CHAPTER 5

MODELING OF BARRIER IN THE ADOPTION OF OMNICHANNEL MARKETING

5.1 Introduction

Omnichannel adoption is becoming popular in businesses. Due to the advancement of digital technology, businesses are trying to cope with a more complicated market environment. These technological advancements facilitate deeper interactions between sellers and customers, bridging the gap between offline and online purchasing channels (Solem et al., 2022). With the growing comfort and reliance on digital technology, consumers now prefer the convenience of mobile devices, enabling them to make purchases anytime, anywhere (Immonen and Sintonen, 2015; Rana et al., 2019), thereby significantly influencing both their daily lives and business interactions (Salvietti et al., 2022).

Concurrently, heightened consumer expectations have fueled the demand for retail organizations to seamlessly integrate all available channels (Herhausen et al., 2015). This necessitates a shift from traditional multichannel approaches to more integrated omnichannel strategies (Beck and Rygl, 2015). Unlike multichannel approaches, where there is a clear separation between physical and online stores, omnichannel frameworks offer customers the flexibility to seamlessly navigate between various channels, including personal computers, mobile devices, and physical stores, all within a single transaction process. This integration enables functionalities such as "click and collect," "order in-store, deliver home," "order online, return to the store," and "showrooms" (Piotrowicz and Cuthbertson, 2014). Considering these trends, embracing omnichannel marketing is a

strategic option for businesses aiming to maintain relevance and competitiveness in today's dynamic marketplace. By providing a seamless and integrated shopping experience across multiple channels, businesses can effectively meet modern consumers' evolving needs and preferences, ultimately driving customer satisfaction and loyalty.

In Chapter 4, the customer requirements are identified, and they are ranked customer’s requirements according to their importance. Chapter 4 also discussed the technical requirements to fulfil the customer requirements. The study suggests that online marketing and sales are necessary to fulfil customer requirements. However, it has often been observed that the practitioner faces problems in planning and implementing online marketing in the handloom sector. Thus, there is a need to identify the barriers to omnichannel marketing. This chapter works on the following research objectives.:

- Identification of the barriers affecting omnichannel adoption in the handloom industry and their inter-relationships.
- Prioritization through ranking the barriers to learn their effect on implementing omnichannel in the handloom industry.

Some businesses have begun adopting omnichannel strategies to provide seamless experiences to their consumers (Salvietti et al., 2022). In practice, merchants profit from the omnichannel business model in various ways, including increased consumer loyalty, encouraging purchasing behavior, boosting shopping delight, and improving perceived value (Cheah et al., 2020). Meanwhile, the availability of product pricing and information, along with the aggregation of offline and online material, has made marketing more competitive (Ye et al., 2018; Climent et al., 2021). According to Verhoef et al. (2007), a buyer searches for a product online before purchasing it at a physical store. Another prevalent activity is showrooming, when a customer views a product in a store, searches

for the best price online, and then requests that the merchant match the price (Gustafson, 2014). Customers nowadays expect speedy delivery of their ordered products. To fulfill customers' demands, the sector must improve logistics facilities for express delivery or even same-day delivery. Sometimes, this is also insufficient, and some customers request that their online orders be picked up in-store within hours after purchase (Akter et al., 2021). According to a study (Chen et al., 2018), consumers who use numerous channels to communicate with a single retailer had better levels of happiness and loyalty.

The textile industry has undergone a significant digital transformation over the last three decades, and the role of the physical store has begun to shift from a primary shopping destination to a showroom in many contexts, as online retail has increasingly emerged as a tool for building more meaningful customer experiences (Hänninen et al., 2021).

The handloom sector in India is the country's second-largest unorganized sector (Grace Annapoorani, 2021). Unlike other industries in India, most handloom weavers are located in rural areas, and business is extremely fragmented, dynamic, and composed of different types of weavers. The handloom sector does not have a homogeneous and centralized market. Instead, it has a variety of small marketplaces based on demographic, economic, and cultural differences. With the increased technology usage in recent years, e-commerce platforms brought changes in selling strategies. Where social media marketing, professional websites, and e-commerce platforms are reached in rural regions, it creates an opportunity for small-scale industrial handloom weavers to sell their products anywhere at any time. However, adopting the omnichannel in the handloom sector is not easy because of its specific characteristics; along with it, it is also subjected to many barriers that restrict adoption.

Despite the advanced technology, some of the weavers are unwilling to change from multichannel to omnichannel marketing because of transformation challenges. Omnichannel shopping relies on massive pools of data from websites, mobile applications, and other platforms to optimize operations, in which data privacy remains a significant issue (Cheah et al., 2020). Even though omnichannel implementation is subjected to certain challenges, but there are many research that provides the success story of the omnichannel in the other sector. According to Barbosa and Casais (2022), Herhausen et al. (2015), and Salvietti et al. (2022), there has been a paucity of academic literature on the Indian handloom sector's adoption of omnichannel. According to Ya et al. (2018), short product lifecycles, high market volatility, low demand predictability, and a high number of impulse purchases are the major concern in channel transformations, which are equally applicable to the retail as well as the handloom sector. While the pandemic has caused a shift in customer purchasing habits, small and medium-sized brand stores have seen a drop in sales, while online clothes sales have increased (Khurana, 2022).

According to a study of the available literature, most research on omnichannel tends to focus on organized and developed retail markets (Verhoef et al., 2015; Picout-Coupey et al., 2015). Only a little attention has been paid to unorganized and small sectors like the handloom sector. Considering the importance of the handloom sector and the advantages of implementing omnichannel for the success of the handloom sector, this research focuses on studying the barriers to adopting the omnichannel. Difficulties are usually encountered in adopting technology due to a lack of understanding of new technology. The omnichannel retailing barriers identified in developed countries may play a completely different function or have a dramatically different influence in the Indian handloom sector. Therefore, this research is focused on identifying and analyzing the barriers to the adoption of omnichannel in the handloom sector of a developing nation.

From the above discussion, it is evident that there is much research available on the factors enabling omnichannel. However, very few research articles focus on barriers to implementing the omnichannel in India. So, we are focusing on the barriers to omnichannel adoption in the Indian handloom sector. In this study, 15 factors were finalized as representative factors influencing omnichannel retailing in the handloom sector. Though most of the available omnichannel-related literature is focused to the retail sector, however, the expert's response suggests that the omnichannel concept is equally applicable to the textile and handloom sector. Thus, in this research, the concept of the omnichannel and the barriers inhibiting its successful implementation in the handloom sector are discussed and analyzed in the following sections. In total, 23 barriers (Table 5.1) are identified and thoroughly discussed with the academic and sector experts (Table 5.2). Based on the expert's opinion and suggestion, the following barriers are found to be feasible and analyzed for the case sector.

Table 5.1: Barriers for omnichannel adoption previous studies

Sr. No.	Barrier
1	lack of understanding and commitment of management regarding omnichannel (UC)
2	Lack of digital culture (DC)
3	lack of qualified /skilled workers (QS)
4	High implementation cost (IC)
5	Lack of Internet access and IT infrastructure in rural areas (IT)
6	Lack of Integrated distribution network and stores for omnichannel fulfillment (NS)
7	Uncertainty in the law and contracts with partners (LC)
8	Fear of failing (FF)
9	Lack of government support and policies (GP)
10	Payment scams and false claims (PC)
11	Privacy and consent issues about the design of the product (PI)
12	The issue with reverse logistics (RL)
13	The issue with forward logistics (FL)
14	Withdrawal from purchase (WP)
15	Production scalability issue (PS)
16	Lack of channel performance measurement metrics
17	Customer analytics (CA)

18	High cost of packaging, delivery and return (HP)
19	Lack of loyalty program integration across the channels (LPI)
20	Difficulty in inventory allocation and assortment management (IAM)
21	Inability to incorporate geographical variations in a network (GV)
22	Lack of alignment of offers/ discounts/promotions across channels (ADP)
23	Lack of reward for employees to promote omnichannel retailing (PM)

Table 5.2: The demographic profile of the experts

Sr. No.	**Respondent type**	**Sex**	**Age**	**Working Experience**
1	Master weaver 1	Male	51	26
2	Master weaver 2	Female	49	20
3	Master weaver 3	Male	52	21
4	Cooperative society weaver 1	Female	58	30
5	Cooperative society weaver 2	Male	53	27
6	Cooperative society weaver 3	Male	54	25
7	Independent weaver 1	Male	65	30
8	Independent weaver 2	Female	54	20
9	Independent weaver 3	Male	49	18
10	Academic expert 1	Female	46	15
11	Academic expert 2	Male	56	18
12	Academic expert 3	Female	58	20

This chapter first explains the omnichannel characteristics and barriers in industries. Next, identify important barriers that have a significant impact on the adoption of omnichannel in the Handloom sector and develop a hierarchy of barriers based on their driving power and dependence. For the study, the experts are selected form the handloom sector solely based on their experience. Initially, we contacted 25 experts, of which 12 experts agreed to participate in our research study. The demographic profile of the experts is shown in Table 5.2. The number of experts for this study is decided based on previous research studies, such as Majumdar and Sinha (2019), Deepu and Ravi (2022), and Chen et al. (2022), who considered 6,4,9 experts for their empirical analysis. The experts are interviewed personally in two stages to collect the responses (Liu et al., 2018; Yadav and Samuel, 2021). In the first step, the barriers identified through literature (Table 5.1) are discussed with the experts to find their relevancy with the sector, adequacy, and similarity.

After discussion with all the experts, their suggestions are incorporated to finalize barriers (Table 5.3). The interpretive structural modelling (ISM) and MICMAC analysis inputs are collected in the second step. To deal with discrepancies in the expert's response, a 70% rule was employed (Singh and Samuel, 2018; Yadav and Samuel, 2021). ISM clusters the barriers into four important groups along with their hierarchy, representing their ability to influence other barriers.

Table 5.3: Barriers to omnichannel adoption

Sr. No.	Barrier	Description	References
1	lack of understanding and commitment of management regarding omnichannel (UC)	Due to a lack of understanding and experience in this sector, managers may be hesitant to deploy omnichannel.	Orzes et al., 2018; Ye et al., 2018; Ajmera and Jain, 2019; Devi et al., 2021; Majumdar et al., 2021; Sharma and Joshi 2021
2	Lack of digital culture (DC)	Lack of knowledge about digital platforms, weavers are unable to employ digital technology in their business. The primary necessity for exploring the omnichannel is digitisation and its integration into organisational culture.	Simone and Sabbadin, 2018; Rajput and Singh, 2019; Sharma et al., 2019; Raj et al., 2020; Majumdar et al., 2021; Sharma and Joshi, 2021; Wang et al., 2021
3	lack of qualified /skilled workers (QS)	A greater degree of expertise and ability is necessary to manage online and offline orders and inventories. Current staff may be unfamiliar with how to use the new technology.	Kamble et al., 2018; Ye et al., 2018; De Borba et al., 2020; Liu and Nagula, 2020; Luthra et al., 2020; Devi et al., 2021; Majumdar et al., 2021
4	High implementation cost (IC)	An omnichannel distribution network would need infrastructures such as IoT and new physical stores and significant capital and maintenance costs.	Ye et al., 2018; Zhang et al., 2018 De Borba et al., 2020; Liu and Nagula 2020; Majumdar et al., 2021; Raj et al., 2020; Sharma and Joshi, 2021
5	Lack of Internet access and IT infrastructure in rural areas (IT)	The majority of the handloom units are in rural locations with limited internet access.	Kamble et al., 2018; Devi et al., 2021; Majumdar et al., 2021

6	Lack of Integrated distribution network and stores for omnichannel fulfilment (NS)	Coordination and collaboration among all organisational units and partners are required for better sales. The conflict between employees in different channels will result in client loss.	Murfield et al., 2017; Simone and Sabbadin, 2018; Ye et al., 2018; Sharma et al.,2019; De Borba et al., 2020; Luthra et al., 2020; Majumdar et al., 2021
7	Uncertainty in the law and contracts with partners (LC)	Rules concerning data protection, tenure of supply of goods, profit sharing percentage, and level of service.	Rauch et al., 2019; Majumdar et al., 2021
8	Fear of failing (FF)	There is a paucity of documented evidence on changing old business models to omnichannel marketing models in handloom units. Poor channel performance might result in loss of customers and low return on investment.	Ye et al., 2018; Rana et al., 2019; Majumdar et al., 2021
9	Lack of government support and policies (GP)	Government agencies are failing to provide adequate direction and assistance for transforming traditional business marketing into omnichannel marketing.	Luthra and Mangla, 2018; Luthra et al.,2020; Majumdar et al., 2021
10	Payment scams and false claims (PC)	Obtaining material from weavers by showing incorrect transaction details and claiming money for the delivery of goods	Button et al., 2014; Maimon et al., 2019; Sangal et al., 2022
11	Privacy and consent issues about the design of the product (PI)	Power looms and competitors may copy handloom weavers' unique designs and color combinations.	Sharma et al., 2019; Sangal et al., 2022
12	The issue with reverse logistics (RL)	Delay of pickup, need of the expertise for checking of product before accepting form customer.	Tanusree, 2015; Thiyagarajan and Ali, 2016; Murfield et al., 2017; Sarkar et al., 2019; De Borba et al., 2020
13	The issue with forward logistics (FL)	Lost inventory, stockouts, and delays in transportation.	Sarkar et al., 2019; Sun, 2019; Mishra,2020; Mishra et al., 2022

14	Withdrawal from purchase (WP)	Cancellation of the online purchase after ordering due to dissatisfaction with the goods (size, color, design, etc.) or taking a too long time to reach the customer, non-availability at the location by the customer, or purchase elsewhere.	Simone and Sabbadin, 2018; De Borba et al., 2020; Ahmad and Guzmán, 2021
15	Production scalability issue (PS)	Because of scalability considerations like numerous designs and color combinations, large-volume transactions become extremely difficult.	Thomas-Seale et al., 2018; Mishra, 2021; Mishra et al., 2022

5.2 Methodology

The research begins by collecting information from the research papers, followed by an expert interview about omnichannel and its implementation in the handloom sector. A total of twenty-three barriers are identified, which are further segregated into fifteen barriers based on expert opinion. These barriers are found to be most impactful for our case study. These barriers are provided in Table 5.3, and further, for the analysis of these barriers and estimation of their causal dependence relationship, the ISM method, accompanied by the MICMAC method, is used. This approach provides information about which are the most impactful barriers that need to be mitigated first, and thus further helps in policy-making, resource utilization, and overall development of the business.

5.2.1 Interpretive structural modeling (ISM)

Interpretive structural modeling (ISM) was developed by Warfield (1974) to model contextual relationships between the barriers. The advantage of this approach is that it does not require any quantitative data and uses only the decision makers' perception, coded with symbols and binary numbers (Majumdar and Sinha 2019). The Ism methodology is more advantage than other methods as discussed in the section 2.8.3 and the researchers used

this ISM methodology in textile industries for exploring the direct and indirect association among the factors (Raut et al., 2019). A study by Majumdar and Sinha (2019) used the ISM and MICMAC method to analyze the barriers to green textile supply chain management by using the six respondents' focus group discussion. Raut et al. (2019) used ISM and MICMAC methodology to rank the barriers of sustainable textile and apparel supply chain. Similarly, Shaw et al (2022) used ISM and MICMAC model for identifying interrelation between barriers of social sustainability Indian textile and clothing supply chain. Deepu and Ravi (2022) analyzed dependencies among barriers to supply chain digitalization using four respondents' data. Chen et al. (2022) used nine experts' opinions to analyze barriers using the ISM method for photovoltaics in Singapore. This study collected data from twelve experts with different working backgrounds. Three experts are master weavers, three are cooperative society weavers, three are independent weavers, and three are academic experts. All these experts have a minimum of fifteen years of experience in the handloom sector. The demographic profile of the experts is shown in Table 5.2. The steps of the ISM methodology were applied in the step-by-step procedure shown in Figure 5.1.

Step 1: Develop a structural self-interaction matrix (SSIM)

Developing SSIM is the first step in ISM. The relationship between any two barriers was represented by (i and j). The experts were asked to choose the relationship between the barriers. Depending on their experience, they will rate the relationship between barriers using the symbols.

V= Barrier i will influence the barrier j

A= Barrier j will influence the barrier i

X= Equal dependence of i and j over one-another

O= No relation exists between i and j**;** The SSIM for barriers to omnichannel adoption is given in Table 5.4.

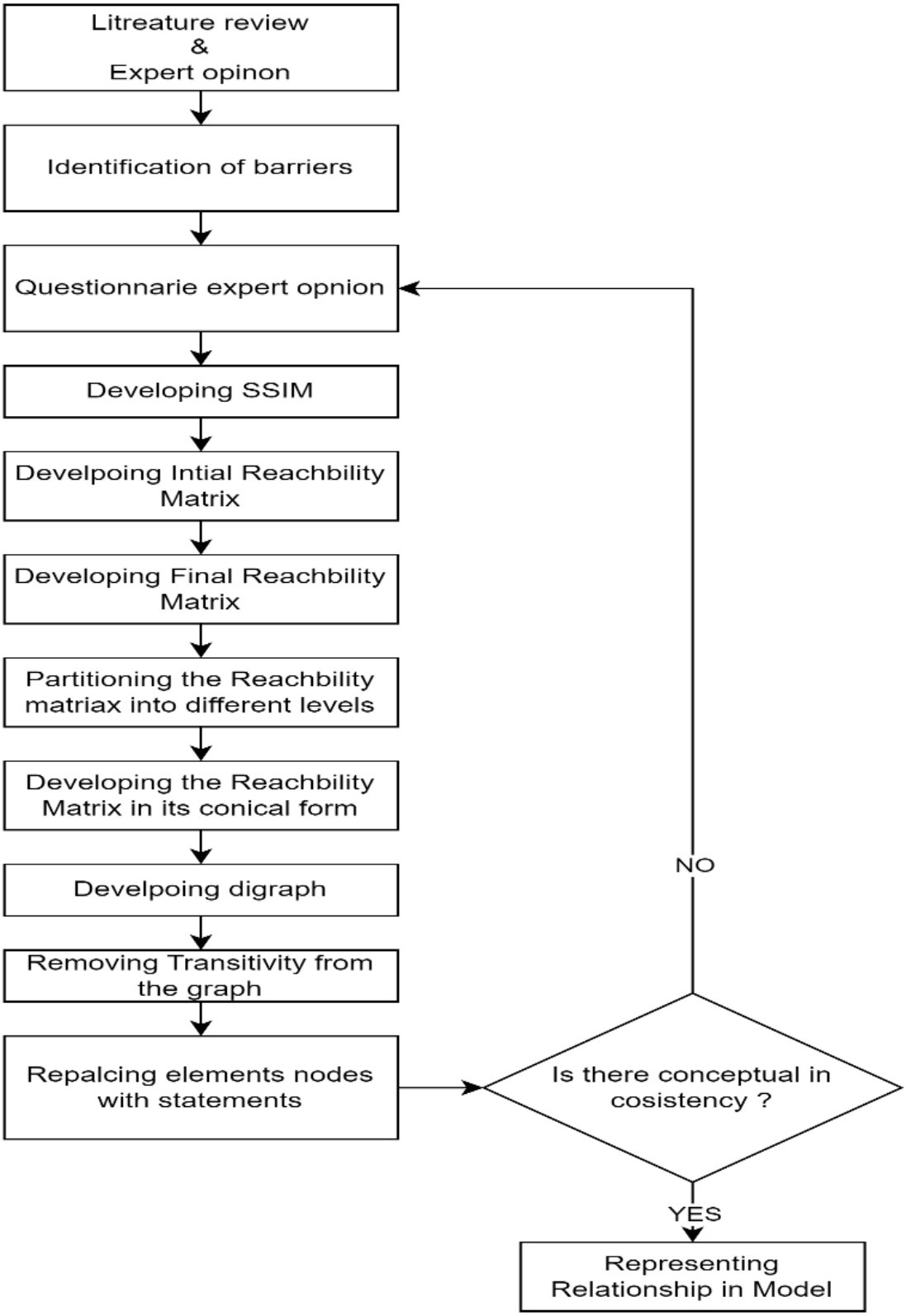

Figure 5.1: Flowchart of ISM research methodology.

Table 5.4: Structural Self-Interaction Matrix (SSIM)

i/j ►	UC	DC	QS	IC	IT	NS	LC	FF	GP	PC	PI	RL	FL	WP	PS
UC	1	A	A	A	A	A	A	A	A	A	A	A	A	A	A
DC	V	1	A	O	A	O	O	V	O	O	O	O	O	O	O
QS	V	V	1	O	O	O	O	V	O	O	O	O	O	O	O
IC	V	O	O	1	O	V	O	V	A	O	O	O	O	O	X
IT	V	V	O	O	1	O	O	O	A	O	O	O	O	O	O
NS	V	O	O	A	O	1	A	V	A	O	O	O	O	O	O
LC	V	O	O	O	O	V	1	V	A	O	V	V	V	O	V
FF	V	A	A	A	O	A	A	1	A	A	A	A	A	A	A
GP	V	O	O	V	V	V	V	V	1	O	V	O	O	O	V
PC	V	O	O	O	O	O	O	V	O	1	O	O	O	O	O
PI	V	O	O	O	O	O	A	V	A	O	1	O	O	O	O
RL	V	O	O	O	O	O	A	V	O	O	O	1	O	V	O
FL	V	O	O	O	O	O	A	V	O	O	O	O	1	V	X
WP	V	O	O	O	O	O	O	V	O	O	O	A	A	1	X
PS	V	O	O	X	O	O	A	V	A	O	O	O	X	X	1

Step 2: Initial Reachability Matrix

It is obtained by converting SSIM to the binary matrix, as provided in Table 5.4. A binary matrix is obtained by following steps:

a) If the relation is V between (i,j), then, in the binary matrix, this relation is replaced with 1, and the corresponding (j, i) relationship is provided with 0.

b) If the relationship between (i,j) is A, then the corresponding (i,j) and (j, i) cell is provided with 0 and 1, respectively.

c) If the relations between (i,j) is X, then the corresponding (i,j) and (j, i) cell is provided with the 1 and 1, respectively.

d) If the relations between (i,j) is O, then the corresponding (i,j) and (j, i) cell is provided with the 0 and 0, respectively.

Table 5.5: Initial Reachability Matrix

i /j	UC	DC	QS	IC	IT	NS	LC	FF	GP	PC	PI	RL	FL	WP	PS
UC	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DC	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0
QS	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0
IC	1	0	0	1	0	1	0	1	0	0	0	0	0	0	1
IT	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0
NS	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0
LC	1	0	0	0	0	1	1	1	0	0	1	1	1	0	1
FF	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0
GP	1	0	0	1	1	1	1	1	1	0	1	0	0	0	1
PC	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0
PI	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0
RL	1	0	0	0	0	0	0	1	0	0	0	1	0	1	0
FL	1	0	0	0	0	0	0	1	0	0	0	0	1	1	1
WP	1	0	0	0	0	0	0	1	0	0	0	0	0	1	1
PS	1	0	0	1	0	0	0	1	0	0	0	0	1	1	1

Step 3: Final reachability matrix

It is obtained by identifying the indirect relationships between the barriers using the transitivity analysis., i.e., if i is related to j and j is related to k, then i is also related to k. The entries 1* indicate transitivity links. The final reachability matrix is shown in Table 5.6.

Table 5.6: Final Reachability Matrix

i/j	UC	DC	QS	IC	IT	NS	LC	FF	GP	PC	PI	RL	FL	WP	PS
UC	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DC	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0
QS	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0
IC	1	0	0	1	0	1	0	1	0	0	0	0	1*	1*	1
IT	1	1	0	0	1	0	0	1*	0	0	0	0	0	0	0
NS	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0
LC	1	0	0	1*	0	1	1	1	0	0	1	1	1	1*	1
FF	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0
GP	1	1*	0	1	1	1	1	1	1	0	1	1*	1*	1*	1
PC	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0
PI	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0
RL	1	0	0	0	0	0	0	1	0	0	0	1	0	1	1*
FL	1	0	0	1*	0	0	0	1	0	0	0	0	1	1	1
WP	1	0	0	1*	0	0	0	1	0	0	0	0	1*	1	1
PS	1	0	0	1	0	1*	0	1	0	0	0	0	1	1	1

Step 4: Levelling the barriers

Barriers are leveled based on their ability to influence the other barriers, such that barriers lie at a higher level, signifying their higher influencing ability. Each barrier is compared for its reachability (influencing) and antecedent (influenced), such that when the reachability set becomes equivalent to the antecedent set, then it is assigned a level. This step is repeated until all the barriers are assigned a level. The top-level barrier is identified as a lack of understanding and commitment of management regarding omnichannel. At this level, two fear of failing is identified. Whereas in level three, four barriers are allotted are lack of digital culture (DC), Payment scams and false claims (PC), Privacy and consent issues about the design of the product (PI), and Lack of Integrated distribution network and stores for omnichannel fulfillment (NS). The remaining identified levels are shown in Table 5.7.

Table 5.7: Level Partitions of Barriers

Sr. No.	Barrier	Reachability Set	Antecedent Set	Intersection Set	Level
1	UC	1	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15	1	I
2	DC	1,2,8	2,3,5,9	2	III
3	QS	1,2,3,8	3	3	IV
4	IC	1,4,6,8,13,14,15	4,7,9,13,14,15	4,13,14,15	V
5	IT	1,2,5,8	5,9	5	IV
6	NS	1,6,8	4,6,7,9,15	6	III
7	LC	1,4,6,7,8,11,12,13,14,15	7,9	7	VIII
8	FF	1,8	2,3,4,5,6,7,8,9,10,11,12,13,14,15	8	II
9	GP	1,2,4,5,6,7,8,9,11,12,13,14,15	9	9	IX
10	PC	1,8,10	10	10	III
11	PI	1,8,11	7,9,11	11	III
12	RL	1,8,12,14,15	7,9,12	12	VII
13	FL	1,4,8,13,14,15	4,7,9,13,14,15	4,13,14,15	VI

14	WP	1,4,8,13,14,15	4,7,9,12,13,14,15	4,13,14,15	VI
15	PS	1,4,6,8,13,14,15	4,7,9,12,13,14,15	4,13,14,15	VI

Step 5: Formation of the ISM Model

The levels listed in Table 5.7, Modelling Barrier in Adoption of omnichannel Marketing in Handloom sector in Varanasi, are presented in Figure 5.2.

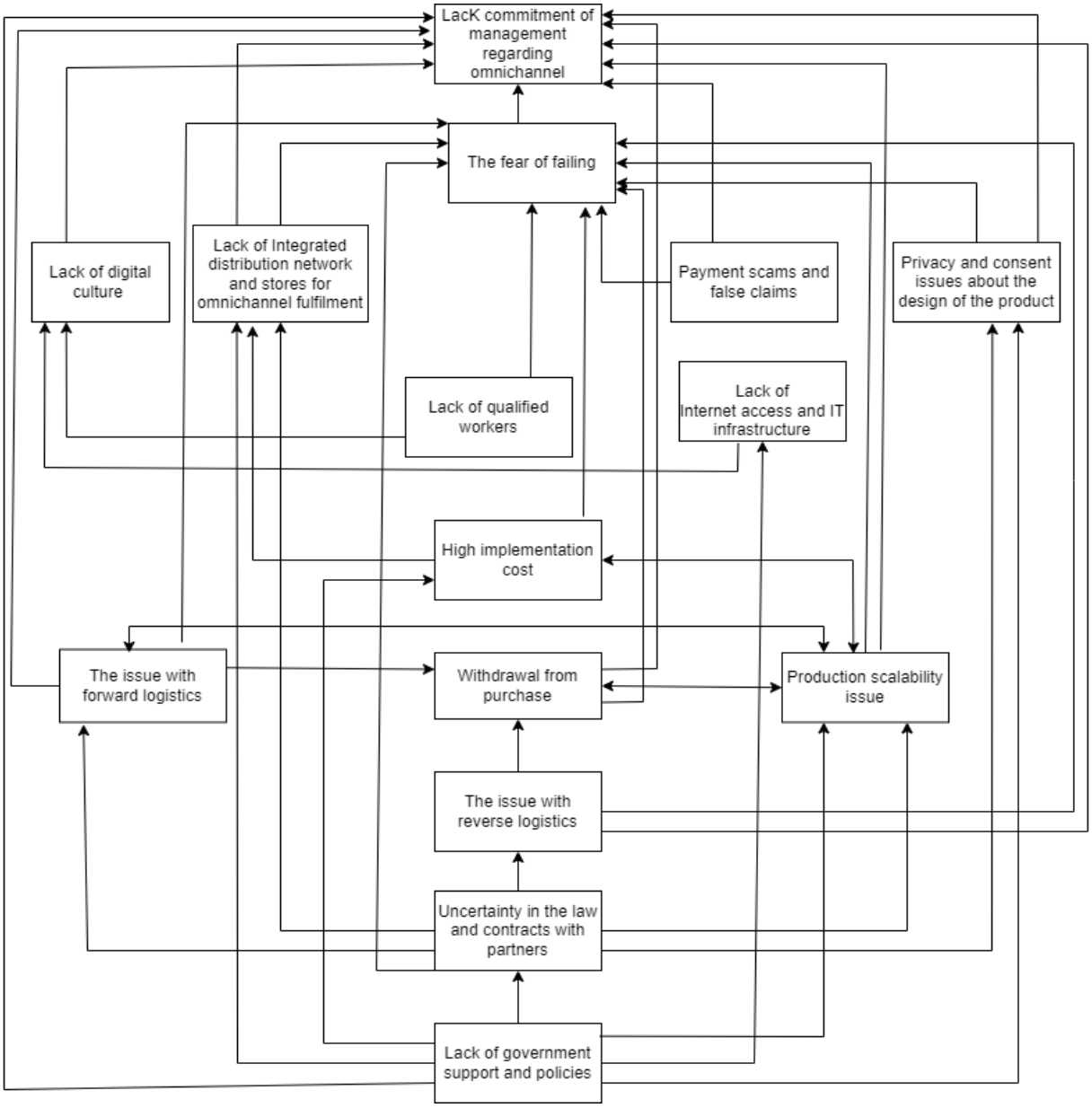

Figure 5.2: ISM Framework for omnichannel implementation.

5.2.2 MICMAC analysis.

This approach is used to cluster the barriers based on their similarity of driving and dependence power. Where the driving power of a barrier signifies the number of barriers to which it is influencing, and dependence power is the number of barriers that are influencing. In this driving, power is plotted on the Y-axis, and the dependence power is plotted on the x-axis. Based on the barrier's relationships, the four clusters can be made, namely, autonomous barriers, which are less related to the other barriers; linkage barriers, which are highly related to one another; driving barriers, which influence a greater number of other barriers; and driven-barriers which are dependent or influenced by other barriers. For example, a lack of digital culture (DC) has a driving power of three and a dependence of four. This implies that DC influences or drives three barriers and is influenced or driven by four barriers.

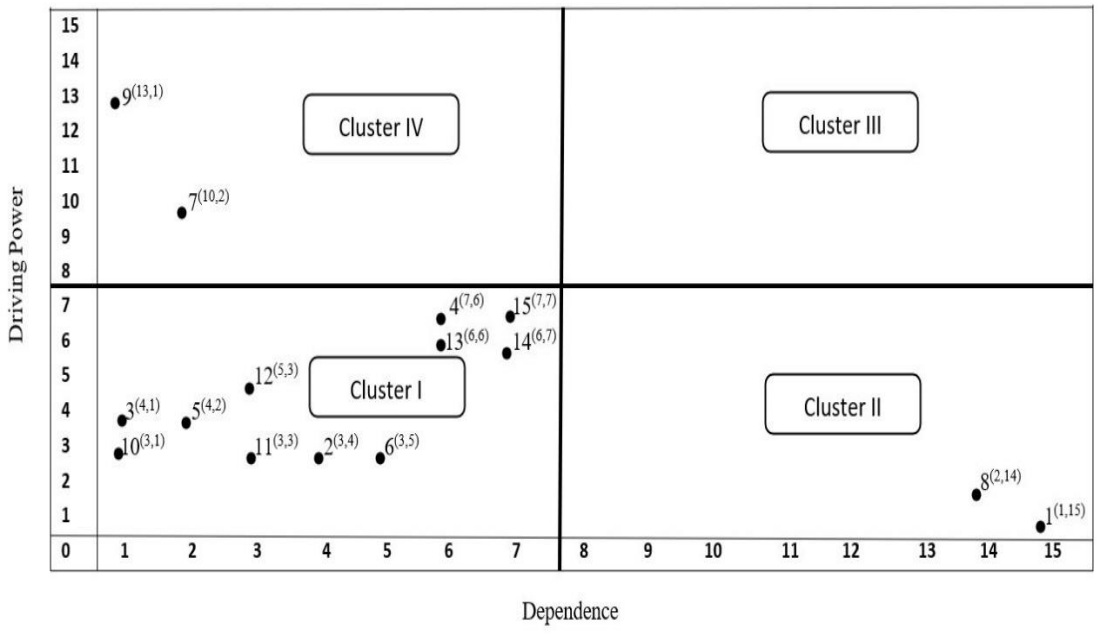

Figure 5.3: Driving power and dependence on barriers.

5.3 Results and Discussion

From the above discussion, it is evident that omnichannel implementation in the handloom sector is subject to the mitigation of several barriers. Further, the expert's response shows that most of these barriers are very much interrelated with each other. The interrelationships among the barriers are presented through the A, V, X, and O. These interrelationships are tabulated in the SSIM matrix (Table 5.4). Moreover, the barriers that are not directly related are found to be indirectly related to one another, which is obtained by testing the transitivity of their relationships. These indirect relationships among the barriers are provided by 1* of Table 5.6. Considering the causal dependence relationships among the barriers, these barriers are leveled into nine levels, such that level 9 barriers are the most influencing. These levels of the barriers along with their causal dependence relationships, are used to pictorially represent the barriers in terms of their influencing ability and dependence over one another, also called digraphs (Figure 5.2). Figure 5.2 digraph shows the interrelationship between the barriers to omnichannel adoption in the handloom sector. The barriers are arranged in the nine levels in a hierarchical structure. The barrier of a higher level of the hierarchy drives the barriers of lower levels. The findings reveal that these barriers belong to nine different levels, where the first level of the hierarchy includes a lack of understanding and commitment of management regarding omnichannel (UC). The second level includes fear of failing (FF). The third level includes a lack of digital culture (DC), a Lack of Integrated distribution network and stores for omnichannel fulfillment (NS), Payment scams and false claims (PC), and Privacy and consent issues about the design of the product (PI). The fourth level includes the lack of qualified /skilled workers (QS) and lack of Internet access and IT infrastructure in rural areas (IT). The fifth level includes High implementation cost (IC). The sixth level includes the issue with forward logistics (FL), withdrawal from purchase (WP), and Production

scalability issues (PS). The seventh level includes the issue of reverse logistics (RL). The Eight level indicates uncertainty in the law and contracts with partners (LC). The ninth level includes a lack of government support and policies (GP).

The level 9 barriers, i.e., government support and policies, play a vital role in adapting new ideas and opportunities (Harrington and Hsu, 2018), and their policy will greatly impact technology adoption and workforce competitiveness (Aris et al., 2019). To decrease the influence of the barrier, the government needs to make policies by frequently communicating with the weavers to deal with the regulatory issues in the adoption of the omnichannel and also needs to provide policies related to financial and technical support to encourage handloom weavers. In the omnichannel, the partnership between the two channels can create a win–win hybrid structure Chopra, (2016). However, the uncertainty among the partners can create a loss in the business. In the smooth flow of goods to customers in omnichannel, the logistics service plays an important role by providing a common interface that is used to process the orders (Mishra, 2021). A study by Waqas et al. (2018) also explains that logistics is a critical barrier in developing countries because of the lack of skilled professionals and the lack of companies' policies related to logistics. Further, our findings are also in accordance with Kaviani et al. (2020) regarding the impact of logistics on business success. Thus, reverse logistics and forward logistics are critical to dealing with online order fulfillment because of their size in terms of products and transactions. Consumers have the time to withdraw from the order if they are not satisfied by the customer. In this study, the uncertainty with the partners has an effect on the forward logistics, reverse logistics, production scalability, and privacy issues. The uncertainty in the business partners can delay the logistics and can also affect the customer's withdrawal from the purchase. The studies of De Borba et al. (2020) also revealed that if customers are dissatisfied with the delivered order, they will withdraw from the purchase, which can have

a significant impact on omnichannel retailing. The payment scam's privacy of design products, lack of distribution network and stores, lack of digital culture, lack of qualified workers, and the fear of failing are leading to not committing omnichannel adoption in the handloom sector.

Figure 5.3 of the MICMAC analysis presents the positions of 15 barriers according to their driving power and dependence. The eleven autonomous barriers in cluster I have low driving and driven power, signifying their lesser inter-dependence (Majumdar and Sinha,2019). These autonomous barriers need to be independently handled. Management's lack of understanding and commitment regarding omnichannel is the most dependent barrier, followed by the fear of failing dependent barriers positioned in cluster II. There are no linkage elements in cluster III. Uncertainty in the law and contracts with partners (LC) and lack of government support and policies (GP) are the driving barriers in cluster IV. Barriers belonging to the driving group suggest their causal impact on other barriers; thus, these barriers need to be mitigated first, followed by the autonomous and the dependent barriers.

5.4 Conclusions

This research preliminarily explored the critical barriers to adopting omnichannel in the handloom sector. Through an extensive literature review, sector reports, and expert feedback, a total of 15 key barriers were identified and analyzed. The ISM method was used to construct a hierarchical model and determine the relationships among factors. Further, MICMAC analysis provides information about the driving strengths and dependence on one another, based on their dependence and driving power, and classifies them into four clusters. The autonomous barriers are obtained to be "DC," "QC," "IC," "IT," "NS," "PC," "PI," "RL," "FL," "WP," and "PS." "UC" and "FF" are considered

independent barriers. "LC" and "GP" are considered the driving barriers to omnichannel adoption in the handloom sector. The lack of government support to adopt friendly policies. So, the government should give more attention to making policies and providing support for implementing omnichannel adoption in the handloom sector.

In conclusion, the Indian handloom sector, despite being the second largest unorganized sector in India, faces significant challenges in accessing global markets and leveraging technological advancements. However, the adoption of new technology brings inherent risks, which can be mitigated through comprehensive risk identification and analysis. Implementing omnichannel strategies in the handloom sector necessitates a holistic approach, with this study offering valuable insights for practitioners seeking to navigate this transition. Through the application of Interpretive Structural Modeling (ISM), the study provides a hierarchical understanding of dependencies and barriers, facilitating informed decision-making. By classifying barriers into different levels, decision-makers can prioritize addressing highly influential barriers while addressing lower-influential ones progressively. Furthermore, the study recommends that policymakers in the handloom sector develop policies to address uncertainties related to partnerships, implementation costs, IT infrastructure, and scalability. The adoption of omnichannel strategies not only presents economic opportunities but also has social implications, such as increased reachability of handloom products, heightened demand, and improved livelihoods for weavers. In summary, the adoption of omnichannel approaches and the management of associated barriers offer significant potential for the handloom sector to raise its competitiveness, profitability.

This ISM model is based on the case study of the Varanasi handloom sector in India, and this model may be biased and limited to this sector. However, this model can be

generalized in other sectors, which may require modifications in the contextual relationships among the variables. In the present work, fifteen barriers are identified for modeling barriers to omnichannel adoption in the sector. In future work, the additional barriers can be identified from other sectors, and these can be analyzed by using multi-criteria decision-making (MCDM) tools such as the analytical hierarchical process (AHP) and analytic network process (ANP).

In this chapter, we delved into the concept of omnichannel marketing and the various barriers associated with its implementation within the context of enhancing online sales and marketing in the handloom industry. As we continue to explore new technologies, we recognize the significance of augmented reality in revolutionizing online marketing and sales. Therefore, in the upcoming chapter, we will discuss augmented reality technology in marketing and its barriers to application within the handloom sector.