance of 28.567% and three variables - check in and check out, tracking and tracing, checking the goods returned.

Factor 2: Value usage

The total variance explained has revealed that the factor has explained a variance of 49.706% and three variables - shipping, picking and ordering.

Factor 2: Compatibility

The total variance explained has revealed that the factor has explained a variance of 68.058% and five variables forecasting the demand, replenishing, receiving and transport and warehousing.

Discussion:

From the analysis it is understood that the item selected has grouped, under three heads viz., "**Unique usage**" which includes the items of check in and check out, tracking and tracing, checking the goods returned. The "**value usage**" includes the items of shipping, picking and ordering. The **"Compatibility"** group includes the item of forecasting the demand, replenishing, receiving and transport and warehousing. Thus it is well understood that the apparel retailers use RFID for **Unique usage**", **value usage**" and **"Compatibility".**

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