

# Identification and Analysis of Factors Affecting Consumer Behavior in Fast Moving Consumer Goods Sector

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## Abstract

With the changing mindset of consumers and the fast progressing social and economic background, lowermost portion of the market pyramid will be the fastest growing consumer market. Global fast moving consumer goods (FMCG) industry dealing with distribution and marketing of consumer products are coming with innovative plans to tackle the challenges due to intense competition, brand loyalty, and intensifying expectations of the customers. This study first examined the socioeconomic factors of FMCG to explore significant variables that affect the purchase intention of the consumers and find the gap in existing literature. Interpretive Structural Modeling (ISM) helps in examining relationships among these factors. The driving and the dependence power of several factors is recognized by the end results of ISM and is used as an input to the fuzzy Matriced' Impacts Croise's Multiplication Applique'ea UN Classement (MICMAC) analysis. The findings of the study reveal that the consumer buying behavior is influenced to a great extent not only by advertising strategy (AS), brand influence (BI) and celebrity endorsement (CE) but also by virtual merchandising.

**Keywords:** Fast moving consumer goods, interpretive structural modeling, fuzzy set, MICMAC

## Introduction

Marketing of fast moving consumer goods (FMCGs) has a crucial part in the economic progress along with the advancement of a country, irrespective of the size and population (Sarangapani & Mamatha, 2008). This sector primarily operates on low margins and strength lies in the strong presence of distribution network, stiff competition between the systematized and disorganized sector, and the strong presence of multinational firms. To become successful in highly dynamic and innovative FMCG segment, a company not only has to be acquainted with the consumer, intense

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brands, well-established and wide-ranging flow arrangement, but also it has to have a sound understanding and knowledge of packaging and promoting (Shaout & Khalid, 2014).

The enhancement in the commercial scenario of the rural and urban customers has assisted the FMCG firms in magnifying their market to the different vicinities of the country bringing along with many challenges in front due to dynamic and highly volatile consumer profile, stiff competition, inconsistent brand loyalty, and mounting hopes of the consumers (Singh & Dar, 2014). To fight with these complications the marketers need to craft creative marketing strategies for which marketer must explore the perceptions of the customers who look for parameters in selecting any brand of FMCG (Attri et al., 2013). So the rise of FMCG consumerism has opened the door of new research in this vast area.

In this study, the existing literature is examined to explore significant factor (variables) that affect the purchase intention of the consumers for the FMCG products and to find the gap in the existing literature based on the secondary data. Because of the stunted exploration in the field of recognition of factors for implementation of FMCG practices, this research can unveil the different marketing policies which firms should inculcate for a good enough understanding of the customers' requirements. From past literature, ten common key FMCG factors with the help of expert opinion are sought (discussed later) and contextual relations are investigated and hierarchy among factors is developed using Interpretive Structural Modeling (ISM) and fuzzy Impact Matrix Cross-reference Multiplication Applied to a Classification (MICMAC) analysis is performed subsequently for removing the hidden relationship.

This paper deals with literature review in FMCG sector regarding research conducted in identifying and discussing, in brief, the factors affecting the behavior of consumers, ISM methodology and fuzzy MICMAC analysis. The paper also deals with result discussion, conclusion, and future direction.

## **Identification and Discussion of Factors Related to Fast Moving Consumer Goods**

### **Background Scenario of Fast Moving Consumer Goods**

Amidst the dynamic sketch and mindset of customers, FMCG segment plays a beneficial and pivotal role in semi-urban, urban slums, and evolving rural areas. According to Anbarasan & Kumar (2014), research was conducted in four districts of Tamil Nadu to ascertain the vital affecting variables by employing factor analysis and it was found that retailers influence played an important role. According to Singh & Dar (2014), customers fondness for FMCG goods is one of the most important factors thriving in rural marketing which is defined by four A's (awareness, affordability, adoptability, and availability). Shukla et al. (2012) examined the effect of publicizing on customer

purchasing attitude for FMCG products using ISM. Srivastava (2013) performed a research regarding the factors that influence the purchasing behavior of customers living in illicit societies in urban India with the aid of semi-structured questionnaire using mixed method research approach. Alam & Choudhury (2011) ascertained that four factors, i.e. manufacturers production standard, managerial efficiency, promotional capability, and customer solution capability were liable on retailer's behalf in the FMCG sector in Bangladesh. Ali et al.(2012) carried out an experiential study and threw light on factors affecting the rural buying behavior of customers in south India and identified the key influencing variables among 24 key variables using factor analysis. Singh (2014) studied the dynamics of FMCG industry and discussed its distinguishing features and key success factors. Joghee & Pillai (2013) studied the magnitude of trademark influences on customer buying decision in the United Arab Emirates, where most of the people are emigrants. Corte et al. (2010) concluded that factors like destination marketing with reference to feature, uniqueness, appearance, and trademark as a weight for advertising and above all destination development in stakeholders collaboration perspective work well.

## Identification and Detailed Discussion of the Fast Moving Consumer Goods Factors

This section reviews the factors (variables) in a comprehensive manner and categorizes them into ten categories (Table 1).

**Table 1.Variables (factors) identification from literature review**

Variable (Factor) No.	FMCG Factors	References
1	Advertising Strategy (AS)	Shukla et al. (2012)
2	Brand Influence (BI)	Joghee& Pillai (2013)
3	Co-Branding (Co-B)	Knape & Rodestedt (2013)
4	Product Related Trends (PRT)	Ali et al.(2012)
5	Retail Loyalty Program (RLP) Effect	Waarden&Benavent (2009)
6	Cultural Orientation (CO)	Lee & Kacen (2008)
7	Liberalization of Economy (LE)	Yuvarani (2013)
8	Visual Merchandising (VM)	Bhatti & Latif (2013)
9	Corporate Branding (CB)	Brown & Dasin (1997)
10	Celebrity Endorsement (CE)	Shukre&Dugar (2013)

**Advertising strategy.**

Celebrity advertisements, promotional scheme, and communal broadcasting is aiding the communication between customer and supplier to involve and connect with their brands emotionally (Shukla et al.,2012). Due to the poor advertisement, people are unaware of the new FMCG products and it becomes essential to encourage every probable action to boost customers and elevate their longings to buy through an active promotional movement.

**Brand influence.**

This is an important factor since established brands act as high entry barriers to new products but if brand loyalty is strong, consumers will pay a high price for the product and are reluctant to switch to competitive products (Joghee & Pillai, 2013). Besides BI, dependability, product characteristics, as well as social and economic aspects, have a major influence on purchasing attitude. Brand attributes, brand values, and brand personality emerged as an important factor for selection of FMCG brands.

**Co-branding.**

The cost of introducing new products in the market or entering new markets has skyrocketed due to intense competition, and simultaneously the success rate is very low urging marketers to reduce the risk by using existing strong and familiar brand names on new products (Knape & Rodestedt, 2013). The use of a Co-B strategy instead of a single brand extension strategy has provided a better assurance of the product quality leading to higher product evaluations and premium prices, facilitate initial acceptance, and increase market exposure while sharing promotional costs with a partner.

**Product related trends.**

The consumption pattern of customer is either centered on need or want. Besides taking into consideration the effect of the goods on their well-being, the customers are also aware of its impact on the surroundings, there by concentrating on the environment-friendly and sustainable goods and their packaging issue (Ali et al., 2012). Food adulteration norms, a regular check on prices are a few of the many strategies intended to safeguard the interest of customer. Thus, with the increase in the importance of green products, the interest has risen to analyze the factors that can influence consumers green purchasing behavior.

**Retail loyalty program effects.**

There is a great impact of loyalty programs on repurchase behavior in grocery stores as a loyalty programs target consumers who already buy in the store more frequently, very small changes occur in their buying behavior occur than new customers (Waarden & Benavent, 2009).

**Cultural orientation.**

Certain factors like consumer's mood, product category impulsiveness, and demographic characteristics have a considerable impact on customers' intended purchase decisions including individualist culture (Lee & Kacen, 2008). These variances in effects can be accounted in terms of CO. It has been stated that collectivist consumers are expected to be more pleased with a predisposition purchase when some other person is present at the time of purchase as compared to individualist customers.

**Liberalization of the economy.**

The consequences of LE are unaccountable. It has led to the entry of worldwide brands in rural markets without any restrictions (Yuvarani, 2013). Previously companies invested their advertising efforts towards the erudite customers of the urban marketplace, but nowadays with the satiety of markets in the urban area, most of the companies concentrate towards the rapidly developing rural sector.

**Visual merchandising.**

Visual merchandising (VM) is described as everything that creates a positive image of a business and results in interest, desire on the part of the customer (Bhatti & Latif, 2013). VM ranges from window displays including forum display and floor merchandising along with promotion signage. The retailers today are using the merchandising tool to differentiate themselves from other competitors and to be prominent in the market and attract the customers.

**Corporate branding.**

The influence of business relations on the customers feedback on manufactured goods is to a considerable extent because of the variations in their dogmas and outlook towards new products manufactured by that firm. Corporate social responsibility (CSR) of a firm determines the knowledge of a customer about a firm (Brown & Dacin, 1997). CA and CSR associations may have diversified effects on customer responses to products, and products of firms with undesirable associations are not always destined to receive deleterious retorts.

### **Celebrity endorsement.**

The usage of CE for the publicity of various trademarks has become one of the most predominant forms of FMCG publicizing. The marketers try their best to uphold their brands and catch hold of the consumer's attention. It has been proven that the use of personalities in promotion produces a lot of persuasive and instantaneous attention (Shukre & Dugar, 2013). CE has a considerable influence on consumers memory and learning approach. Therefore, if the usage of celebs is inculcated effectively, makes the brand distinctive, increases brand reminiscence, and enables spontaneous consciousness.

### **Research Methodology**

After identified the FMCG factors, we used the Interpretive Structural Modeling (ISM) to find the preference relations of the identified factors. The details of ISM are discussed below.

#### **Interpretive Structural Modeling: An Overview**

Interpretive Structural Modeling is a co-operative learning process where the elementary notion is to use professionals real-world understanding in order to breakdown an intricate system into numerous sub-systems and build a multi-level structural model (Sage, 1977). The ultimate outcome is displayed through structural technique and the object system gets converted into a well-defined digraph which in relevant contexts become final interpretative structural models (Jain & Raj, 2015).

- This methodology is interpretive as the judgment of the group decides how the different elements are related.
- It becomes difficult to deal with a complex system of enablers which are having a directly or indirectly related.
- It is structural as on the basis of relationship is extracted from the complex variable set.
- It is a modeling technique, as the specific relationships and overall structure are portrayed in a digraph model.

But contextual relation among the variables always depends on the users' knowledge and the biased judging the variables might influence the ultimate outcome (Mandal & Deshmukh, 1994).

#### **Modeling of Fast Moving Consumer Goods Factors by Interpretive Structural Modeling Methodology**

Using an ISM technique (Warfield, 1974), constructing a model involves a number of steps, a brief description of which is given next.

## Identify and Define Variables

On the basis of literature review and discussion with domain experts and the academia, ten variables (factors) related to the system or problems are first identified (Table1) and discussed earlier. The contextual relationship among various factors is examined in the brainstorming sessions, to identify and examine the pairs of variables.

### Structural self-interaction matrix formation.

A structural self-interaction matrix (SSIM) reflects the influence in pairwise relationships among variables of the system. Keeping in mind the contextual relationship for each variable (criteria), the existence and associated direction of the relation between any two factors is questioned. According to Warfield (1974), to construct an SSIM matrix (Table 2), four relationships are defined among factor, using symbols V, A, X, and O defined as follows:

- V: criteria will help alleviate criteria
- A: criteria will be alleviated by criteria .
- X: criteria will help achieve each other; and
- O: criteria are unrelated.

Based on this, the variables (factors) are numbered from 1 to 10 accordingly and ISM is implemented.

**Table 2. Self-structural iteration matrix**

Variabl e	Factors	Variable (Factors) Number									
		10	9	8	7	6	5	4	3	2	1
Number											
1	AS	V	V	V	V	V	V	V	V	X	-
2	BI	V	V	V	V	V	V	V	V	-	
3	CO-B	O	O	O	O	O	A	O	-		
4	PRT	O	O	O	O	X	O	-			
5	RLP	O	A	A	V	O	-				
6	CO	A	V	V	V	-					
7	LE	O	O	O	-						
8	VM	X	A	-							
9	CB	O	-								
10	CE	-									

**Reachability matrix.**

The SSIM format is initially converted into the perpetual binary matrix, called the initial reachability matrix by transforming the information of each cell of SSIM into binary digits (i.e.0 and 1) according to the following rules (Jain & Raj, 2015):

- If entry in cell of SSIM is V, then enter 1 in the cell and 0 in the cell .
- If entry in cell of SSIM is A, then enter 0 in the cell and 1 in the cell .
- If entry in cell of SSIM is X, then enter 1 in both cells and.
- If entry in cell of SSIM is O, then enter 0 in both cells and.

Finally, the initial reachability matrix is converted into a final reachability matrix (Table 3) incorporating all transitivity positions using the following rule (Dubey & Ali,2014):“If the element leads to element and element to element , then element should lead to the element .” The final reachability matrix consists of some entries from the pair-wise comparisons and some inferred entries.

**Table 3. Final reachability matrix**

Variabl e No.	Factors (Variable)	Factor Number									
		1	2	3	4	5	6	7	8	9	10
1	AS	1	1	1	1	1	1	1	1	1	1
2	BI	1	1	1	1	1	1	1	1	1	1
3	CO-B	0	0	1	0	0	0	0	0	0	0
4	PRT	0	0	0	1	0	1	1*	1*	1*	0
5	RLP	0	0	1	0	1	0	1	0	0	0
6	CO	0	0	0	1	1*	1	1	1	1	1*
7	LE	0	0	0	0	0	0	1	0	0	0
8	VM	0	0	1*	0	1	0	1*	1	0	1
9	CB	0	0	1*	0	1	0	1*	1	1	1*
10	CE	0	0	0	1*	0	1	1*	1	1*	1



### Level partitions and Interpretive Structural Modeling model development.

The final reachability matrix obtained (Table 3) is now partitioned into different levels constructing the reachability and antecedent set for each factor (Warfield,1974). After the identification of the top-level element, it is discarded from the other remaining variables. This iteration is continued till the levels of each variable are obtained (Table 4). The identified levels aid in building the digraph and the final model of ISM. Removing the transitivity's as described in the ISM methodology, the digraph is finally converted into the ISM-based model (Fig.1).

**Table 4. Level matrix**

Variable (Factor) No.	FMCG Factors	Levels
3	Co-B	L-1
7	LE	L-1
5	RLPEffect	L-2
8	VM	L-3
9	CB	L-4
4	PRT	L-5
6	CO	L-5
10	CE	L-6
1	AS	L-6
2	BI	L-6

### Analysis of Fast Moving Consumer Goods Factors by Interpretive Structural Modeling Fuzzy Matriced' Impacts Croise's Multiplication Applique'ea UN Classement

In ISM model, the relationship between factors having equal importance is denoted by binary number 1. However, in real life problem, the relationship between them cannot be always equal and there is no scope for discussion about the strength of relationship between two variables (factors).

Some relations may be strong, some may be very strong, and some relation may be better. To overcome the limitations of ISM model, the fuzzy relationship is used for increasing the sensitivity of MICMAC analysis (Dubey & Ali, 2014). The ISM fuzzy MICMAC analysis is performed according to the following procedure:

### Binary direct relationship matrix

Binary direct relationship matrix (BDRM) is derived from initial reachability matrix, examining the direct relationship among the criterion, ignoring the transitivity, with leading diagonal elements being converted to 0. The BDRM so derived is shown in Table 5.

**Table 5. Binary direct relationship matrix**

Variable Number	Variable (Factors)	Variable Number									
		1	2	3	4	5	6	7	8	9	10
1	AS	0	1	1	1	1	1	1	1	1	1
2	BI	1	0	1	1	1	1	1	1	1	1
3	CO-B	0	0	0	0	0	0	0	0	0	0
4	PRT	0	0	0	0	0	1	0	0	0	0
5	RLP	0	0	1	0	0	0	1	0	0	0
6	CO	0	0	0	1	0	0	1	1	1	0
7	LE	0	0	0	0	0	0	0	0	0	0
8	VM	0	0	0	0	1	0	0	0	0	1
9	CB	0	0	0	0	1	0	0	1	0	0
10	CE	0	0	0	0	0	1	0	1	0	0

### Fuzzy direct relationship matrix

Conventional MICMAC analysis only considers binary relationship which has its own limitation, so we use fuzzy set theory to increase the sensitivity of MICMAC analysis. An additional input of possibility of interaction between factors defined by qualitative consideration on a 0-1 scale is introduced (Table 6). According to experts and academician opinion, the values for the relationship between any two factors is superimposed on BDRM matrix (Table 5) to obtain fuzzy direct relationship matrix (FDRM) as shown in Table 7.

**Table 6. Possibility of numerical value of reachability**

Possibility of Reachability	No	Very Low	Low	Medium	High	Very High	Complex
Value	0	0.1	0.3	0.5	0.7	0.9	1

**Table 7. Fuzzy direct relationship matrix**

Variable Number	Variable (Factors)	Variable Number									
		1	2	3	4	5	6	7	8	9	10
1	AS	0	0.9	0.3	0.7	0.5	0.1	0.3	0.7	0.9	0.7
2	BI	0.7	0	0.5	0.9	0.3	0.7	0.1	0.5	0.3	0.5
3	CO-B	0	0	0	0	0	0	0	0	0	0
4	PRT	0	0	0	0	0	0.5	0	0	0	0
5	RLP	0	0	0.9	0	0	0	0.7	0	0	0
6	CO	0	0	0	0.3	0	0	0.5	0.9	0.1	0
7	LE	0	0	0	0	0	0	0	0	0	0
8	VM	0	0	0	0	0.7	0	0	0	0	0.9
9	CB	0	0	0	0	0.9	0	0	1	0	0
10	CE	0	0	0	0	0	0.7	0	0.5	0	0

**Fuzzy Matriced’ Impacts Croise’s Multiplication Applique’ea UN Classementstabilized matrix**

Following the fuzzy matrix multiplication law (Kandaswamy, 2007), the FDRM (Table 7) is multiplied repeatedly until the hierarchies of driver and dependence power stabilize. The stabilized matrix (Table 8), categorized factors on the basis of relationships between them and the scale of influencing capability. The driving power of the criterion in fuzzy MICMAC is derived by summing the entries of possibilities of interactions in the rows, while dependence of the criterion is determined by summing the entries of possibilities of interactions in the columns.

Based on the information derived from the fuzzy MICMAC stabilized matrix, the variable (factors) are classified into four clusters in the driver-dependence graph (Fig.2). The detailed discussion is as follows:

- The first cluster consists of autonomous criteria that have weak driver power and weak dependence. These criteria are relatively disconnected from the system, with which they have only few links, which may be strong.
- The second cluster consists of dependent criteria that have weak driver power but strong dependence.
- The third cluster has the linkage criteria, that have strong driving power and also strong dependence. These criteria are unstable in the fact that any action on these criteria will have an effect on other and also a feedback on themselves.
- The fourth cluster indicates the independent criteria having strong driving power but weak dependence. It is observed that a variable with a very strong driving power called the key variables, falls into the category of independent or linkage criteria.

**Table8. Fuzzy MICMAC stabilized matrix**

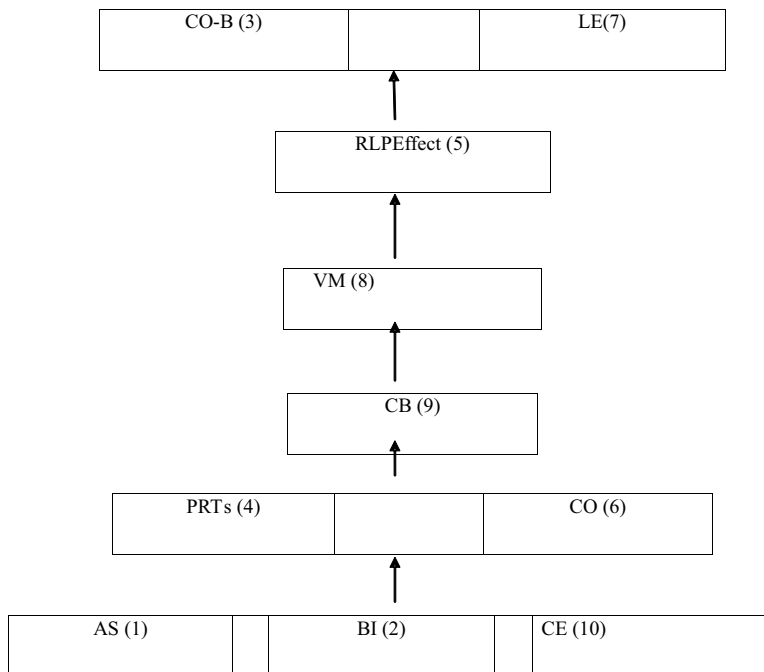
Variable Number	Variable (Factors)	Variable Number										Driving Power
		1	2	3	4	5	6	7	8	9	10	
1	AS	0.7	0	0.7	0.7	0.7	0.7	0.7	0.7	0.3	0.7	<b>5.9</b>
2	BI	0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	<b>6.3</b>
3	CO-B	0	0	0	0	0	0	0	0	0	0	<b>0</b>
4	PRT	0	0	0.5	0.3	0.1	0.5	0.5	0.5	0.1	0.1	<b>2.6</b>
5	RLP	0	0	0	0	0	0	0	0	0	0	<b>0</b>
6	CO	0	0	0.1	0.3	0.5	0.3	0.5	0.7	0.1	0.5	<b>3</b>
7	LE	0	0	0	0	0	0	0	0	0	0	<b>0</b>
8	VM	0	0	0.5	0	0.7	0.5	0.5	0.5	0	0.7	<b>3.4</b>
9	CB	0	0	0	0.3	0.5	0	0.5	0.7	0.1	0.5	<b>2.6</b>
10	CE	0	0	0.7	0.3	0.5	0.7	0.7	0.5	0.1	0.5	<b>4</b>
Dependence Power		<b>0.7</b>	<b>0.7</b>	<b>3.2</b>	<b>2.6</b>	<b>3.7</b>	<b>3.4</b>	<b>4.1</b>	<b>4.3</b>	<b>1.4</b>	<b>3.7</b>	

## Result Discussion and Finding of the Study

The first objective of this research is to analyze the effectiveness of various factors in the success of FMCG products in the current volatile market.

- An insight into the ISM model (Fig.1) indicates that Co-B (3) and LE (7) are the top-level variables. These are the ones which are being affected by lower-level variables.
- The second, third, and fourth level variables, viz., RLP effect (5), VM (8), CB (9) are operational level variables which are very much necessary for the successful operation and running of FMCG.
- AS (1), BI (2), and CE (10) and their strategy have highest drive power and lowest dependence. Hence, they appear at the bottom level of the hierarchy which implies that they play a significant role and work as the main driver in the successful implementation of FMCG.

The second objective of this research is to analyze the driving power and dependence power of FMCG factors through fuzzy MICMAC analysis.



*Fig.1. ISM-based model for FMCG key factors*

- Figure 2 shows that there are three autonomous variables, viz., Co-B (3), PRTs (4), and CB (9) that have weak driving power and weak dependence. The absence of this variable indicates that all considered variables play a significant role to make the successful implementation of FMCG. LE (7), CO (6), and RLP effect (5) are variables having weak driving power but are strongly dependent on the other and so special care be taken into consideration to handle them.
- VM (8) and CE (10) are in linkage category that has a strong driving power and also a strong dependence (Fig. 2). Any change occurring in FMCG factors SCMEs will have an effect on others and also a feedback on themselves. If they are implemented in a proper way they can create a positive environment for successful implementation of FMCG.
- Variables like AS (1) and BI (2) have strong driving power but weak dependency on other variables and placed in a driving category.

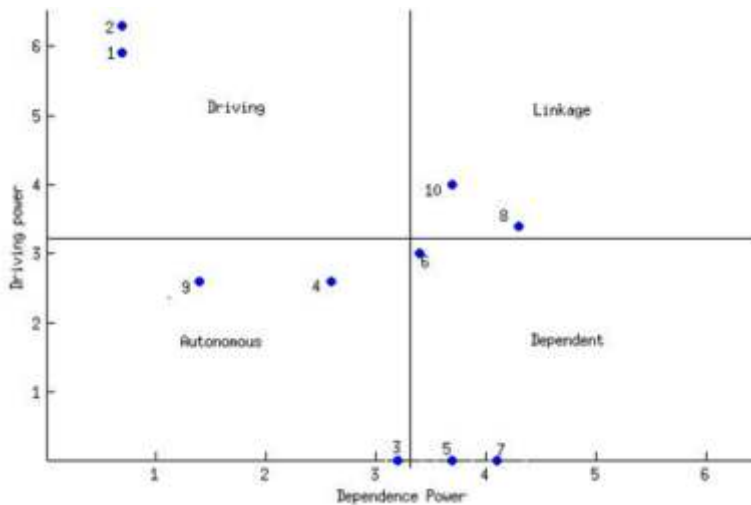


Fig.2. Cluster of variables (Driving and Dependence Variables)

## Concluding Remarks and Future Direction

The result helps in implementing and identifying the factors responsible for its success in the current volatile market. Based on the inputs from experts from industry a hierarchical model is developed using ISM- fuzzy MICMAC analysis. This is performed to categorize the factors by taking their driving and dependence power as a base. From the driver-dependence illustration, a few vital discernments about the comparative significance and the interdependencies among the web quality key factors can be inferred. The integrated model using ISM and the fuzzy MICMAC methodology can be of great advantage to administrators, who by using this system, can recognize and categorize the important FMCG factors for their requirements. It is only an individual decision and any prejudice by someone who is arbitrating the FMCG factors has the potency to influence the absolute result.

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