

Conflux of Product dependency and service in effectiveness of retailer in the channel of distribution in lighting industry with special reference to Bangalore City

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Abstract

With arrival of the technology into the consumer lighting industry i.e., Light Emitting Diode LED, has changed the role of retailer significantly in the channel of distribution. This study strives for establishing the significance of product dependency and service factor in determining effectiveness of channel of distribution with special reference to retailer in lighting industry of Bangalore.

Methods : the quantitative method of data collection, analysis followed. There is application multivariate regression (SEM) as the sample deem to fit into a model for study.

Major findings : The factor selected for study such as level of dependency of product and service, which is influencing the working retailer in the channel of distribution in the LED lighting industry.

Brief summary and conclusion : Nevertheless the noteworthy of alleviate of channel members in reaching end customer and influencing in customer buying process makes a strident vitality of their presence in the system. It would be important note what make channel members are binding to channel, that impel them to deliver the expectations. In this study we strive those two major facets of the channel, which propel channel members for effectiveness of channel of distribution i.e., Product dependency and Service.

Keyword: Retailer, Product dependency, service and LED consumer lighting industry

Introduction

With arrival of the technology into the consumer lighting industry i.e., Light Emitting Diode LED, has changed the role of retailer significantly in the channel of distribution¹. The retailer and distributor hold a pivotal role in the channel of distribution not only redistribution but also building the creating various utilities viz., space utility, trust utility and service utility.

Nevertheless the noteworthy of alleviate of channel members in reaching end customer and influencing in customer buying process makes a strident vitality of their presence in the system. It would be important note what make channel members are binding to channel, that impel them to deliver the expectations. In this study we strive those two major facets of the channel, which propel channel members for effectiveness of channel of distribution i.e., Product dependency and Service.

Review of Literature

There are major studies conducted in the area of 'relationship' and 'channel dependency' in various arenas of industries.

Marc Fuchtenhans et al (2019) highlighted in their research study stated that lighting influences private and working life. At the same time, it is a critical contributor to energy consumption. Although there exist manifold technical solutions for lighting to become 'smart', today's lighting systems are often kept simple, and they are frequently not adjusted to the user's behavior. This study presents the results of a systematic literature review on smart lighting systems and their related components. The results show that lighting systems for use in private households, office buildings and for public streets are well investigated in the literature. However, the potentials of smart lighting systems in industrial settings have only infrequently been

¹ <https://www.energy.gov/energysaver/save-electricity-and-fuel/lighting-choices-save-you-money/led-lighting>

discussed. The aim of this study therefore is to present the state-of-knowledge on smart lighting systems and to highlight the potentials of such systems for production and logistics facilities².

Three main approaches are enlisted in determining the 'levels of dependency' viz.,

- 1) Sales & profit developed by El-Anasary and Stern (1972)
 - ⇒ profit contributed by source firm to target firm
 - ⇒ expected or perceived profit & sales by target firm
- 2) 'Role of performance' developed by Frazier (1983a), Hunt & Nevin (1974) and Lusch (1976)
 - ⇒ Source firm's role performance is perceived to be high, the target role is highly motivated to maintain in exchange relationship
 - ⇒ Perceived role of source is high and with fewer alternatives for target to replace sufficiently
- 3) Transaction cost analysis by Heide and John (1988)
 - ⇒ Investment by source firm on target firm on specific transactions and reduced by bonding behaviour (selling of investment) by target firm
- 4) Others who developed are Frazeir and Summers (1986), Skinner and Guiltinan (1985), Anderson and Narus (1984) highlighted similarity among the concepts as above on dependency arguments.

However, the target firm dependency relates closely with source firm control (positively) on the source (Anderson, Lodish & Weitz 1987; Brown, Lusch (1983); Etgar (1976). Nevertheless, the application of the above is not universal nor industry in general Muehiling (1969); Stern and Gorman (1969)

With above discussion and the context of the study there is little attention made to other facets of the LED lighting industry in general, and product & services dependency level in specific. The specific dependency level is studied vastly in the context of power, communications, relations etc., yet, there are dynamics that influence and impact the functioning channel of distribution. Having significance of the seller market in LED lighting industry, it imperative that marketer need to handle by relationship marketing.

Now, the research is getting narrow down to understand the level of dependency based on product and services aspects. Before venturing it one should understand what is focal market i.e., electrical lamp industry 'is it buyer or seller market'. The seller market is – barrier to entry due to investment and infrastructure (Jain 1984; Kegan 1984), whereas 'buyer market' where the service and product demand on higher side with advanced infrastructure, strict norms and higher consumerism (Baker & 'Al-Haddad 1985; Sudhir Kale 1989). It is high to find more opportunities for channel member in 'developing country like India, where as more opportunity for producers or marketer in developed country. Here we can find the variability between the research of Western or developed nation to under-developed scenario market. (Gunawardane 2012)

"A customer purchase decision for product is not only influenced by product value, but also by the price/quality bundle available to support use of the product" Morris A Cohen (1997), emphasises on the other *factors*, such as by whom its available and what is available with appropriate service. *So the 'whom' is 'dealer/retailer', what is 'product and service'.*

Research Design

The research is designed to conceptualize the significance two major facets of channel of distribution viz., retailer's product dependency and services in the channel of LED lighting products. It starts with embarking on novel concept; hence it is empirical in nature and analytical in describing and evaluating conceptualising with the data collected.

'Descriptive and empirical' as it bestows light on potent or dynamics of sales person functions which are impacting effective channel of distribution as perceived by other channel members. Subsequently it 'explores' new dimension which comprises parameters. Furthermore we analyses the impact of those

² Marc Füchtenhans et al (2019) : Literature review on smart lighting systems and their application in industrial settings; Conference: 6th International Conference on Control, Decision and Information Technologies, At Paris, France; Conference Paper · April 2019; DOI: 10.1109/CoDIT.2019.8820539

factors on perceived effectiveness of the channel of distribution using various statistical tools. Hence, this is a descriptive explorative and analytical study which bring new dimension to the ever changing and challenging consumer lighting business environment. The duration of the study is 60 days and sample frame includes retailer and distributor who are the intermediaries the channel of distribution in lighting industry

Aim of the study

The aim of the study is limited the synchronization of the two vital facts viz., dependency of product and service on the retailer; which is deemed to-be effectiveness of the channel of distribution. Here in this study, the aim is to understand the levels of the dependency and the level of the impact-ness on the channel of distribution in the lighting industry.

Importance & Need of the Study

The critical factor which is deem to be essential in the determination of effectiveness of channel, which is level of dependency of product and service. As the Indian electrical market is seller market rather than buyers' market, hence it's necessary to know and understand the bottom line of influencing the intermediaries of LED lighting industry.

The retailer and distributor who are primary members of the channel of distribution, who constitute major cost of distribution, create space and time utility. The primary function of dealer/retailer and distributor is to buy product and sell to end customer, thus creating time and space utility and also by providing service (utility). However, their dependency on product what they trade is not undermined, and the impact is key on the service aspect of the channel of distribution. This raises couple of the research question, first to what level the product dependency is and how significant service is embedded into the effectiveness channel of distribution. If we plough deep into it, we can further narrow down more precisely – level of product dependency in functioning & relatively. *Per se* the service concerned we need to examine the level of expected and delivery of service to the *channel members* and how crucial is in success or collapse of the effectiveness of channel of distribution in lighting industry of Bangalore city.

Statement of the problem

At the outset as the Indian LED lighting industry is a seller market, unlike Western world, which is a buyer market, with encompassing of the consumerism, *Caveat Emptor* etc. Since, the market is Seller dominant, it becomes imperative to understand the levels of retailer dependency on the various facets viz., Product and services which are less mined with special reference to the consumer LED lighting industry. This study strives to abridge the theoretical concepts to explore new side dealer dependencies. It also exhibit the relation among the dynamics of the specified industry.

In this study, we have taken dealers perspective, focusing on dealer relationship with multiple manufacturer or marketer who compete with one another for dealer business. As Cook & Emerson (1984), the dealer and marketers relationship indirectly impacts the level of dealer dependency, through value of resource exchanged and value of shared resources from various alternatives.

Objectives of the study

From the above reviews and discussion precisely, below are the list of objectives of the study

1. To know the significance of service and product dependency as perceived by the retailer
2. To understand the Echelons product dependency of retailer and members of channel of distribution in lighting industry in Bangalore
3. To analyse the synergy of service and product dependency on the effectiveness on retailer in the channel of distribution

Hypothesis of the study

In this study focuses on the product dependency and service level assumed by retailer and distributor for building effective channel of distribution, which is measured by various factors. From the above discussion and objectives, we can come to below hypothesis to understand and conceptualize the aspects as below.

1. H1_a: there is significant level of dependency of product on retailer the LED lighting industry
2. H2_a: there is significant level of dependency of service on retailer the LED lighting industry
3. H3_a: there is significant correlation among the levels of dependency of product and service levels on the effectiveness of channel of distribution in the LED lighting industry in Bangalore

Scope of the study

The study is conducted with the main aim of establishing the significance of product dependency; services of retailer in channel of distribution the channel of LED consumer lighting products and determining the effectiveness. Here LED lighting industry primary comprises of consumer products such as domestic bulb, batten and panel sold in used in domestic household. The retailer covers, those reseller who sells consumer LED products in the city of Bangalore. Distributors, dealer and retailer in the context are within the frame of primary member of the channel of distribution of the industry. This study does not considers the direct and end consumers perception for the said parameters. The validation of study lies only on the usages of practical concepts with constructs of theoretical aspects.

Research Methodology

This method more concentrated on the primary data so collected with structured the questionnaires with pre-determined objective for building a theoretical model for understanding. It also endeavours to build the build the model based on quantitative perspective.

Sources of data

The study is first-hand in nature, therefore leading to more depends on primary data, however, many materials such as journal, association bulletins are referred for the study.

Sampling design

The 7 point Likert scale is administered to determined sample population based on the objectives of the study. The sample selected randomly which consists of dealers and retailer who operates in the city of Bangalore. Sample size is calculated as below, using Z score with 95%, infinite proportion formula. Nevertheless, the instruments are also tested with co-efficient of variance i.e., Cronbach Alpha, with >0.68 at 5% significant value (Nunnally 1978).

Analysis and interpretation

The study is conducted with structured questionnaire with Cronbach Alpha i.e., Co-efficient of variation obtained at .68 which is implies the instruments are used sufficient and statistically significant.

Reliability Statistics

Cronbach's Alpha	N of Items
.687	19

Item-Total Statistics

items	Questionnaire with relavnat variable X's	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Product Profitability	Q1 VarX 1	75.10	164.376	.810	.613
Product Profitability1	Q2 VarX 1	74.91	182.134	.432	.657
Product Legacy	Q3 VarX2	75.04	184.729	.404	.660
Product Legacy1	Q4 varX2	75.03	166.335	.783	.617
Primary Product	Q5 varX3	75.33	206.207	-.028	.707
Primary Product1	Q6 VarX3	75.15	209.591	-.075	.709
Auxiliary Product	Q7 VarX4	75.11	203.610	.038	.697
Auxiliary Product1	Q8 VarX4	75.20	203.741	.036	.697
High Value Product	Q9	75.30	207.859	-.051	.709
Dependency on Product	Q10 DV (Product)	75.41	200.546	.089	.693

Service Profitability	Q11	75.06	196.291	.156	.686
Service Profitability1	Q12	75.20	200.548	.091	.692
Service Legacy	Q13 VarX7	74.70	205.103	.011	.699
Service Legacy1	Q14 VarX7	75.10	164.376	.810	.613
Primary Service	Q15 VarX8	75.24	195.983	.165	.685
Auxiliary Service	Q16 VarX8	75.12	200.783	.096	.691
High value Service	Q17 VarX9	75.35	207.288	-.040	.707
High value Service1	Q18 VarX9	75.10	164.679	.805	.614
Dependence on Service	Q19 DV (Service)	75.09	164.571	.807	.613

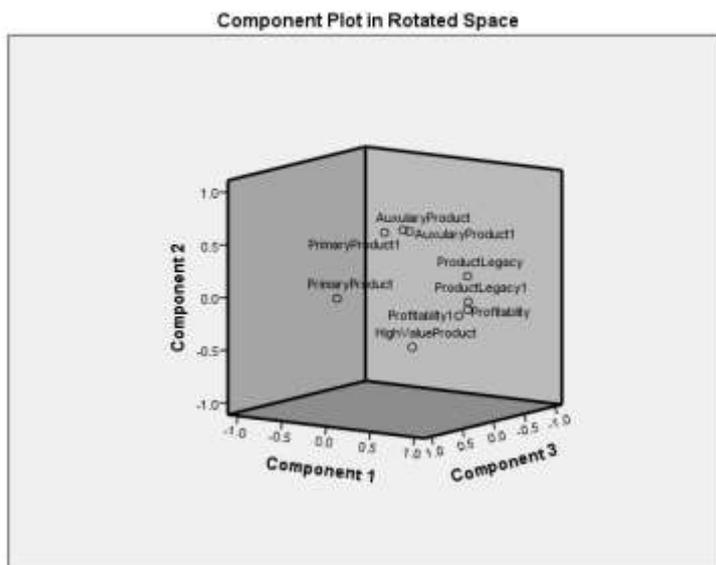
Over and above, the data set collected is significant in terms of *P*-value and normality with the KMO Bartlett's test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.604
Bartlett's Test of Sphericity	Approx. Chi-Square	277.958
	df	36
	Sig.	.000

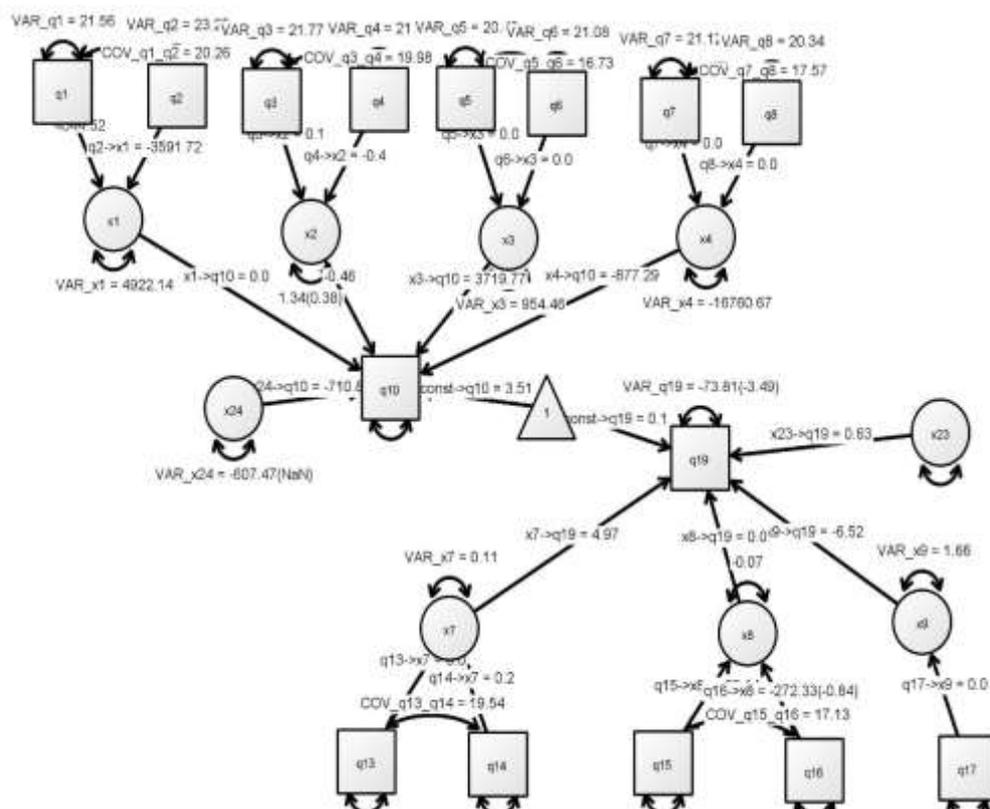
The objectives the study is understand the 'conflux of the product and service dependency level' with above specified objectives. We can notice from below the significant levels of each variables that are considered with help of 'rotated matrix and Principal Component Analysis'. This proves the 1st hypothesis that ': there is significant level of dependency of product on retailer the LED lighting industry

Component Matrix ^a			
	Component		
	1	2	3
Product Profitability	.899	-.011	.119
Product Profitability1	.672	-.154	-.049
Product Legacy	.661	.177	-.244
Product Legacy1	.915	.069	.127
Primary Product	-.027	.207	.892
Primary Product1	-.080	.576	-.008
Auxiliary Product	-.030	.496	-.335
Auxiliary Product1	.060	.591	-.108
High Value Product	.063	-.570	-.136



Further the Hypothesis 3rd ‘: there is significant correlation among the levels of dependency of product and service levels on the effectiveness of channel of distribution in the LED lighting industry in Bangalore’, is substantiated the PCA – the concentration all parameters are plotted in the same horizon. Barring ‘product primary’ which has highest Eigen value.

In the model creation, the Onyx tool used for preparing the below model with Parsimonious model fit and better RMSEA value in Absolute model fit. The following is conceptualized structural equation modelling depicting the over-all vitality of the relation exhibited in terms of variance and co-variance among (can be referred to the above table for q’s and variable x’s). It also signifies the dependency level of product and service (dependent variables), in the light of the independent factors as mentioned above.



Discussion

From the above analysis and model identification, we can say there is significant impact of both product and service level dependency on the channel of distribution in the LED lighting industry in Bangalore City. However, there are some items are deleted to adjust to model fit, and better conceptualize viz., High volume, service profitable and high volume service. This study exemplifies those factors – product and service

dependency level by retailer in the channel of distribution, which was indeed less emphasised in general and seller market such as Indian consumer electrical lamp industry in specific.

Directions for further research

Greater understanding of channel communication can help focus managerial efforts on vital communication flows which stimulate positive assessments of communication behaviours, and which stymie less beneficial/detrimental communication behaviours. Furthermore, researchers may better understand which dimensions of communication are more appropriate than others for potential inclusion in their theories and research. There are many findings on specified parameter which are challenging but also new boulevards for further validation can be done on other factors. The specified variables can be utilized to assess the communication flow in other industry and sector.

Conclusion

The present work is an attempt to establish, once again, the positive relationship between communication and effectiveness of the channel of distribution. Since the significant change in the communication pattern in the changing channel of distribution in the lighting LED industry, the underlying the fact is that the communication need to bi-directional and more frequent.

References

- Gunawardana, 'Channel Member's Power and Dependence as a Determinant for Performance of a Distribution Channel within a South Asian Developing Country, T.S.L.W Faculty of Management & Finance, University of Ruhuna, Sri Lanka gunawardana@badm.ruh.ac.lk, Int. J Sup. Chain. Mgt, Vol. 1, No. 2, September 2012, page 26-34
- Gary L. Frazier, James D. Gill, & Sudhir H. Kale , 'Dealer Dependence Levels and Reciprocal Actions in a Channel of Distribution in a Developing Country' Journal of Marketing Vol. 53 (January 1989), 50-69
- Morgan, RM & Hunt SD et al "The commitment –Trust theory of relationship marketing", Journal of marketing vol 58, PP 20-38, 1994.
- Stern, LW & Gorman, RH "conflict in distribution Channels; An exploration, Boston ; Houghton Mifflin company, 1969
- Adel El-Ansary & Louis W Stren, 'Measurement of Power', Journal of Marketing Research, 1972 (Feb), Vol 9, page 47 to 52.
- Emerson, Simon Richard M "power-dependence relation" American Sociological review, 27 Feb 1962, page 31- 41.
- Simon, Herbert 'Notes on the observation & measurement of Powers" Journal of policies, vol 15, nov 1953, page 500 - 518
- Moarris A Cohen, Seungin Whang : 'competing in product & service; A product life cycle model', Marketing Science, Vol 43, no.4, Aril 1997, page 535 – 546.
- Hund, Nevin et al "power in a channel of distribution: sources and consequences "Journal of marketing research 1974, may vol 11, pp 186 – 193.
- Michael Etgar, "Channel Domination and countervailing power in distribution channels", Journal of marketing Research, vol 13, Aug, page 254-262.
- Baker, Michael and Awad Al-Haddad "the contribution of marketing to economic growth in developing countries 1985, Journal of marketing, 48, winter, page 11 – 29
- Anderson, Erin. Leonard Lodish, and Barton Weitz (1987), 'Resource Allocation Behavior in Conventional Channels." Journal of Marketing Research, 24 (February), 85- 97.
- Jain, Subhash (1984), International Marketing Management. Belmont, CA: Kent Publishing Company.
- Keegan, Warren (1984), Multinational Marketing Management, 3rd ed. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Kotler, Philip, Marketing Management, 15th ed., NJ: Prentice-Hall, Inc.
- Lusch, Robjert (1976), "Sources of Power: Their Impact on Inter channel Conflict," Journal of Marketing Research, 13 (November), 283-90.

- Heide, Jan and George John (1988), "The Role of Dependence Balancing in Safeguarding Transaction-Specific Assets in Conventional Channels," *Journal of Marketing*, 52 (January), 20-35.
- Skinner, Steven and Joseph Gultinan (1985). "Perceptions of Channel Control," *Journal of Retailing*. 61 (Winter), 65- 88.
- Nunnally, Jum (1978). *Psychometric Theory*, 2nd ed. New York: McGraw-Hill Book Company
- JC Anderson, JA Narus - 'A Model of the Distributor's Perspective of Distributor-Manufacturer Working Relationships' *Journal of marketing*, 1984 Volume: 48 issue: 4, page(s): 62-74
- Lusch, Robert (1976), "Sources of Power: Their Impact on Intra-channel Conflict," *Journal of Marketing Research*, 13 (November), 283-90.
- James Brown (1982), "A Modified Model of Power in the Marketing Channel," *Jornal of Marketing Research*, 19 (August), 312-23.
- Frazier and John Summers (1984), "Inter-firm Influence Strategies and Their Application Within Distribution Channels," *Journal of Marketing*, 48 (Summer), 43-55