ORIGINAL RESEARCH

Prioritizing the Challenges Faced in Achieving International Competitiveness by Export-Oriented Indian SMEs: a DEMATEL Approach

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Abstract

The nature of foreign markets, as well as the issues Small and Medium Enterprises (SMEs) face in terms of competitiveness, necessitates this study. The paper aims to analyze the challenges of export-oriented Indian SMEs for International Competitiveness. The paper explores challenges and cause-and-effect relations between them using the decision-making trial and evaluation laboratory technique (DEMATEL), and this study will assist in gaining international competitiveness for SMEs. A detailed literature review was conducted to identify various challenges to international competitiveness. Questionnaires were formed for data collection and the DEMATEL method has been employed for developing causal relationships. The findings show that "Less International Experience" and "Insufficient Information" are critical challenges for SMEs in gaining international competitiveness. Challenges were prioritized, along with the cause-and-effect correlations among them, so that decision-makers could focus on overcoming them to gain international Competitiveness. The goal of the study is to help executives recognize the challenges to international competitiveness in their respective businesses. The novelty of this paper lies in its empirical studies in the field of Indian SMEs to employ the DEMATEL method framework as a foundation for finding cause-effect connections across International Competitiveness challenges.

Keywords International competitiveness · Small and medium enterprises · DEMATEL · Decision-making · India · Export

Introduction

SMEs are the backbone of most countries. The survival and success of SMEs are critical for generating employment and economy for developing nations. SMEs have an advantage over large firms due to their fast and flexible decision-making process (Singh et al., 2008). The strength of SMEs is in their entrepreneurial dynamism, flexibility, efficiency, and fast decision-making process. In contrast, large firms have more resources and better respond to export barriers than SMEs which make them more competitive in the international market (Calof et al., 1995). Small businesses in developing countries help to alleviate poverty, create jobs, improve literacy rates, and alleviate the weight of various

social issues. As a result, it is worthwhile to investigate the factors influencing Indian SMEs' ability to internationalize.

For a long time, India's micro, small, and medium enterprises (MSMEs) sector has been the focus of attention. There are about 63 million MSMEs in India, which employ around 110 million people and are a vital part of the economy. Most Indian SMEs, on the other hand, continue to struggle with a lack of competitiveness, particularly when compared to their worldwide counterparts. The problem is structural: our SMEs aren't growing and scope, with 99% of India's projected 60 million SMEs remaining micro-enterprises throughout their lives, with limited resources and goals. International-oriented SMEs that use dynamic strategies, on the other hand, are more likely to have the technological, organizational, and management competencies needed to ensure long-term viability and growth (Audretsch et al., 2014). The internationalization of SMEs has become a critical component of most countries' growth strategies. The majority of research suggests that this issue merits more attention than simply adding another survey to the mix

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(Kahiya, 2018). It is necessary to understand the concept of competitiveness and related different theories for SMEs.

Academics, policymakers, and business leaders are all interested in international competitiveness, especially in cases of globalization that affect the competitive landscape. The academic debate over international competitiveness is centered on the absence of a widely accepted theory regarding the origins of international competitiveness (Anca, 2012). Despite the scarcity of comprehensive reviews of existing international competitiveness literature, the works of (Ambastha,& Momaya, 2004; Bhawsar & Chattopadhyay, 2015; Olczyk, 2016) provide information on the definitions, dimensions, origins, and measurements of various concepts in international competitiveness. "International Competitiveness"(Fagerberg, 1988) is the most cited work on international competitiveness, which discovered that technological advancement and manufacturing capacity are more important for economic growth than cost competitiveness; and "Competitiveness: A Dangerous Obsession" (Krugman, 1994), where the debate over international competitiveness becomes a debate over international trade. Four wide approaches to international competitiveness according to (Buitrago & Barbosa, 2021) first approach focuses on macro indicators to measure "the set of institutions and economic policies supportive of high rates of economic growth in the medium term." Porter's second approach focuses on microeconomic indicators to measure the "set of institutions, market structures, and economic policies that support high current levels of prosperity."(Schwab, Porter, & Sachs, 2002). The third approach considers "the ability of firms engaged in value-added activities in a specific industry in a specific country to sustain this value-added over long periods in the face of international competition."(Chang et al., 1998). Finally, according to the OECD's fourth approach, "competitiveness is the degree to which a nation can, under free trade and fair market conditions, produce goods and services that meet the test of international markets while simultaneously maintaining and expanding its people's real income over the long term."

When we analyze qualitative dimensions, we gain more insight into the competitiveness problems faced by Indian-owned businesses. Many Indian firms may not be regarded as competitive enough, particularly on an international level, to solve a basic concern of international competitiveness. Businesses fail to consider 'International competitiveness' holistically, and as a result, they confront a survival problem as they lose competitiveness not only in India's large home market but also in its many regions (Momaya, 2019). A recent study has studied this topic using data at the firm, national, and international levels, taking into account the problems and challenges that SMEs face (Ferreira et al., 2020; Musteen et al., 2010). The discontinuity has the greatest impact on SMEs, but those that focus on competitiveness can survive and recover. It has been challenging to apply extensive theories to small firm internationalization decisions and processes.

Considering the foregoing, we are particularly interested in pursuing research questions such as:

RQ1. What are the most significant obstacles that SMEs confront in achieving international competitiveness?

RQ2. How do these challenges relate to one another in terms of cause and effect?

RQ3. What are the priority levels among these challenges?

International Competitiveness Challenges for SMEs were identified and validated using expert comments and a literature review and shortlisted using the Delphi method. Selected experts have extensive experience in the subject of International Competitiveness, and the proposed model is based on their input. DEMATEL is a multi-criteria decision-making (MCDM) technique that works well for analyzing challenging relationships, but not so well for expressing ambiguous ones. In this sense, the DEMATEL approach is a good option because it allows for the incorporation of ambiguity and complexity in SMEs' international competitiveness concerns. Since India is a developing country and Indian SMEs must achieve international competitiveness for their survival and as well as growth. This research will help the practitioner in prioritizing the challenges for incremental implementation and their cause-and-effect relationship will assist in gaining competitiveness.

The Scope of the article is three-fold. Firstly, we have analyzed the literature on challenges to SMEs ' international competitiveness. Secondly, after reviewing the literature, we found out that none of the challenges are empirically analyzed by finding a causal relationship. Furthermore, this paper will inspire the researcher to conduct additional research and assist SMEs, both directly and indirectly, in surviving, sustaining, and growing in the global market. This research is further divided into six sections. The Supportive literature is provided in Sect. 2. The methodology is discussed in Sect. 3. Section 4 discusses the DEMATEL analysis for challenges to the International Competitiveness of SMEs. Section 5 contains the research findings and discussion. Remarks on the analysis and recommendations for future work in this area are given in the conclusion future scope.

Literature Review

Along with SMEs Internationalization and International Competitiveness have expanded and gathered momentum. Decisions must be taken about how the company's business activities in a foreign market should be carried out. Internationalization is considered one of the potential strategies

for the survival, growth, market expansion, and success of SMEs in the case of developing countries (Musteen et al., 2010). Most multinational enterprises do offshore outsourcing of technical and administrative services. This offshore outsourcing enhances international competitiveness by enabling SMEs to reduce costs, expand relational ties, serve the customer more effectively, and leverage the capability of international partners (Gregorio et al., 2009). (Lu & Beamish, 2001) Confirm that internationalization helps SMEs to perform better and succeed in the long run. According to Ambastha, and Ajitabh, (2004) in these turbulent times, survival and success are becoming increasingly dependent on competitiveness. It is associated with affluence due to its clear correlation to a country's economic potential (Momaya, 1998). There is extensive work at different levels of competitiveness at the national level (Cho et al., 2008; D'Cruz & Rugman, 1992), Industry level (Momaya, 1998), and firm-level (Hamel & Prahalad, 1989). Through this work and paradigm of Industrial organization (IO) and the Porter Diamond will remain popular, but they may be ineffective in addressing the competitiveness survival dilemma that many start-ups, micro-, small and medium enterprises (MSMEs), ventures, and even major firms are facing (Momaya, 2016). With strategic discontinuity like covid, there is a need for alternative thinking on competitiveness, and the APP Model by (Momaya, 2001)has a strong process facet that will help the linking the factors for sustaining the performance.

(Zeng et al., 2008) defines the international competitiveness of the firm as a set of financial and non-financial results that have activities in a foreign market that offer similar products and services in comparison with the other firm. Exports, foreign direct investment, market share, and other criteria can be used to measure the firm's performance. The International Competitiveness of a firm also refers to the capacity and ability of the firm to produce goods and services in attaining the requirement of the international Market (Cho et al., 2008; Gabriel et al., 2014). Current research on the factor impacting SMEs ' Internationalization in developing countries is seen in the context of other countries by (Cardoza & Fornes, 2011) and (Child, 2005), and little attention is given to the internationalization of SMEs from India creating a major gap in the literature. (Hajela & Akbar, 2013) have identified the challenges and prioritized them by ISM technique but no paper has at present discussed the causal relationship between the challenges of international competitiveness of SMEs.

SMEs' international competitiveness has been an area of interest for a long time. With present uncertainty on both the demand and supply sides, how can the company return to operational excellence and attain international competitiveness (Kulkarni et al., 2021). SMEs' internationalization study has also evolved over a period based on the article reviewed. Further, the challenges are also evolved and this study synthesis such common challenges from the literature review. According to (Arteaga-Ortiz et al., 2010), there are four dimensions or factors of SMEs internationalization namely, knowledge, resources, procedure, and exogenous challenges. Also, (Morck et al., 1997) say that SMEs faces Property right and barrier to entry as internationalization challenge. (Kaynak et al., 1987) find that there are five major challenges for SMEs first is finding reliable distributors, communication with the customer, foreign liabilities, government support, and political instability. Insufficient resources and information on the foreign market are the major obstacles and the narrow-minded attitude of the manager to concentrate on the domestic market instead of the international market is also a challenge for SMEs (Bagchisen, 2010). A firm that has intensive knowledge has an advantage over other small firms in the era of globalization (Paul & Gupta, 2014). Similar findings are also observed by (Bellone et al., 2010) but also found financial constraints as a major barrier for small firms. There is also some misconception in mind of SMEs owner that size of demand in the foreign market is too high for SMEs to handle (Wu et al., 2007). According to (Cadogan, 2002) export experience, export dependencies, and export coordination are vital factors international activities of SMEs. According to (Acs & Terjesen, 2013), most small businesses require assistance in the form of intermediated internationalization because they often lack prior global exposure. When SMEs enter a new complex market, they may face challenges such as psychological distance, institutional distance, cultural distance, foreign market heterogeneity, volatility, and competitive conditions as access channels to market opportunities (e.g., distribution channels and business networks). These type of liability of foreignness will impact on entry mode of SMEs (Zucchella & Servais, 2012).

Many researchers have used internationalization models which are well recognized like the Uppsala model, Born Global Model, International New venture model, CPP Model, and 7P Model for analysis of SMEs but all these models cannot be applied across the SMEs in the industry and country in all the situation due to reason like availability of data and unique feature of industry and are developed a decade ago and are not taking into consideration the challenges in this VUCA (Volatile, Uncertainty, Complexity, Ambiguity) world. And there is a need to bring a new strategy for SMEs to compete in the international market. The recent model given by Paul, (2020) presents the new framework SCOPE and examines the critical challenges of SMEs based on an established internationalization model for long-term competitiveness.

This research contributes to the literature on the international competitiveness of SMEs from India by investigating the challenges faced by SMEs like Foreign Liability, insufficient resources, negotiation power, and so on. The

DEMATEL method is useful for identifying effective outcomes that have cause-and-effect relationships with the element that the authors are interested in. The work has been extensively reviewed and opinions of experts were taken in the same period from SMEs owners, managers, and academicians in relevant fields. Table 1 shows the challenges to SMEs ' international competitiveness.

Research Methodology

The study aimed to collect data on small and medium-sized industries in India, a developing country. The aim is to motivate the SMEs for getting into the international market and help the manager with the challenges to overcome to implement for international competitiveness. At the international level, Indian SMEs are increasingly focusing on implementing innovative tactics to improve their market efficiency and profitability. The Indian government is also attempting to create a competitive atmosphere and recognize growth.

In an exhaustive literature review on international competitiveness from the perspective of Indian SMEs, we found 10 challenges for SMEs. These 10 challenges were confirmed from the literature and prospective study consulting the expert according to the Delphi method. Following the literature research, these challenges were confirmed through four rounds of discussion with a panel of industry and academic specialists. The selected challenges are shown in Table 1 and are analyzed by using the DEMATEL technique.

According to (Dalkey & Helmer, 1963), in the absence of sound scientific justification, expert judgments may be relevant. A Delphi study is a systemic, iterative process that uses controlled anonymous judgments and systematic refinement to elicit agreement from a diverse panel of experts from various backgrounds. The Delphi Method was designed to eliminate the negative impact of expert influence created in face-to-face meetings. The Delphi Method's goal is to highlight expert opinion convergences and to identify areas of agreement on specific topics.

For the analysis, a team of twelve experts (five industry professionals, two experts from NGOs working for SMEs, and five academic experts) was present selected based on the Delphi method. All these experts have more than eight years of experience working and researching the subject of SME international competitiveness and related fields. The industry experts are the owner of SMEs and have their customers in the international market. Industry experts are selected from two SMEs that are approximately well established in the international market, two have just entered the international market and one is still struggling to get into the international market and express their views regarding the challenges they are facing. Five experts were treated as an adequate expert number for empirical research using the

MCDM technique in the studies conducted by (Kumar et al., 2019) and (Sharma et al., 2019). As a result, the opinions of twelve experts were compiled in the form of a matrix, along with their influences.

The purpose of the research is to prioritize the challenges for SMEs in international competitiveness, Total of 12 experts was involved in the study, not from a homogenous background which entails the risk of producing biased result but from a heterogeneous panel (Maleki, 2009). five industry professionals, two experts from NGOs working for SMEs, and five academic experts. The industry expert or SMEs owner in our sample were selected who have customers in the international market or trying to get into the international market. We identified the list of several SMEs including those who are exporting their product. Shortlisting was done on the following criteria:

1. Size
2. Sector (study focus on Manufacturing)
3. Exporting SMEs
4. Age of Export (years)
5. Turnover of Exporting

Emails were sent to the companies for their interview consent. The experts were selected based on the following criteria:

1. Minimum eight years of experience
2. Relevant knowledge of the international Market
3. Job profile

The selected SMEs are mostly situated in Maharashtra, a western region of India, and belong to the manufacturing sector. As contended this paper use codes for ensuring anonymity and confidentiality. Semi-structured interviews have opted as part of our research. The beginning question was on the wide explanation of international competitiveness. The end questions were focused on challenges and their strategic decisions. For a Summary of expert-selected (kindly refer to Table A1 and Table A2 as given in a separate supplementary Appendix file).

After the expert opinion further, steps were conducted according to the DEMATEL technique as shown in Fig. 1.

DEMATEL Analysis

The DEMATEL (Decision-making Trial and Evaluation Laboratory) technique is used to establish a causal relationship between the challenges and to identify the most influential ones. To ensure the model's resilience, a sensitivity analysis is carried out. All the steps are discussed in the paper which is given in the model. In this paper, we

Table 1 Challenges for SMEs for Internationalization

Code	Challenges	Description	References
Ch1	Financial Constraints	internationalized SMEs in research-intensive industries should achieve stronger growth of financial resources in the long term as compared to their domestic counterparts because SMEs are constrained by intangible resources and experiences and, therefore, face additional challenges in the international arena in the short run	(Bodlaj et al., 2020)(Li et al., 2018)
Ch2	Insufficient Information	Understanding the market, learning from previous operations, and developing new technical knowledge. Understanding how opportunities are discovered, created, and connected in foreign market contexts can assist them in managing internationalization uncertainties, channeling resources effectively, and avoiding unnecessary failures	(Chetty et al., 2018)
Ch3	Selection of Reliable Partner and Distributor	Export channels are the mechanisms these firms use to take products and services to foreign locations. export channel decision is critically important because it is difficult to change channels once established	(Kalinic & Brouthers, 2022)
Ch4	Cognitive Bias	The cognitive parts of the entrepreneurial decision-making process must be studied to understand the entrepreneur's decision to go global. Attitudinal mindset, motivational factor to go global are part of cognitive bias. This attitude is reflected in the manager's proactive and visionary behavior, as well as his willingness to take risks in developing cross-border relationships	(Liñán & Fayolle, 2015) (Fayolle & Liñán, 2014)(Dabić et al., 2020)
Ch5	Lack of negotiating power	It becomes important for negotiators to develop the ability to recognize cultural differences and adapt their negotiation styles to the cultural contingencies they face	(Caputo et al., 2019)
Ch6	Insufficient resources	Challenges resulting from the lack of financial resources, productive resources, or external aid. Which are tangible and intangible which include infrastructural, market, political, and social resources	(Arteaga-Ortiz et al., 2010)(Sui & Baum, 2014) (Child et al., 2022)
Ch7	Liability of foreignness	Cross-border resource transfer, interaction with local government, local discrimination, and interaction within the multinational organization have all been identified as sources of liability of foreignness. Localization and familiarity reduction or acculturation are two approaches that businesses could take to reduce their exposure. Liability of foreignness has two types of costs: discriminatory costs (e.g., economic nationalism and prejudices, host government restrictions, and hostility) and incidental costs (e.g., lack of local information and relationships, cultural differences, and failure to make isomorphic changes within the host country's institutional environment)	(Gorostidi-Martinez & Zhao, 2017)(Sethi & Judge, 2009)

Table 1 (continued)

Code	Challenges	Description	References
Ch8	Less international experience	It refers to the experience of international trade or international business. In other words, it means the top management international dealing	(Hollender et al., 2017)(Gruenhagen et al., 2018)
Ch9	Lack of protection from government	Due to formal constraints, inefficiency, the favoring of huge state-owned enterprises, and corruption, the regulatory and governmental institutional framework in such economies is frequently hostile to small businesses	(Child et al., 2022)
Ch10	Demand insufficiency for the product of the small firm	The necessity for committed entry modes is determined by the heterogeneity and variability of a specific demand for firm products, as well as the length and role of distribution channels	(Zucchella & Servais, 2012)
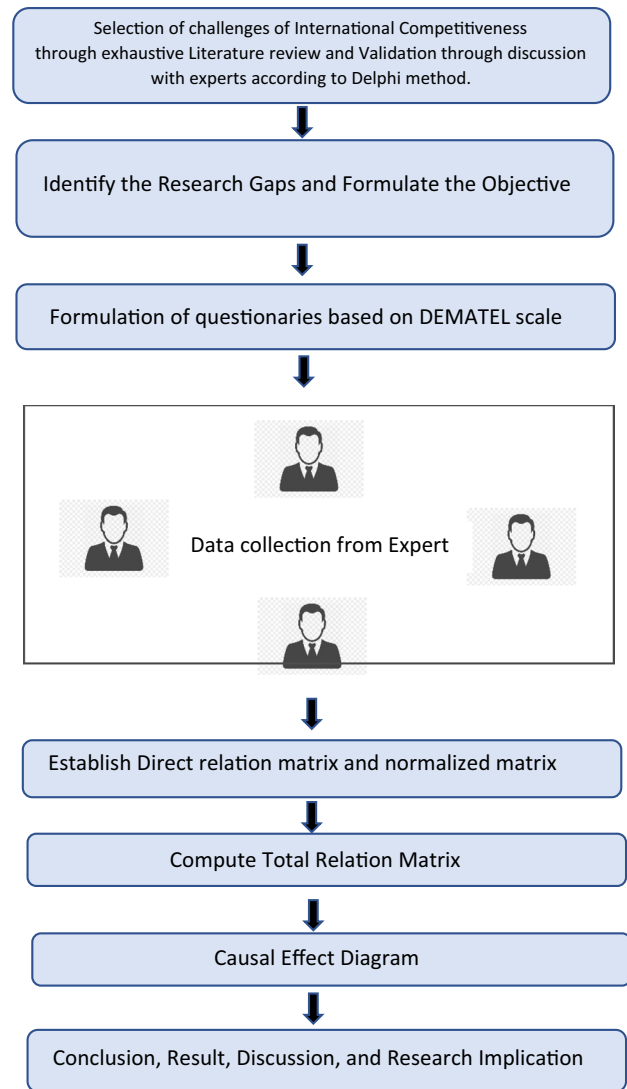
Fig. 1 Flowchart of the Methodology adopted for the research

have used DEMATEL Technique as it divides challenges into the cause-and-effect group and also indicates the sensitivity of their effectiveness compared to other techniques like AHP, TISM, ISM, or other MCDM techniques (Thakur et al. 2019). It makes it easier for policymakers in getting the quantifiable observation among challenges in form of matrices and diagraphs (Bai & Satir, 2020). For examining the cause-effect relationship from the challenges, DEMATEL provides a wide range of responses (0,1,2,3, and 4).

Authors have developed a matrix that helps in calculating the impact of one challenge on another depending on the opinion of the experts. Following the completion of the literature review, the data were examined with all twelve experts who had at least eight years of expertise in the relevant field to determine the top ten challenges to SME international competitiveness. The process of DEMATEL is given below based

on the work carried out by (Matinaro et al.,2019). For establishing the measurement scale for pairwise comparison of causal relationship and level between the factor the measurement scale levels 0,1,2,3,4 which respectively represent "No impact", "Very Low impact", "low impact", High Impact" and "Very High Impact" (Lin & Wu, 2008). The same technique was used by (Song et al., 2020) for DEMATEL to examine the interrelationships between barriers to sustainable production. (Yadegaridehkordi et al., 2018) also used the same technique for analyzing the interrelation among the factor influencing big data technologies. Kindly refer to Table A3 for the linguistic measurement scale.

Step 1: The Experts gave the measure of each challenge in the matrix column to the challenge in the row. The experts were requested to estimate the direct influence among the challenges based on the pairwise contrasts. To this extent, the challenge A_i viewed by the expert with A_j is shown as a_{ij}.

Step 2: Eq. (1) determines the average direct initial matrix, which is shown in Table A4 as given in a separate supplementary Appendix file.

A n*n nonnegative matrix is formed as $A_m = \left[a_{ij}^m \right]$ by each expert.

Here the m is represented as some experts in the procedure. And $B_1, B_2, ... B_m$ are the matrix of m expert. Average direct influence matrix $A = a_{ij}$.

$$a_{ij} = \frac{1}{m} \sum_{i=1}^{m} a_{ij}^m \tag{1}$$

Step 3: The matrix was normalized. By applying Eq. 3 the normalized initial direct matrix.

$B = b_{ij}$ is determined.

$$B = \frac{A}{S} \tag{2}$$

$$S = max_{1 \leq i \leq n} \sum_{j=1}^{n} aij \tag{3}$$

All the values of the matrix B lie between zero and one. (Kindly refer Table A5 as given in a separate supplementary Appendix file) which shows the normalized direct influence matrix B.

Step 4: The total influence matrix (T) can be formed using Eq. 4, in which J is a matrix with square identities. As indicated in Table A6 as given in a separate supplementary Appendix file, the tij element depicts the indirect impact challenge i has on j, while the matrix depicts the total influence between each pair of challenges.

$$T = B(I - B)^{-1} \tag{4}$$

Step 5: The summation of Matrix T rows and columns was calculated individually. In the matrix (T) let d_i be the total of ith row. The value of $di, rj, (di + rj),$ and $(di-rj)$ shows the interaction among the barriers. The di represents the total of ith row and ri represents the total of jth column. If $i = j$, the result of $(di + rj)$ reflect the cumulative impact of both the given and obtained by challenge i. Therefore $(di + rj)$ represents a degree of significance as shown in Fig. 2. And the result of $(di-rj)$ represents the net contribution from challenge i (Sharma et al., 2020).

In addition, if $(di-rj)$ is positive, challenge i will be the cause and if it is negative, the challenge I will be the effect. The degree of influence of international competitiveness challenges are shown in Table 2.

Step 6: Draw a diagram of the cause-and-effect relationship. The cause-and-effect diagram is drawn with help of all the values of $(di + rj, di-rj)$ to visualize the connections and to provide information to evaluate what are the key

Fig. 2 Degree of Significance of challenges
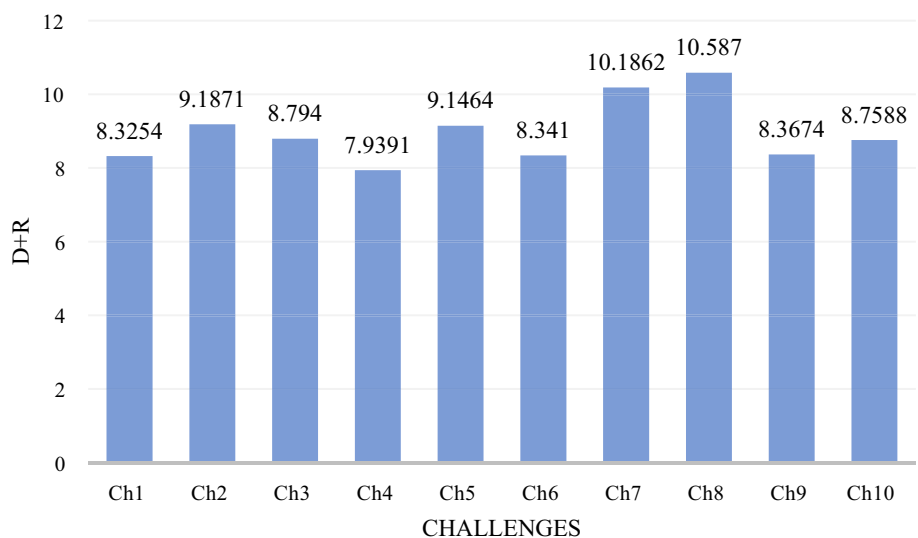
Table 2 Degree of Influence Matrix and their Ranking

	d_i	r_i	$d_i + r_i$	$d_i - r_i$	Cause/Effect	Ranking
Ch1	4.1494	4.176	8.3254	− 0.0266	Effect	9
Ch2	4.8103	4.3768	9.1871	0.4335	Cause	3
Ch3	4.4246	4.3694	8.794	0.0552	Cause	5
Ch4	3.9584	3.9807	7.9391	− 0.0223	Effect	10
Ch5	4.5787	4.5677	9.1464	0.011	Cause	4
Ch6	4.2017	4.1393	8.341	0.0624	Cause	8
Ch7	5.189	4.9972	10.1862	0.1918	Cause	2
Ch8	5.389	5.198	10.587	0.191	Cause	1
Ch9	3.7562	4.6112	8.3674	− 0.855	Effect	7
Ch10	4.3589	4.3999	8.7588	− 0.041	Effect	6

challenges and they affect the other challenges. Figure 3 shows the cause-effect diagram.

Step 7: Sensitivity analysis is performed to test the model's robustness against responder bias (Kumar et al., 2021). For the present case changes in experts' inputs are considered while conducting the sensitivity analysis. In general, data obtained for MCDM problems contains a great deal of imprecision and ambiguity, a small variation in relative weights can have a big impact on the final ranking (Chang et al., 2007). This is achieved by assigning a different weight to one respondent while maintaining the weight of the other respondent constant. In scenario 1, Each expert received the same weights, however, in the other cases, one expert received more weights while the other stayed unchanged. Calculations were carried out for a variety of scenarios. The net cause-effect values for all scenarios are presented in Table A7 as given in a separate supplementary Appendix file. It is observed that except for minor variances, no major changes were detected in each case (Kindly refer Figs. A1 and A2 as given in a separate supplementary Appendix file). Because all the results appear to be very consistent, it's reasonable to conclude that the respondent assessments are correct and that the study was free of respondent bias.

Result and Discussions

The goal of this study is to find the interrelationship between the challenges found in the SME's international competitiveness. DEMATEL technique was used to identify the causal relationship and experts were invited to submit their data in the form of a questionary's matrix.

According to the degree of significance $(d_i + r_j)$ score Fig. 3, the ranking preference ranking based on the importance are "Less International Experience(Ch8)" (10.587), "Financial Constraints(Ch1)"(10.1862), "Insufficient information(Ch2)"(9.1871), "Selection of reliable partner and distributor(Ch3)"(9.1464), "Liability of foreignness(Ch7)(8.794), "Demand insufficiency for the product of small firm(Ch10)"(8.7588), "Insufficient resources(Ch6)"(8.3674), "Lack of Negotiation power(Ch5)"(8.341), "Lack of protection from the government(Ch9)"(8.3254), and "Cognitive bias(Ch4)"(7.9391). Based on the $(d_i + r_j)$ score the most important challenge is "Less international Experience (Ch8)" as it has a high $(d_i + r_j)$ value (10.587) and the least important challenge as "Cognitive bias (Ch4)" as it has the least $(d_i + r_j)$ score (7.9391).

Fig. 3 Causal Effect Relationship among the challanges
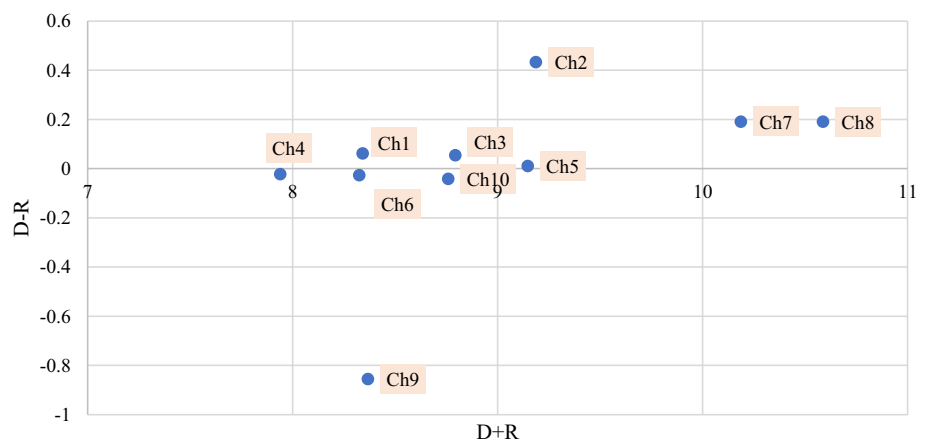
The four challenges that depend on the values of the *(di-rj)* data set as "Lack of protection from the government (Ch9)" (-0.0266), "Cognitive bias (Ch4)" (-0.0223), "Insufficient resources (Ch6)" (-0.855), "Demand insufficiency for the product of small firm (Ch10)" (-0.041) are listed in effect category challenges. These challenges are influenced by other challenges that have hampered international competitiveness and have played a significant role in recognizing how other barriers have influenced the strategic objectives of industrial experts. "Cognitive bias (Ch4)" was most affected by all the other challenges as shown in Table 2.

In addition, six challenges included, "Less International Experience (Ch8)" (0.191), "Financial Constraints (Ch1)" (0.1918), "Insufficient information (Ch2)" (0.0552), "Selection of reliable partner and distributor (Ch3)" (0.011), "Liability of foreignness (Ch7) (0.0552), "Lack of Negotiation power (Ch5)" (0.0624) were listed as cause category challenges. Control is critical for overcoming category challenges and achieving higher levels of accomplishment.

From the cause-and-effect diagram for the challenges, "Insufficient Information (Ch2) has the maximum effect on the other challenges as shown in Fig. 3. This challenge "Insufficient Information (Ch2)" is mutually connected with all other challenges. This confirms that the Insufficient Information (Ch2) challenge will have a major and essential involvement in SMEs ' International Competitiveness. That means Indian SMEs must pay more attention to collecting more information about the international market.

The "Financial Constraints (Ch1)" Challenges received second place and fell under the cause group. It's also manually linked to all the other challenges. As far as this challenge is concerned, most SMEs in developing nations are trying to go into the international market but due to financial constraints, they are facing hurdles to gaining competitiveness. In addition to this education, business associations and the government are also working tirelessly.

Insufficient information and experience are in-cause group and have maximum influence. For a long time, it was assumed that enterprises would progressively internationalize after obtaining domestic experience and growth (Etemad & Wright, 2003). As the organization gets the information and experience, they can get enough resources required and help them in understanding the demand in the international market and reduce the cognitive bias. Liability of foreignness also comes in cause group. Some studies point to quality control and safety regulations as major challenges for exporters, forcing businesses to alter their products to meet the needs of numerous overseas markets. Lack of effective trade institutions, unfavorable currency rates, a lack of a stimulating national export policy, and international agreements was identified to be some of the prevailing macro-level difficulties in several studies of exporting enterprises (Cardoza et al., 2016). So foreign liability and negotiation power will have an impact on international market entry. Some aspects are external to the company and are difficult to regulate. Foreign currency restrictions and governmental impediments are among the issues mentioned by almost most of the research. Connections to extra-local networks, according to (MacKinnon et al., 2004), are critical for SMEs to gain access to broader sources of information and knowledge. This connection and network will help the organization to understand the foreign liabilities, demand in the foreign market, and international agreements. Financial constraints have an important impact on the international competitiveness of SMEs as the resources required for achieving the demand of the international market will be fulfilled. Many studies have considered financial constraints as a major challenge (Bellone et. al.,2010). To overcome challenge of liability of foreignness in contrast to a generic knowledge, international network, or experience advantage strategy, SMEs might engage with a specialized strategic focus. Furthermore, during intensive export efforts, entrance mode decisions, alliances with local partners with whom cost efficiency in learning economies is increased, may be employed as developing skills. Figure 4 shows the cause group and effect group according to their ranking. Long with the above challenges SMEs can improve product characteristics, sales and service offerings, operational flexibility, and customer happiness has boosted their international competitiveness (Sushil & Garg, 2019).

SMEs must devise strategies to address these challenges. When it comes to expanding into foreign markets, it may be prudent for SMEs to use a simple framework such as What, When, Why, Where, and How. SMEs can also understand the idea that business success is a function of interdependence based on strategic partnerships and alliances with the best possible partners, rather than viewing business as a separate activity. The "global mindset" of SMEs' owner-managers and top-level executives is critical to their international orientation which can be developed. SMEs can focus on their innovation capabilities which will not only stimulate exports, but also modifies the relationship between firm productivity and exports. SMEs can also help from experienced specialist executives who could assist them in accumulating knowledge from their international ventures.

Conclusion

Identifying the challenges and working at the same time is very difficult for any practitioner, as a result, prioritizing the challenges is critical for the gradual implementation of such solutions, and understanding their cause-and-effect relationship will aid practitioners in achieving international competitiveness. This research gives a detailed and structured way of identifying the cause-and-effect relation
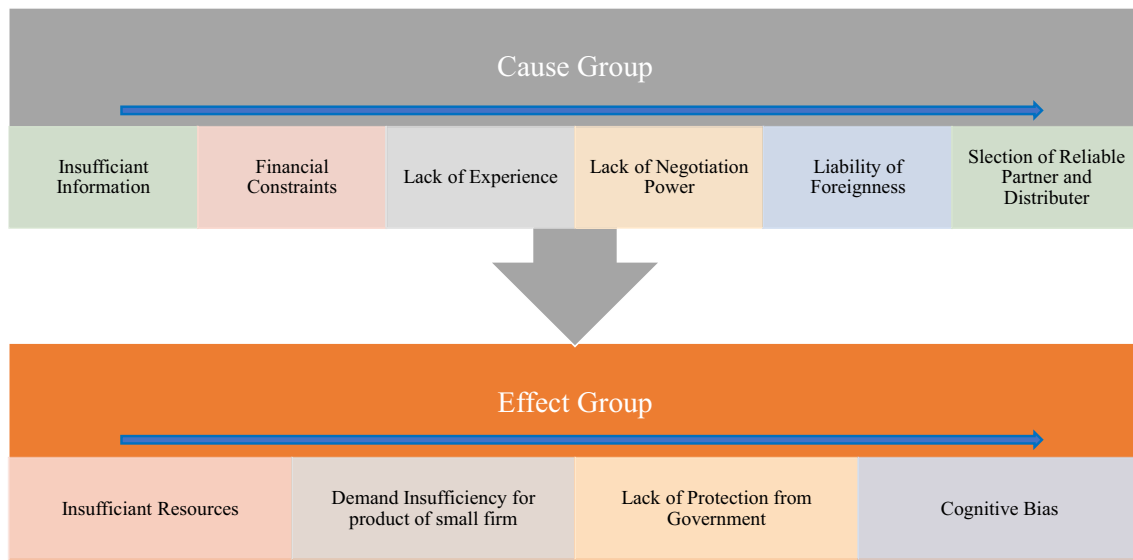
Fig. 4 Causal Effect Group of the challanges

and optimizing the teamwork with the use of the DEMA-TEL technique of MCDM.

This research will help SME managers and owners for international competitiveness by identifying the challenges of going into the international market. In-depth under-standing of these causal relationships among the chal-lenges of international competitiveness to the managers and owners of SMEs who are aware of the impact of these challenges. The cause category "Insufficient Information (Ch2)" has maximum effect on all the challenges. So, the focus here is on insufficient information.

Forgoing into the international market requires sig-nificant financial expenditure, which is the second most maximum effect of all the challenges. And while dealing with the complexity of the international environment it is very difficult to work on financial constraints. Proper implementation is required to have a reasonable plan.

Mainly, 10 Challenges to SME's international Competi-tiveness are presented using expert inputs and a literature survey. The data for this study was gathered by the experts from industry and academic, by taking into consideration major leading and developing nation India. The outcome is validated with the help of the view of experts and lit-erature reviews considering the small and medium scale industries. Selected experts were highly experienced in the field of international competitiveness and the model is based on expert inputs. The Causal relationship among the challenges within a complex and uncertain environment is developed by DEMATEL. The outcome of the research is shown and discussed with the expert and there is no further improvement given by the expert.

All three research questions were addressed in the study. While addressing the first question we performed an exhaus-tive literature review for identifying the challenges for SMEs in attaining international competitiveness. The challenges found in the literature review were shortlisted using the Del-phi study for further analysis. For the second research ques-tion, we found the cause-and-effect relationships among the challenges by using the DEMATEL approach. And finally, the third research question was addressed by ranking the challenges and prioritizing them from the output of the DEMATEL study.

Practical Implication

In addition to research contributions, various policy and management contributions are mentioned in this article. The challenges shown in the research will form a reference for policymakers as it covers the potential challenges for inter-national competitiveness. The above result presented will help the manager and owner of SMEs to identify the most significant challenge and the least significant challenges among all challenges. To attain a good hold in the interna-tional market, SMEs should devise effective strategies. The cause group challenges are Less International Experience, Financial Constraints, Insufficient information, Selection of reliable partners and distributors, Liability of foreignness, and Lack of Negotiation power. our findings suggest that managers and owners of SMEs should focus on strengthen-ing their abilities to address the challenges of International Competitiveness due to less experience and information and its very important challenges for an emerging nation. As a

result, it is necessary to strengthen strategies to invest in relevant resources and reap maximum benefits. In the current situation, SMEs must concentrate their efforts on resolving the difficulties listed under the cause category.

Limitations and Future Scope

There are drawbacks in this study that provides the researcher with a potential approach to analysis. The research was conducted in the setting of developing countries, with the help of an Indian expert. In the future planned study, the model can be implemented in industry and the results are compared to our suggested model for additional validation. The results can be also extended by considering other countries. Additional challenges may be considered in future work. The weight of the challenges can be found in the other MCDM techniques like AHP, ANP, ISM, TOPSIS, and best–worst methods.

Key Questions or Tasks **Reflecting Applicability in Real Life**

1. For a SME of your choice, identify major challenges for gaining international competitiveness?
2. SMEs usually have lack of resources in human and physical aspect. How can they overcome these challenges of international competitiveness?
3. What can be correlation among the challenges? How does these relation help SMEs in attaining competitive advantage in international markets?
4. Which strategies should be developed by the SMEs to enhance international competitiveness on specific factors?

Declarations

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