Modelling the strengthening factors for competitive position of apparel retailing in India

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Abstract

Purpose – The aim of this paper is, first, the desire to present the issue of retail sector competitiveness with the simultaneous determination of factors having an impact on competitiveness and their development. The main aim is to identify the factors and relationships among those factors to strengthen the competitive positioning of apparel retail stores.

Design/methodology/approach – The literature review and experts' opinion helped to identify the key factors. The relationships among the factors were obtained by using interpretive structural modelling (ISM). Experts' opinions were collected again for the fuzzy direct relationship matrix. Factors were further classified by driver and dependence power using the fuzzy matrix of cross-impact multiplications applied to classification (FMICMAC) analysis.

Findings – Total nine strengthening factors (SFs) identified here, and developed an integrated model using ISM and classified it into four clusters with the help of driver and dependence power. The model hierarchy shows the interrelationships among these SFs. The retail environment, Information and Communication Technology, technology adoption and human resource management were found to be the most significant factors needing some spotlight by the top-level authority.

Research limitations/implications – The study will help managers to understand the variables and their relationships and to select the right factors to achieve a potential competitive position. Relationships among the factors were obtained through the opinions of experts and academicians. Expert opinion is a subjective judgement, and biasing in judgement might affect the result.

Originality/value – The research presents the first kind of an integrated model using ISM and FMICMAC to identify nine factors and classify them by their driving and dependence power. The developed model helps in the identification, classification and selection of factors as per requirement. This study will assist managers to understand the variables and their relationships and to select right factors to achieve a potential competitive position.

Keywords Marketing, Supply chain management, Decision-making, Management, Modelling, Business strategy

Paper type Research paper

1. Introduction

Concerning the number of employees and establishments for doing business, apparel retailing is the second largest sector after grocery retailing (Deloitte Report, 2014). Shoppers are at the centre of focus in the current business scenario and their pain is the primary driver (Bingham, 2004) of offerings. The demand of shoppers has changed now. Shoppers need more value for their money and time. In this contrast, if retailers do something to provide value for their customer and if customer can perceive it as a value then it will add a competitive advantage for the retailer (Porter and Millar, 1985). Grewal *et al.* (2010, p. 29) stated that in future, those retailers who pursue the cost control and value differentiation simultaneously will succeed in the coming decade.

The apparel retail industry of India has the highest number of outlets in the world. The Indian retail market is expected to grow from US$672bn in 2017 to US$1.1tn in 2020 at the rate of 13 per cent compound annual growth rate (CAGR) (IBEF report, 2017). By 2020, India will become the world's youngest population country, and this fragment will drive retailers to innovate in product development, service offerings and delivery (Deloitte Report, 2014). Brand personality is also an important aspect that positively influences purchase intention. More the brand personality, higher will be the purchase intention (Phau and Lau, 2001).

Competition in the Indian retail sector is growing day by day owing to globalization and the new foreign direct investment (FDI) policy of the Government of India (GoI). According to the policy, the GoI allowed FDI up to 100 per cent for a single brand and up to 51 per cent for the multi-brand (Deshmukh and Mohan, 2017). Therefore, the competition is frightful, and there is a need to rethink about competitive strategies and provide more value to the shoppers. Competitive positioning (CP) practices with some strategic supply chains can be a solution for not only survival but also growth. Some criteria for the competitive advantage are as follows. First, it must be associated with a value-added attribute that is of relevance to the shopper segment. Second, the shopper must comprehend it. Third, the competitors must not easily copy it (Morschett *et al.*, 2006). With many foreign apparel players waiting to enter India through FDI, it has become a research destination (Venkatesh *et al.*, 2015).

This paper will investigate and analyse selective Strengthening Factors (SFs) to achieve competitiveness in the realm of study. This contextual relationship is established through interpretive structural modelling (ISM) and followed by a Fuzzy Matriced' Impacts Croise's Multiplication Appliquée a UN Classement (FMICMAC) analysis for classification of factors. Thus, our anticipated model is based on a perception, in which each factor is linked with numerous factors in a manner that either particular factor will drives other factors or dependent on them. In this framework, the first step is to identify and analyse the SFs of the CP. The focus is to propose a methodology based on FMICMAC analysis to analyse and classify the SFs of CP of retail. Therefore, the appropriate strategies should design to help managers in terms of retail positioning improvement.

The structure of paper is as follows: It starts with the introduction concerning the CP, followed by the literature review on SFs of CP and the Indian apparel retail industry. Then, the discussions on establishing the variables, ISM model formulation and FMICMAC analysis. It ends with the discussions on the new strengthening factor assessment framework, managerial implications and future scope.

2. Literature review

The review includes papers from various journals like *Journal of Modelling in Management, Journal of Retailing and Consumer Services, Journal of Marketing Management*, *The Journal of Brand Management* and *Journal of the Academy of Marketing Science*. It also includes articles and reports from the *Harvard Business Review* and reports related to retail in the Indian market by various prominent consulting companies like Deloitte, Technopak, IBEF, WTO, etc. The second part covers the review on identifying the strengthening factors of competitive position in retail and understanding the CP strengthening strategies from 2000 to 2017.

2.1 Competitive position in retail sector

The resource-based view (RBV) of the firm was first analysed by Barney (1991). According to him, resources must be valuable, rare, imperfectly imitable and non-substitutable. In his further work (Barney, 1995), the new tool was evolved, and in the form of questions, those are as follows: Is the resource valuable? Is it rare? Is it costly to imitate? Moreover, did the firm organize to capture the value of the resources? A capability or resource that satisfies all four questions can

bring sustained competitive advantage for the firm. If a resource or capability can be perceived by the customer, then it could be treated as valuable. An increase in differentiation or a decrease in price can increase the consumer-perceived value. If two companies acquire the same resources, then the important resources do not need to be eliminated because those resources are the pillars of positioning in the market (Jurevicius, 2013). The efficiency-based variable (cost reduction) and the effectiveness-based variable and the interrelationship among those factors need to be found. Rothaermel (2012) stated that the firms' RBV could explain approximately 30 per cent to 45 per cent of superior performance and the firms' industrial organization view could explain approximately 20 per cent of the performance. Therefore, the combination of these two views can help to achieve a sustainable competitive advantage.

To establish the position in the competitive dynamic market, the retailers strive to develop a store image, which is analytically destined and designed to appeal to the store's target shoppers (Arora, 1982). Mathur (1984, 1988) developed a CP concept by proposing a classification of differentiation strategies based on two non-price dimensions: merchandise (items made available to the shoppers and achieved through content or image differentiation) and support (assisted shoppers and achieved through personalization and/or expertise differentiation). "Positioning is the deliberate, proactive, iterative process of defining, measuring, modifying and monitoring of the consumers' perceptions of a marketable object" (Arnott, 1993).

Retailers attempt to position their stores in such a manner by which they can achieve a defendable and sustainable market position (Oppewal and Timmermans, 1997). The retailer's image in the customers' mind relative to its competitors was shaped through the decision and implementation of a retail mix (Levy and Weitz, 2001). Walters and Laffy (1996) argued that CP in retail comprises four activities those are integrated and elements of a retail mix. The four activities are as follows: *merchandise decision, store format/ environment decision, customer service decision and customer communication decision.*

From the many research works, two aspects of positioning are noted: the first aspect is defined as the marketing mix perspective, whereas the other aspect is the holistic process that is involved in the whole firm. The first contributor, from the positioning/branding point of view, to the marketing mix perspective is Ries and Trout (1986), who claim that the product image is created in the customers' mind (existing or potential). Whereas, the second concept consists of two pillars, one is the target market and other is the differential advantage. The target market shows "Where to compete" and the differential advantage shows "How to compete" (Attia and Hooley, 2007).

CP is at the center of market-focused management with choice of the target market, in which a firm will operate. Amonini *et al.* (2010) consider CP attributes of service firms by focusing on the utilization of relationships, service quality, brand reputation and value. A combination of the RBV (internal factors) and the industrial organization view (external factors) is important because of positioning decisions that require finding a profitable match between market requirements and the ability to satisfy them (Hooley and Greenley, 2005). Therefore, the following questions were posed to explore the knowledge:

RQ1. What are the strengthening factors to achieve the competitive position in the retail market?

RQ2. How are the strengthening factors interrelated with each other?

This study is an effort to answer the above-mentioned research questions by designing an interpretive structural model. In support to choose the strengthening factors, brief

descriptions are given below followed by introduction of Indian apparel retail store. Table I presents the factors, their descriptions and sources.

2.2 Indian apparel retail store

In 2015, India ranked third as a textile exporter and sixth as a clothes exporter country in the world (WTO Report, 2016). Apparel retail holds the second position of market share after groceries. The fashion business witnessed several tectonic shifts; one of them is the changeover of control from brands to retailers in global fashion trends (Technopak report, 2015). FDI created two aspects of a coin for the Indian retailers, one is to get fierce competition from international retailers and the other is to get an opportunity to learn international best practices. As of 2013, corporatized retail has 19 per cent share of the total Indian apparel market (Technopak report, 2014). The current fashion retail market worth US $46bn will grow at a promising CAGR of 9.7 per cent to reach US$115bn by 2026. Another research report showed that by 2020, the Indian apparel market is likely to reach US$130bn, with the major categories being men's wear (43 per cent), women's wear (37 per cent) and kids' wear (20 per cent) (Deshmukh and Mohan, 2017).

With the entry of global apparel retailers, the competition is going to be fierce and Indian retailers will need to capture and meet the demands of shoppers. In current trends, most of the retailers lack a competitive strategy for their store as well as their supply chains. Venkatesh *et al.* (2015) confirmed that almost one-third of the Indian companies had no supply chain strategy. Implementation of the goods and services tax gives another opportunity to retailers to reassess the sourcing pattern of goods and to try to gain from tax neutrality and economies of scale by centralizing procurement from best vendors, irrespective of their locations (Deloitte Report, 2017).

2.3 Identification of strengthening factors

ISM begins with the identification of variables relevant to the issue. To achieve a position in the market, a large number of strengthening factors play a role. To identify the enablers, a literature review of papers published over 22 years (1995-2016) was covered. Only peer-reviewed papers have been targeted. Papers have been selected based on the criterion that the paper should include any aspect of keywords such as retail strengthening factors, CP factors of retail and retail positioning factors. However, most of the papers on retail positioning were either case-based or qualitative ones, and therefore, to bring more clarity on the concept, there was a requirement for the identification of factors. Nine factors (Table I) were found to be relevant and valid by academic experts (Deshmukh and Mohan, 2017). A brief discussion of each of these factors as identified from literature and validated by the experts is presented in the following sections.

2.3.1 Demand chain management. It is an important factor to achieve competitiveness in the market. Christopher (1998) stated a new dimension in the supply chain called demand chain management (DCM), and according to DCM, the market should drive the chain not the suppliers. Further, Langabeer and Rose (2001) defined the demand chain as a complex network of business processes and deeds that assist firms to recognize, manage and, ultimately, create consumer demand (Walters and Rainbird, 2004). Walters and Rainbird (2004, p. 474) defined the demand chain as "an understanding of current and future customer expectations, market characteristics, and of the available response alternatives to meet these through the deployment of operational processes". The supply chain's main goal is to reward the shoppers with reduced prices (Walters and Rainbird, 2004), but this does not ensure that the firms' competitive position is enhanced because competitors can drench the market with lower-cost substitutes (Langabeer and Rose, 2002; Wen and Song, 2015). The

Table I.
Strengthening factors for the interpretive structural model with description and reference

Strengthening factors	Description	Reference
Demand chain management (SF1)	"The chain of activities that communicates demand from markets to suppliers" (Jacobs, 2006). "The alignment of demand creation and demand fulfillment processes across functional, organizational and inter-organizational boundaries" (Hilletofth and Ericsson, 2007)	Walters and Rainbird (2004), Christopher (1998), Langabeer and Rose (2001), Wen and Song (2015), Agrawal (2012), Deshmukh and Mohan (2016), Santos and D'Antone (2014)
In-store logistics performance (SF2)	In-store logistics is described as actual managing, organizing, ordering and processing merchandise within the retail store (Samli et al., 2005). It has two aspects of a coin, one is the availability of items in the shelves is an essential key performance indicator for the purchasing transaction, and the other is inventory handling and carrying costs as well as costs for human resources are at that level of a supply chain quite intense (Liebmann and Zentes, 2001)	Zinn and Liu (2008), Kotzab and Teller (2005), Fisher (2009), Ehrenthal and Stölzle (2013), Holweg et al. (2016)
Information and communication technology (SF3)	ICT allows enhancement in retailer services, saving shopping time and have a positive impact on the value of the retailer's relationships with its customers as well as with its suppliers (Gil-Saura et al., 2009)	Hutt (1995), Singh et al (2006), Sharafizad (2016), Chevers and Spencer (2017)
Collaboration among supply chain partners (SF4)	It includes close and coordinated relationships of organizations with their major business partners (Sharma and Bhat, 2014) to get benefited but the main beneficiaries are customers, and this collaboration is also used to get competitive advantage (Mehrjerdi, 2009)	Stank et al. (1999), Lehtonen (2006), Villako and Raal (2007), Flint et al. (2011), Ventovuori and Lehtonen (2006), Nyaga et al. (2010), Stank et al. (2001), Qrunfleh and Tarafdar (2013), Kumar et al. (2016)
Technology adoption (SF5)	Advancements in various technologies have allowed for faster transmission of data, resulting in the ability of buyers to react immediately on inventory and pricing issues (Fiorito et al., 2010)	Hopping (2000), Padgett and Mulvey (2007), Pfahl and Moxham (2012), Pantano and Timmermans (2014), Inman and Nikolova (2017)
Retail environment (SF6)	The retail environment is the stores' first physical aspect by which the customer directly interacts. It also played an important role in unplanned buying (Sherman et al., 1997) and for impulse buying (Mohan et al., 2013)	Turley and Chebat (2002), Baker et al. (2002), Roschk et al. (2017), Newman and Foxall (2003), Tomazelli et al. (2017), Sherman et al. (1997), Mohan et al. (2013), Babin and Attaway (2000), Roschk et al. (2017)
Human resource management (SF7)	The human resource management can contribute to sustained competitive advantage through facilitating the development of competencies and employee motivations that are firm-specific, produce complex social relationships embedded in a firm's history and culture and generate tacit organizational knowledge (Barney, 1991).	Prowse and Prowse (2010), Gorane and Kant (2013), Senik and Verdier (2008), Gotsi and Wilson (2001), Aurand et al. (2005), Sartain (2005), Papasolomou and Vrontis (2006), Foster et al. (2010), Punjaisri and Wilson (2011), Matanda and Ndubisi, (2013), Delgado-Ballester et al. (2014), Anselmsson et al. (2016), Ferguson and Reio Jr (2010)
Merchandise management (SF8)	"The activities involved in the planning, developing, and presenting product lines for specified target markets with regard to prices, assorting, styling, and timing" (Kunz, 1998, p.391)	Park and Park (2003), Grewal et al. (2012), Fitzsimons (2000), Zinn and Liu (2008)
Customer value proposition (SF9)	It is a strategic concept that ties the customer and company perspectives together for value creation and competitive advantage (Rintamaki et al., 2007)	Payne and Frow (2014), Bower and Garda (1985), Anderson et al. (2006), Rintamaki et al. (2007), Lindič and da Silva (2011)

Indian firms still emphasize on the efficiency and cost reduction. DCM's ability is to sense real-time demand and develop an offering to meet market requirements (Agrawal, 2012; Deshmukh and Mohan, 2016). DCM studies are unclear on the processes essential for the demand-and-supply alignment inside the company (Santos and D'Antone, 2014). Based on existing literature and knowledge, DCM can be an important and required factor.

2.3.2 In-store logistics performance. This factor plays an important role inside the store and affects the sales directly. Frequent stock-outs can endanger the future sales and also diminish the store and brand loyalty (Zinn and Liu, 2008). The ultimate aim of the in-store logistics is operational efficiency, which means to offer the quantities of products as requested by end-users at lowest possible costs (Kotzab and Teller, 2005). As Fisher (2009) illustrates, inaccurate inventory-related decisions in the store have led to remarkable markdowns. In the retail store, stock-outs generally occur because of the poor logistics processes. Better supply chain management execution is the main cause of variation in the profit margin, and according to Fisher (2009), it focuses on four realms: pricing, range of products, store execution and stocking. On-shelf availability is vital to store success. Ehrenthal and Stölzle (2013) observed that improvements in store operations and the coordination of store delivery and shelf replenishment are most effective for improving on-shelf availability. Holweg *et al.* (2016) addressed what happens to unsalable items and suggested the answer for this question in terms of logistics components. Here, need to change the location, value of the products, quality and quantity, those are the logistics components.

2.3.3 Information and communication technology. Information technology is an important source to achieve competitive advantage. Information and communication technology (ICT) facilitates the firm to establish communication between interacting parties (Hutt, 1995). It can enhance shoppers' satisfaction and provide the competitive advantage (Singh *et al.*, 2006), and its tools are used to get tangible and intangible resources (Sharafizad, 2016). The tangible resources are sales and transactions, whereas the intangible resources are information and advice. Chevers and Spencer (2017) have drawn a scatter plot that shows that when the ICT component increases, then customer satisfaction also increases. ICT components in the retail stores are high-speed internet service, theft-detection system, point of sale (POS) systems equipped with card accepting facility, telephone service and Radio Frequency Identification (RFID)-enabled system, radio communication service (to convey information of products and offers to provide more satisfaction level to shoppers), wireless talkies (to aware managers about store status) and others. POS can provide stock-out information to manufacturers or suppliers through electronic data interchange and also facilitate the customer through easy transactions. The RFID-enabled store can help in the quick seeking of products and locations and quick payments and provide security from shoplifting. RFID can also identify the behaviour of the shoppers, and retailers can offer the true value to their customers rather than a retailer's self-offering.

2.3.4 Collaboration among supply chain partners. Collaboration among supply chain partners deals with automatic replenishment of inventory based on actual demand rather than long-range forecasting (Stank *et al.*, 1999). The success of collaboration among supply chain partners seems to depend on information sharing, clear mutually defined and agreed goals, joint problem-solving and collaborators' ability to fulfil performance expectations (Lehtonen, 2006). When the service importance is high for the customer or end-user, a business needs to share sensitive and strategic information. Customers always want to get more value for their money (Villako and Raal, 2007). The service frame of mind driving increased collaboration enables suppliers to have a deeper perceptivity to what customers

value (Flint *et al.*, 2011). When Purchasing volume is high or managing the purchasing situations due to the reason of market conditions or purchased service packages then a collaboration among supply chain partners selected (Ventovuori and Lehtonen, 2006; Lehtonen, 2006). The household income of Indians is now improved, and it influences customer attitude. Now, customers need good-quality products and conveniences. Firms build collaboration among supply chain partners and their partners to achieve flexibility, efficiencies and sustainable competitive advantage (Nyaga *et al.*, 2010). Stank *et al.* (2001) suggested that both internal and external collaborations are necessary to ensure supply chain performance. Further, Qrunfleh and Tarafdar (2013) found in their research paper that the supplier relationship plays a mediating role between lean supply chain strategy and supply chain responsiveness. In Vendor managed inventory, coordination and cooperation are practiced before collaboration among supply chain partners. Kumar *et al.* (2016) analysed that culture involvement and relationship strength positively impacted on other collaborative activities, such as market-based information sharing, operational resource sharing, joint planning for executing schedule and supply chain performance.

2.3.5 Technology adoption. In the retailing evolution, the primary strengthening factor is technology, which played an important role (Hopping, 2000). Innovation in technology is the foundation of a successful business (Padgett and Mulvey, 2007). The customer always remembers the shopping experience and the technology can help to achieve it. Pfahl and Moxham (2012) stated that integration in efficient consumer response, RFID and supply chain visibility could be considered as a strategic capability within the retail supply networks. The term "smart retailing" was introduced to improve the quality of shopping experiences (Pantano and Timmermans, 2014). Technology that is customer-facing plays an important role in increasing the revenue and decreasing the cost. According to King and Gribbins (2002), the primary focus of technology adoption is to understand the individual behaviours rather than those of an entire organization. This is because the new technology may need some new infrastructures and skills that are beyond individual control and may not be beneficial for the company as well as their customers (Kamaruddin and Udin, 2009). Inman and Nikolova (2017) argued in their study that technology adoption, especially customer-facing technology, affects the perception of customers. Further, they argued that new technologies also provide value by decreasing the cost associated with the customer like increasing revenue through attracting new customers, increasing the share of volume from existing customers or extracting greater consumer surplus.

2.3.6 Retail environment. The environment of the retail store is the first physical aspect with which the customer directly interacts. Therefore, the retail environment can affect the customer's shopping behaviour. Turley and Chebat (2002) suggested that the retail environment can be divided into five categories, which are as follows: exterior cues (parking availability), general interior cues (lighting, music and atmosphere), layout and design (traffic flow, merchandise grouping and placement of cash register), point of purchase and decoration (display and signage) and human factor (employee and crowding). Baker *et al.* (2002) also suggested three categories, namely, design, ambiance and social factors. Consumer satisfaction and behavioural intention are also affected by colour, scent and music, as verified by Roschk *et al.* (2017). Newman and Foxall (2003) stated that the layout of the store could affect the mood of the customer. Tomazelli *et al.* (2017) also suggested that the physical aspect of the store is important for an older customer and for customer–customer interaction. The shopping decision depends on customer–customer interaction, especially among old shoppers. The retail environment plays an important role in unplanned buying (Sherman *et al.*, 1997) and impulse buying (Mohan *et al.*, 2013). A study

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on the Canadian grocery chains reported that if each shopper purchases one extra item, then the profit would increase by more than 40 per cent (Babin and Attaway, 2000). A well-designed store environment positively enhances the shopping experience and increases sales (Roschk *et al.*, 2017).

2.3.7 Human resource management. The most important factor to achieve competitiveness is the skills and competences of employees. Skills and competences can be achieved through providing training and education to employees, maintaining a pleasant and secure working environment, treating all employees fairly and consistently and encouraging involvement by team building, mutual respect and open communication (Prowse and Prowse, 2010; Gorane and Kant, 2013). Undeveloped human resources encumber the commitment of employees to achieve organizational aims (Senik and Verdier, 2008). Human resource management (HRM) has focused on training, recruitment and inducement programmes for existing employees (Gotsi and Wilson, 2001; Aurand *et al.*, 2005; Sartain, 2005; Papasolomou and Vrontis, 2006; Foster *et al.*, 2010; Punjaisri and Wilson, 2011; Matanda and Ndubisi, 2013). HRM has an impact on customer engagement, and it may enhance the quality of interaction with customers (Matanda and Ndubisi, 2013). Since the 1960s, the store image has been the research focus to understand the customers' perceptions of retail stores and chains (Delgado-Ballester *et al.*, 2014; Lindquist, 1974; Keaveney and Hunt, 1992; Timmermans, 1993; Oppewal and Timmermans, 1997). HRM has extended from operative work such as salary and benefits administration to strategic initiatives such as mergers and acquisitions, talent management, succession planning, industrial and labour relations and sometimes even corporate branding (Anselmsson *et al.*, 2016, p. 1190).

2.3.8 Merchandise management. Merchandise management is a strengthening factor to enhance the store image in the shoppers' mind. Shoppers' expectation regarding the in-store shopping experience is increasing nowadays. Customers need good quality products from large varieties of the product line. Therefore, retailers should focus on purchasing a good-quality product with many varieties and have accurate forecasting of demand. Merchandise management deals only with the human resources and is difficult because there are many brands and merchandises available. Merchandise management has three major functions: demand forecasting, purchasing and evaluating and selecting (Park and Park, 2003). When a consumer makes a shopping plan, he must consider two critical resources, one is time and the other is money. When the customer visits a store that is far away, he believes that the required product will be available at that store (Grewal *et al.*, 2012). When the merchandise is not available, then it affects the consumers' store patronage decisions (Fitzsimons, 2000; Zinn and Liu, 2008).

2.3.9 Customer value proposition. Value proposition is an essential factor of the overall value creation practices in customer management (Payne and Frow, 2014). Bower and Garda (1985) briefly discussed the concept of value proposition. Many authors agreed on two concerns: one is that the customer perspective should define a customer value proposition, and the other is that the customer value proposition has a key strategic role within the organization in case of competitive advantage (Anderson *et al.*, 2006; Webster, 1994). Rintamäki *et al.* (2007) suggested that identification of customer value proposition starts with understanding the key dimensions of customer value, and he reported four such dimensions – *economic, functional, emotional and symbolic.* Emotional and symbolic dimensions represent the point of difference to retailers who try to achieve the competitive position through differentiation. Lindič and da Silva (2011) have decomposed the value proposition into five parts: *performance, ease of use, reliability, flexibility and affectivity* (PERFA). PERFA helps managers to decide what to innovate in terms of enhancement of value proposition to their customers.

3. Model development

John Nelson Warfield developed the ISM. ISM enables a group of experts (Warfield, 1974) and individuals (Ravi and Shankar, 2005; Faisal *et al.*, 2007; Alawamleh and Popplewell, 2011) to solve a complex problem. ISM is a methodology involved in the identification of items to solve a problem and summarizing the relationships among them (Mandal and Deshmukh, 1994). ISM is interpretive, as experts' judgement decides the relationship between variables, and these relationships create structures that are extracted from a complex set of variables. The structure from the relationship, portrays in the digraph. The steps involved in ISM have been described in Figure 1.
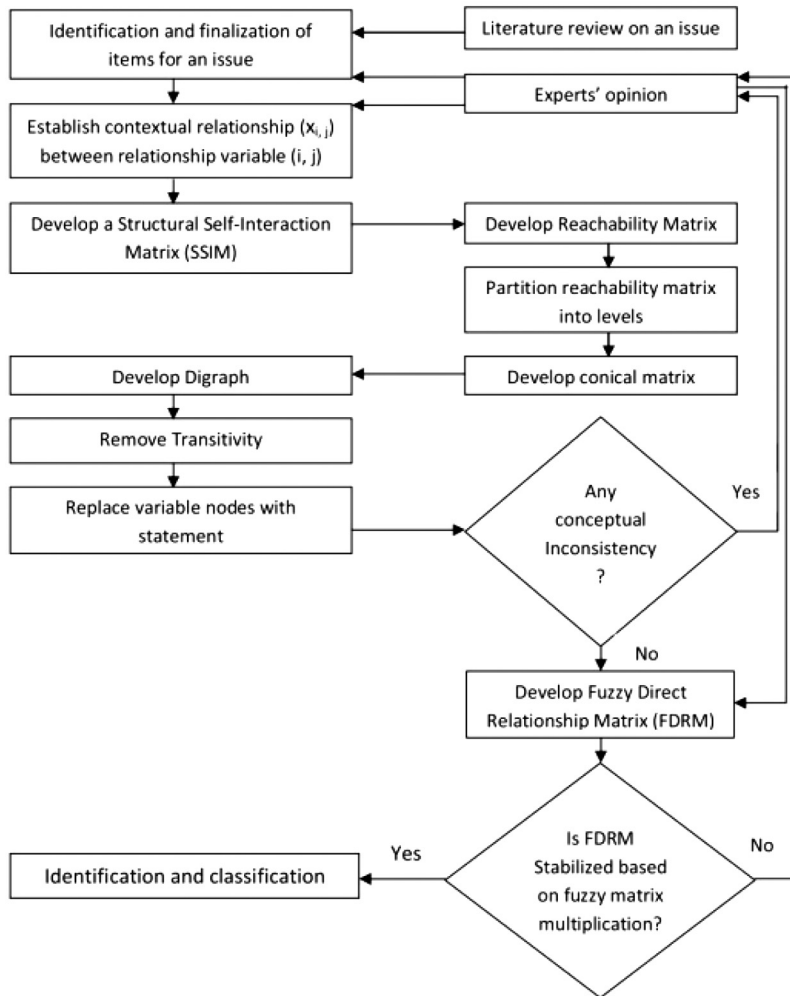

Figure 1.
Flow chart showing methodology for identifying SFs

3.1 Development of structural self-interaction model

A questionnaire was developed in structural form to establish the relationship between two factors. ISM helps groups or individuals to structure their knowledge and model interrelationships to enhance the ability of understanding the complexity.

To develop a structural self-interaction matrix (SSIM), a questionnaire was presented to experts from reputed retail stores in Varanasi city. In total, 25 experts having at least more than 10 years of experience were contacted from both industry and academia and were requested to complete the questionnaire. The experts were asked a total of 36 questions. Experts compared each row with each column and opted for one value from the set (V, A, X or O). In a session, the relationship between two factors (i, j) is denoted by the following four symbols:

(1) V: i influences j (direction i → j);
(2) A: j influences i (direction j → i);
(3) X: i and j influence each other (direction i ← → j); and
(4) O: i and j have no relation.

Here, in total, nine factors and their resultant contextual relationships have been shown in Table II, and a majority (70 per cent) (Alawamleh and Popplewell, 2011) of the specific relationships between any two factors are similar based on the experts' responses:

- SF1 influences SF9, and the relationship is denoted as "V". It means the direction of factors is in one direction from SF1 to SF9 (SF1 → SF9).
- SF2 is influenced by SF7, and the relationship is denoted as "A". It means the direction of factors is in one direction from SF7 to SF2 (SF7 → SF2).
- SF3 and SF7 influence each other, and the relationship is denoted as "X". It means the direction of factors is in both directions from SF3 to SF7 (SF3← → SF7).
- SF1 and SF8 are not related to each other, and the relationship is denoted as "O".

3.2 Developing the initial reachability matrix

To get the initial reachability matrix, the symbols V, A, X and O are substituted into the binary digits 0 and 1. The conversion from symbol to binary digit is based on some rules, which are as follows:

- If the (i, j) symbol in the SSIM is V, then the (i, j) value in the reachability matrix becomes 1 and the (j, i) value becomes 0.

No.	Strengthening factors	9	8	7	6	5	4	3	2	1
1	SF1	V	O	A	O	A	X	A	O	
2	SF2	V	X	A	A	O	O	O		
3	SF3	V	V	X	O	V	V			
4	SF4	V	A	O	O	A				
5	SF5	V	V	O	O					
6	SF6	V	O	V						
7	SF7	V	V							
8	SF8	V								
9	SF9									

Table II.
Structural self-interaction matrix

- If the (i, j) symbol in the SSIM is A, then the (i, j) value in the reachability matrix becomes 0 and the (j, i) value becomes 1.
- If the (i, j) symbol in the SSIM is X, then the (i, j) value in the reachability matrix becomes 1 and the (j, i) value also becomes 1.
- If the (i, j) symbol in the SSIM is O, then the (i, j) value in the reachability matrix becomes 0 and the (j, i) value also becomes 0.

Based on the above rules, the SSIM was converted into the initial reachability matrix, as shown in Table III.

3.3 Developing the final reachability matrix
To get the final reachability matrix, some of the rules are given below, and the final reachability matrix is shown in Table IV.

- Multiply the initial reachability matrix by itself to get the transitivity.
- After the multiplication, in the obtained matrix, the number that is greater than 1 (>1) will be converted into 1. Continue the multiplication process until transitivity is achieved.
- The obtained transitivity matrix is the final reachability matrix with driving and dependence.

No.	Strengthening factors	1	2	3	4	5	6	7	8	9
1	SF1	1	0	0	1	0	0	0	0	1
2	SF2	0	1	0	0	0	0	0	1	1
3	SF3	1	0	1	1	1	0	1	1	1
4	SF4	1	0	0	1	0	0	0	0	1
5	SF5	1	0	0	1	1	0	0	1	1
6	SF6	0	1	0	0	0	1	1	0	1
7	SF7	1	1	1	0	0	0	1	1	1
8	SF8	0	1	0	1	0	0	0	1	1
9	SF9	0	0	0	0	0	0	0	0	1

Table III.
Initial reachability matrix

No.	Strengthening factors	1	2	3	4	5	6	7	8	9	Driver
1	SF1	1	0	0	1	0	0	0	0	1	3
2	SF2	1*	1	0	1*	0	0	0	1	1	5
3	SF3	1	1*	1	1	1	0	1	1	1	8
4	SF4	1	0	0	1	0	0	0	0	1	3
5	SF5	1	1*	0	1	1	0	0	1	1	6
6	SF6	1*	1	1*	1*	1*	1	1	1*	1	9
7	SF7	1	1	1	1*	1*	0	1	1	1	8
8	SF8	1*	1	0	1	0	0	0	1	1	5
9	SF9	0	0	0	0	0	0	0	0	1	1
	Dependence	8	6	3	8	4	1	3	6	9	

Table IV.
Final reachability matrix

3.4 Level partitioning
According to Warfield (1974), the reachability set and the antecedent set are found from the final reachability matrix. The reachability set includes the SF itself and other SFs, where, SF may help to achieve those SFs, whereas the antecedent set includes the SF itself and other SFs, where, SFs may help to achieve that SF. For level partitioning, the following three columns are created: reachability set, antecedent set and intersection set. The intersection of the reachability set and the antecedent set formed the interaction set. If the membership of the reachability set is same as the membership of the intersection set, then it may assign level numbers. As shown in Table V, SF9 has the same reachability set and intersection set. Therefore, customer value proposition will be at level 1.

This top-level element will not reach any higher level from its level. Therefore, in the next step, remove the particular factor and number from the reachability and antecedent sets and perform similar procedures as mentioned above until all partitioning have been completed. Here, further partitioning has been shown in Table VI to Table X.

SF code	Reachability set	Antecedent set	Intersection set	Level
SF1	1,4,9	1,2,3,4,5,6,7,8	1,4	
SF2	1,2,4,8,9	2,3,5,6,7,8	2,8	
SF3	1,2,3,4,5,7,8,9	3,6,7	3,7	
SF4	1,4,9	1,2,3,4,5,6,7,8	1,4	
SF5	1,2,4,5,8,9	3,5,6,7	5	
SF6	1,2,3,4,5,6,7,8,9	6	6	
SF7	1,2,3,4,5,7,8,9	3,6,7	3,7	
SF8	1,2,4,8,9	2,3,5,6,7,8	2,8	
SF9	9	1,2,3,4,5,6,7,8,9	9	I

Table V.
First iteration of
level partitioning

SF code	Reachability set	Antecedent set	Intersection set	Level
SF1	1,4	1,2,3,4,5,6,7,8	1,4	II
SF2	1,2,4,8	2,3,5,6,7,8	2,8	
SF3	1,2,3,4,5,7,8	3,6,7	3,7	
SF4	1,4	1,2,3,4,5,6,7,8	1,4	II
SF5	1,2,4,5,8	3,5,6,7	5	
SF6	1,2,3,4,5,6,7,8	6	6	
SF7	1,2,3,4,5,7,8	3,6,7	3,7	
SF8	1,2,4,8	2,3,5,6,7,8	2,8	

Table VI.
Second iteration of
level partitioning

SF code	Reachability set	Antecedent set	Intersection set	Level
SF2	2,8	2,3,5,6,7,8	2,8	III
SF3	2,3,5,7,8	3,6,7	3,7	
SF5	2,5,8	3,5,6,7	5	
SF6	2,3,5,6,7,8	6	6	
SF7	2,3,5,7,8	3,6,7	3,7	
SF8	2,8	2,3,5,6,7,8	2,8	III

Table VII.
Third iteration of
level partitioning

3.5 Developing the canonical matrix
The final reachability matrix is arranged in the order of levels. The matrix found from this method is the lower triangular matrix. This lower triangular matrix is the canonical matrix that has been shown in Table XI.

3.6 ISM model building

ISM model building starts from the canonical matrix that helps in generation of a digraph. In the digraph, the relationship is shown by an arrow from i to j. In Figure 2, node 6 has a direct relationship with node 3 and node 3 has a direct relationship with node 5, whereas node 6 has an indirect relationship with node 5. It means the initial digraph consists of direct and indirect relations among nodes (SF numbers).

After getting the initial digraph, the next step is to find the final model by removing the indirect relations (transitivity) and replacing the nodes by the statements. The ISM-based model is shown in Figure 3.

	SF code	Reachability set	Antecedent set	Intersection set	Level
Table VIII. Fourth iteration of level partitioning	SF3	3,5,7	3,6,7	3,7	
	SF5	5	3,5,6,7	5	IV
	SF6	3,5,6,7	6	6	
	SF7	3,5,7	3,6,7	3,7	

	SF code	Reachability set	Antecedent set	Intersection set	Level
Table IX. Fifth iteration of level partitioning	SF3	3,7	3,6,7	3,7	V
	SF6	3,6,7	6	6	
	SF7	3,7	3,6,7	3,7	V

	SF code	Reachability set	Antecedent set	Intersection set	Level
Table X. Sixth iteration of level partitioning	SF6	6	6	6	VI

	No.	SFs	9	1	4	2	8	5	3	7	6
	9	SF9	1	0	0	0	0	0	0	0	0
	1	SF1	1	1	1	0	0	0	0	0	0
	4	SF4	1	1	1	0	0	0	0	0	0
	2	SF2	1	1	1	1	1	0	0	0	0
	8	SF8	1	1	1	1	1	0	0	0	0
	5	SF5	1	1	1	1	1	1	0	0	0
	3	SF3	1	1	1	1	1	1	1	1	0
Table XI. Canonical matrix	7	SF7	1	1	1	1	1	1	1	1	0
	6	SF6	1	1	1	1	1	1	1	1	1
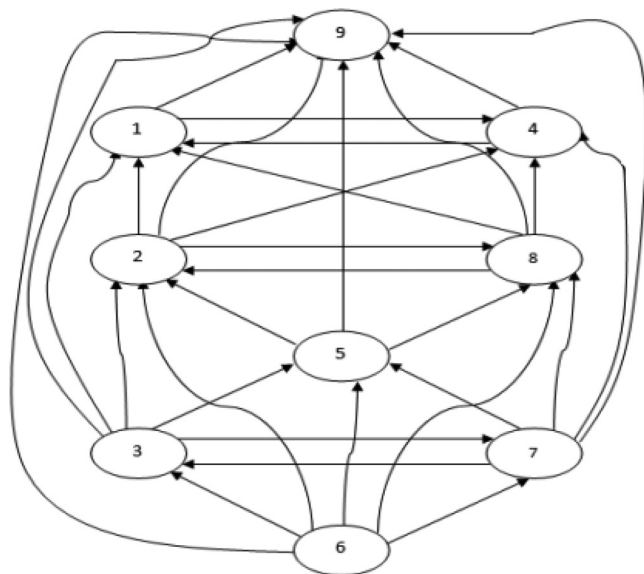
Figure 2.
Digraph of SFs

4. FMICMAC analysis

The FMICMAC analysis stands for Fuzzy Matrice d'Impacts Croises Multiplication Applique' an Classment. The MICMAC analysis uses the final reachability matrix, for classification. The classification in the MICMAC analysis is based on the driving and dependence power that are obtained from the final reachability matrix. In the final reachability matrix (Table IV), relationships of SF6 with SF2, SF3 and SF7 are equal, and the value of the relationship is "1". However, there is no scope for discussion about the strength of the relationship between two variables in terms of very weak, weak, no relation, strong and very strong. To overcome this problem, the FMICMAC is used (Dubey and Ali, 2014). Another reason to use the FMICMAC is that MICMAC uses only binary relationships between identified strengthening factors, whereas the fuzzy-MICMAC approach provides sensitive analysis related to the driving and dependence behaviour of strengthening factors (Gorane and Kant, 2015). In the FMICMAC, there are several procedures, as presented next.

4.1 Direct relationship matrix (DRM)
To obtain the direct relationship matrix (DRM), the transitivity should be ignored, and the diagonal numbers converted to zero. Table XII shows the DRM.

4.2 Fuzzy direct relationship matrix (FDRM)
After getting the DRM, the next step is to find the fuzzy DRM. For this method, a fuzzy scale would be used, as shown in Table XIII.

Now, same experts were contacted again and were requested to assign a value from the fuzzy reachability scale for each relationship that showed the relationship with entries "1" in the DRM and then take the majority value of all the entries. Table XI shows the final DRM. Now, the obtained matrix is fuzzy DRM, as shown in Table XIV.
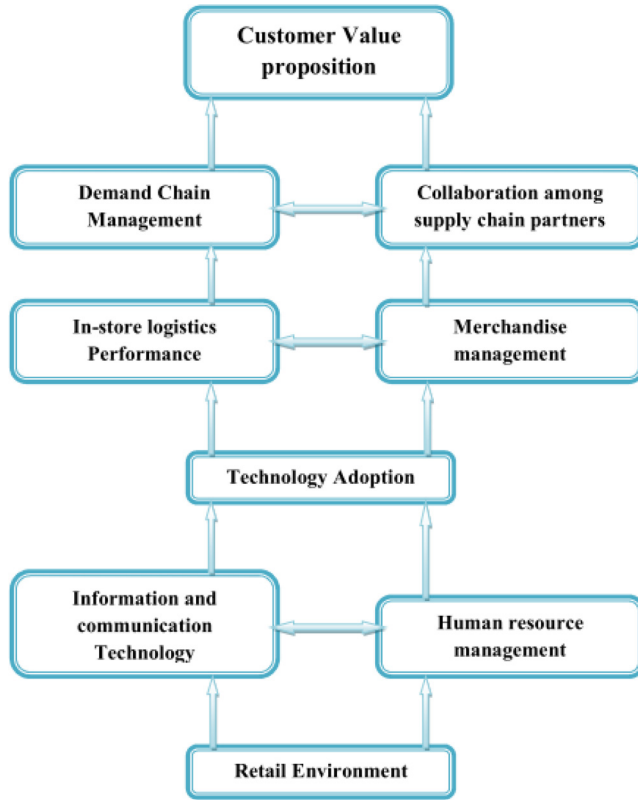
Figure 3.
An interpretive
structural model for
the SFs

No.	SFs	1	2	3	4	5	6	7	8	9
1	SF1	0	0	0	1	0	0	0	0	1
2	SF2	0	0	0	0	0	0	0	1	1
3	SF3	1	0	0	1	1	0	1	1	1
4	SF4	1	0	0	0	0	0	0	0	1
5	SF5	1	0	0	1	0	0	0	1	1
6	SF6	0	1	0	0	0	0	1	0	1
7	SF7	1	1	1	0	0	0	0	1	1
8	SF8	0	1	0	1	0	0	0	0	1
9	SF9	0	0	0	0	0	0	0	0	0

Table XII.
Direct
relationship matrix

4.3 Convergence of direct relationship matrix into stabilized matrix
Zimmermann (1991) stated three types of fuzzy composition to determine the strength of the fuzzy indirect relationship with elements i to j: max-min, max-average and max-product. For this research, the *max-min* is most suitable, as the fuzzy relationships represent the strength of the relationship (Pfohl *et al.*, 2011). To obtain the indirect relationships, the FDRM was

modified based on the computational steps given in the work by Yenradee and Dangton (2000). In the $n \times n$ matrix, the convergence of the matrix was obtained through the fuzzy multiplication, as stated by Zadeh (1965). Matrix multiplication will continue until the stabilization of hierarchies of driver and dependence power. According to the fuzzy set theory, the resultant matrix from multiplication of two fuzzy matrices is also a fuzzy matrix:

$$\mu_c = \max\left[\min\{\mu_a, \mu_b\}\right] \text{ Where, } \mu_a = [a_{ik}] \text{ and} \mu_b = [b_{kj}]$$

The stabilized fuzzy matrix has been shown in Table XV. The driving power is determined by summing the entries of possibilities of interactions in the rows, and the dependence power is determined by summing the entries of possibilities of interactions in the columns.

Duperrin and Godet (1973) introduced the MICMAC method. MICMAC analysis enables one to confirm the importance of items, and uncover those items which are indirectly play an important role and not recognized during direct classification. In the FMICMAC analysis, the factors were classified into four clusters, namely, autonomous, dependent, linkage and driver.

Possibility of reachability	No	Very low	Low	Medium	High	Very high	Complete
Value	0	0.1	0.3	0.5	0.7	0.9	1

Table XIII.
Fuzzy reachability scale

No.	SFs	1	2	3	4	5	6	7	8	9
1	SF1	0	0	0	0.7	0	0	0	0	0.7
2	SF2	0	0	0	0	0	0	0	0.7	0.7
3	SF3	0.9	0	0	0.7	0.7	0	0.5	0.9	0.5
4	SF4	0.5	0	0	0	0	0	0	0	0.3
5	SF5	0.7	0	0	0.7	0	0	0	0.9	0.7
6	SF6	0	0.5	0	0	0	0	0.7	0	0.7
7	SF7	0.3	0.7	0.3	0	0	0	0	0.5	0.7
8	SF8	0	0.7	0	0.5	0	0	0	0	0.7
9	SF9	0	0	0	0	0	0	0	0	0

Table XIV.
Fuzzy direct relationship matrix

No.	SFs	1	2	3	4	5	6	7	8	9	Driver
1	SF1	0.5	0	0	0	0	0	0	0	0.3	0.8
2	SF2	0	0.7	0	0.5	0	0	0	0	0.7	1.9
3	SF3	0.5	0.7	0.3	0.5	0	0	0	0.7	0.7	3.4
4	SF4	0	0	0	0.5	0	0	0	0	0.5	1
5	SF5	0.5	0.7	0	0.5	0	0	0	0	0.7	2.4
6	SF6	0.5	0.7	0.3	0.5	0	0	0	0.5	0.7	3.2
7	SF7	0.5	0.5	0	0.5	0.3	0	0.3	0.7	0.7	3.5
8	SF8	0.5	0	0	0	0	0	0	0.7	0.7	1.9
9	SF9	0	0	0	0	0	0	0	0	0	0
	Dependence	3	3.3	0.6	3	0.3	0	0.3	2.6	5	

Table XV.
Converged direct relationship matrix

5. Discussion and conclusion

The first cluster is autonomous, which has a weak driver and weak dependence power and is relatively disconnected from the system. Figure 4 shows that there are no factors falling under this cluster. It means the managers can consider any factors from nine SFs for improvement and creating any unique offerings. The second cluster is dependent, which has a weak driving power but strong dependence power. DCM (SF1), collaboration among supply chain partners (SF4) and customer value proposition (SF9) fall in this cluster. These factors are at a high level in the factors' ISM hierarchy in Figure 3. The managers should give a high priority when tackling these factors. The third cluster is linkage, which has a strong driving power and strong dependence power. These factors affect other factors and get affected by others factors. In-store logistics performance (SF2) and merchandise management (SF8) fall under this cluster. The fourth cluster is driver or independent, which has a strong driver power and weak dependence power. ICT (SF3), technology adoption (SF5), retail environment (SF6) and HRM (SF7) fall in this cluster. The managements should focus on these factors and treat as main factors of all SFs. These SFs help to achieve other SFs that are at a top level in the ISM hierarchy.

In the manufacturing sector, many works have been done on leanness, agility and other efficiency improvement techniques, but in the retail sector, it is also essential to attract and retain the customer by way of not only the product quality but also with the unique offerings that are recognized by the customers. For a retail store, the CP strategy is responsible for reducing cost and takes customer-oriented actions by which the customer shows loyalty to the store. It is evident that no single factor would be self-sufficient, so it is required to identify and classify the factors. In this research paper, we have developed an integrated model using ISM and FMICMAC, which may be helpful to the retail managers.

For a successful CP strategy, some of the SFs were identified here with the help of an ISM-based model. The fuzzy-ISM model is an upgrade of the original ISM model, which shows a more sensitive structural model rather than a binary structural model. The major finding of
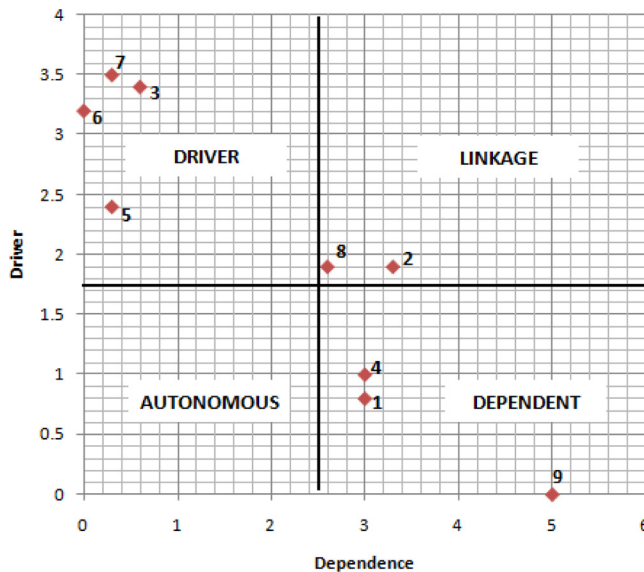

Figure 4.
Clusters of SFs

this paper is that the retail environment, ICT, technology adoption and HRM are the most important factors that need focus. In the ISM hierarchy, retail environment is at the bottom level, and this factor is most important and influences other factors. Technology adoption is a factor on which the retailer should be focused to adopt new technology. The new technology can improve the efficiency of the retailing process as well as add value to customers' shopping.

5.1 Contribution

- From this paper, an attempt has been made to identify the major SFs for positioning a retail store in the market. Many research papers show many SFs, but there is no paper that has attempted to understand the interrelationship among SFs. In addition, there is no paper available on the classification of strengthening factors based on the fuzzy MICMAC method. This study help the top management of retail and practitioners to understand the relationship framework, hence this research has importance in this context.

- A key finding of the research is that the retail environment (SF6) is the significant strengthening factor for any retail store. There are three others factors that have the highest driver power, namely, ICT (SF3), technology adoption (SF5) and HRM (SF7). Therefore, the managers should focus on these factors and provide some unique offerings to add some value to the customers.

- This ISM-based model of SFs can help the practitioners and academics during planning for the CP strategy. The managers should thoroughly see the action of the factors' hierarchy and not choose any SFs randomly.

- Another finding of the paper is that in-store logistics performance (SF2) and merchandise management (SF8) are at the upper and the right corner of Figure 4. This corner is linkage and plays the middle-level role in which the factors are unstable and have a high driver and high dependent power. There should be a careful study on the factors, and these factors have a significantly higher driver power and affect the top-most factor too.

5.2 Managerial implications

Jurevicius (2013) stated that a combination of internal and external factors could help to achieve sustainable competitive advantage. There are few papers on the CP of retail stores and focused only on internal factors (skills and/or capabilities). Therefore, it is required to find both the internal (RBV) and external factors. The ISM method renovates unclear and unstructured variables related to an issue into visible, well-formatted models, which is valuable for many purposes.

It is important for the management of retail stores to understand the characteristics and interrelationships among factors for achieving a position in the market. With the help of this study, the top management of retail stores can better understand about the interaction of factors (internal and external) and become aware about the hierarchy of factors and use them one by one as per organizational requirement. Retailers can achieve a competitive position in the market if they successfully implement the developed hierarchy. Some key points of the clusters are as follows:

- In the first cluster (autonomous), there are no SFs falling under this cluster. This cluster has a weak driver and weak dependent power and is relatively disconnected from the system. Therefore, they do not have much influence on the system. Hence, the managers should not ignore any strengthening factors.

- In the second cluster (dependent), customer value proposition, DCM and collaboration among supply chain partners are weak drivers but strongly dependent on others. They are at the top of the hierarchy (Figure 3). They require all other SFs to maximize the effect of SFs on the implementation of the CP strategy. Therefore, the management should give these high priority.

- In the third cluster (linkage), there are no factors falling under this cluster. If factors fall under this cluster and if a change occur in any of those factors then this change may affect other factors and also give feedback itself. Therefore, these are unstable, and managers should carefully handle these factors.

- In the fourth cluster (driver), ICT, technology adoption, retail environment and HRM are strong drivers but weakly dependent. Therefore, it is also known as the independent cluster. Thus, the management should focus more cautiously on these factors. These factors can help to achieve those factors, which are at the top of the ISM hierarchy model.

5.3 Limitation and scope of future work

The ISM model was developed, and the FMICMAC analysis was done through the group judgement of experts and academicians. the judgement is subjective, and few experts participated. If any biasing is found in the experts' judgement, then it may affect the result. The efforts to gather more opinions from experts are also not sufficient. A brief questionnaire survey with large data can be one of the ways to catch the insight on these SFs from more industries. Structural equation modelling can be used to validate the hypothetical model in the future research.

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