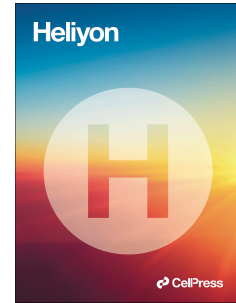


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Beyond the basics: Exploring the impact of social media marketing enablers on business success

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Beyond the Basics: Exploring the Impact of Social Media Marketing Enablers on Business Success

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Abstract

In today's fast-paced world, social media marketing is crucial for businesses. However, many Saudi Arabian organizations need more skills and resources to use this strategy effectively. This article outlines organizations' top issues when adopting social media marketing and provides valuable insights into how to overcome them. After conducting an extensive literature review and consulting with experts from various sectors, 19 critical issues hindering social media marketing adoption in Saudi Arabian organizations were identified. The study employed the DEMATEL approach to analyze these issues and determine their impact level and cause-effect relationships. The study found that customer support, platform trust, secure data sharing, and perceived value significantly impact a business's social media marketing success. By addressing challenges like customer support, platform trust, and perceived value, businesses can enhance their social media marketing success and promote themselves globally by attracting and retaining customers through their social media presence. The insights gained from this research offer valuable guidance for Saudi Arabian organizations looking to refine their social media marketing strategies. To overcome the challenges hindering the adoption of social media marketing, businesses must address the "cause" and "effect" category issues. By adopting a formal and pragmatic approach, Saudi Arabian organizations can achieve sustainable growth and promote themselves to a global audience.

Keywords: Businesses, Critical issues, DEMATEL approach, Organizations, Social Media, Social Media Marketing Enablers.

1. Introduction

Social media platforms offer businesses a unique opportunity to expand their reach, increase their visibility, and establish a strong brand presence in the global market [1, 2, 3]. Social media networking platforms have developed as an instrumental tool for businesses and marketers to acknowledge customers' needs and offer viable resolutions to their marketing challenges [4, 5, 6]. Even though this platform has become ubiquitous in people's lives and has emerged as a critical tool for businesses, the term "Social Media Marketing" still appears to have limited awareness among the business community [7, 8]. Social Media Marketing (SMM) is a commercial marketing activity that leverages social media to positively influence consumers' purchasing decisions [9]. With people increasingly using social media to trade and share information about products and services, businesses must integrate social media into their marketing strategies to engage customers and build long-term relationships [10, 11]. This has made social media a primary platform for businesses to engage with customers and promote their products and services [4, 5]. However, the effectiveness of SMM campaigns depends on several enablers or critical success factors (CSF) that facilitate their success. Enablers, or CSFs, are defined as factors that create favorable conditions for a particular phenomenon [4]. These enablers, or CSFs, are critical to the success of SMM campaigns, and identifying them is crucial for businesses seeking to leverage social media for improved marketing strategies [12]. In the contemporary business environment, social media has emerged as a vital component of communication and marketing strategies for companies operating nationally and internationally, enabling virtual engagement between users and allowing for real-time social interactions between consumers and businesses [10, 11, 13].

Businesses can leverage their global connectivity and reach to connect with diverse stakeholders, promote their offerings, facilitate social engagement, and achieve growth [3, 14]. However, companies recognize the potential of social media as a tool for building and maintaining solid customer relationships [2, 6, 7]. Customers can quickly acquire vast information about products, services, brands, and their interaction to learn more about products and brands. The increase in social media community identity would enhance the brand commitment of the customer [15, 16, 17]. However, customers face different challenges in making purchase decisions due to the vast amount of information available and seeking proper guidance, and social media has assisted them [18]. There is still limited awareness of SMM enablers among the business community, regardless of the growing importance of this phenomenon [7, 19]. Several studies have attempted to identify the key enablers of SMM, including the use of customer engagement metrics [20, 21], social media analytics [4], and

social media strategy [5] using diverse methodologies. However, limited studies on SMM enablers employing the DEMATEL approach have been conducted in the Middle East, particularly in Saudi Arabia. The Kingdom of Saudi Arabia is undergoing rapid digital transformation, and it becomes vital to study the critical success factors or enablers of SMM among Saudi Arabian organizations. SMM has become a significant part of these businesses' modern marketing strategies to reach target customers and build long-term relationships [22]. However, SMM practices are not adequately adopted as a marketing tool among companies in the kingdom, and hence, how does social media impact businesses and consumers, and what are the barriers to SMM seeking further investigation [23, 24, 25]. The kingdom has witnessed widespread adoption of social media platforms, particularly among young Saudi Arabian consumers. Hence, it became vital for companies to adopt SMM to attract and retain these potential customers. A thorough understanding of the enablers of SMM and the factors that prioritize them is required using the DEMATEL approach [26, 27]. The application of grey theory can be seen in various problems across different domains, demonstrating its versatility as a valuable tool for decision-making when a problem contains various components with intricate relationships. For instance, [28] utilized the DEMATEL approach to evaluate the adoption of traceability systems in the food supply chain (FSC). At the same time, [29] quantified the cause-and-effect relationship between hurdles in adopting sustainable supply chain practices in the leather industry and [30] used it to study sustainable supply chains. Additionally, [31] applied the method to evaluate Chinese remanufacturers' internal constraints in the auto parts sector. Nevertheless, to the best of my knowledge, studies in the literature have to apply this method in the context of social media marketing and its interconnected predictors. While researchers have examined various social media phenomena in different contexts, exploring the enablers of SMM from academic and industry experts has received little attention [32, 33, 34].

Consequently, this study seeks to fill the research gap using the DEMATEL method to recognize and prioritize SMM's CSFs or enablers. By doing so, this study seeks to offer insights into the critical success factors that can help business marketers make informed decisions regarding social media marketing. This study contributes to the growing body of knowledge on using SMM to enhance the effectiveness of SMM campaigns by identifying and prioritizing SMM enablers [26, 27]. The present study employs the "Decision Making Trial and Evaluation Laboratory (DEMATEL)" approach to evaluate the critical success factors of social media marketing from marketers' perspectives [35]. The DEMATEL technique is a powerful tool to investigate the contextual interrelationships between the critical success factors under study by

exploring the cause-and-effect relationships between the critical success factors [36, 37, 38]. The DEMATEL method approach has been widely used in diverse research disciplines due to its ability to solve complex business problems [36, 37]. The study contributes to prioritizing the critical success factors or enablers of SMM through quantitative data analysis employing the DEMATEL approach for creating a priority list that will significantly contribute to the study. The Grey DEMATEL method is a highly effective approach that enables scholars and researchers to identify and evaluate the cause-effect relationships between various enablers or critical success factors. It involves several stages, including constructing a decision matrix, calculating the Grey relational coefficient, constructing a Grey DEMATEL matrix, deriving the Grey DEMATEL-based impact matrix, and identifying and ranking the key components [39]. The use of the Grey DEMATEL method underscores the rigor and validity of the study's findings, making this section essential reading for anyone interested in the social media marketing landscape in Saudi Arabia. This study contributes to pinpointing the critical enablers of SMM, assessing their prioritization, and exploring their impact on global business strategies by reviewing existing literature and generating a questionnaire validated by industry and academic experts. Furthermore, this study also contributes to augmenting theoretical and practical insights for academics, businesses, and marketers leveraging SMM strategies to gain a competitive advantage and explore the critical enablers of Social Media Marketing (SMM) and their causes and effects in the social media ecosystem from an academic and marketing perspective.

The study aims to bridge these identified research gaps by uncovering the answers to the stated research questions (RQ), namely, **RQ1:** *What are the critical success factors or enablers of Social Media Marketing (SMM) that support businesses and marketers in the social media setting?* **RQ2:** *Which critical success factors or enablers of SMM hold the most significant potential for supporting businesses and marketers in the social media setting?* **RQ3:** *In what ways can prioritizing Social Media Marketing Enablers (SMME) enhance the development and implementation of effective marketing strategies of businesses and marketers in the social media setting?* The article is organized as follows: Section 2 provides a review of relevant literature on SMM enablers. Section 3 presents the methodology used and key results of the study. The discussions are presented in section 4. Implications, Limitations, and future research directions of the study are presented in section 5. The conclusion is summarized in the article's final section, followed by references.

2. Literature Review

2.1 Marketing Strategy

Marketing strategy is a critical component of a business that involves making comprehensive decisions on market segmentation, marketing activities, and allocation of resources to create, communicate, and deliver valuable products to customers [40]. It requires the deliberate deployment of resources to interact with customers and competitors to achieve specific organizational objectives [41, 42]. Marketing strategy is a business's choice of activities and is central to creating and implementing marketing campaigns [43]. Research suggests that both theory and practice are essential for optimal business outcomes and improved customer experience [21]. The field of marketing strategy has several sub-domains that require further development to keep up with the changing times [20]. One such area that needs attention is social media as a marketing medium. [44] highlight that the study of SMM enablers is another under-researched area within the marketing function. Understanding these enablers can assist marketers in determining the content and implementation of their marketing strategy on social media and allocating resources, including financial and human [21, 45]. Identifying and prioritizing these enablers is crucial for designing and implementing an effective marketing strategy [46, 47]. Therefore, the present study aims to fill this gap by exploring the enablers of Social Media Marketing (SMM) in literature and validating them with marketing experts from academia and practice.

2.2 Social Media Marketing (SMM)

The social networking site has become an innovative platform for communication, networking, and content sharing. Many companies seek marketing and business opportunities via these platforms [48, 49, 50]. The marketing industry has been transformed by social media, which has become a powerful platform for people to connect, share knowledge, and exchange opinions [4, 48, 51]. This widespread use of social media has led to significant changes in the market, such as increased social connectedness, social interaction and influence, and improved decision-making through access to customer data [21, 52]. Social media permits social connectedness between businesses and customers, enabling more direct and personal communication [53, 54]. Customers gradually embrace vital roles in co-creating marketing content with businesses and their corresponding brands [55]. In turn, businesses and marketers are glancing at digital social media marketing campaigns to drive customers, further revolutionizing how businesses and customers interact and influence each other [56, 57, 58, 59]. By leveraging social media data, businesses can better understand customer needs and

preferences, enhancing customer experience and better business results [60, 61]. Therefore, businesses must use social media to gain valuable insights into customer behavior and preferences and build more vital customers [21, 62, 63].

2.3 Social Media Marketing Dimensions

The significance of comprehending the role of social media in marketing cannot be overstated, as highlighted by various researchers and managers [64, 65, 66]. The literature on Social Media Marketing (SMM) provides a comprehensive understanding of this marketing tool from diverse perspectives, as evidenced by numerous studies [32, 67, 68, 69]. The insights offered by the SMM literature are precious to researchers and managers seeking to enhance their understanding of the dynamic world of social media marketing. The literature comprehensively understands SMM's various dimensions and applications, which can be leveraged to drive business success. Moreover, SMM is an effective tool for fostering customer engagement and interactions, translating into increased brand loyalty and customer satisfaction. As a growing body of research indicates, SMM is a potent tool that facilitates customer interactions and engagement [53, 70, 71]. SMM is a new-generation marketing tool that leverages social networks to enhance consumer attention and participation [72]. Furthermore, SMM utilized semantic and artificial intelligence to aggregate and manage user attitudes and opinions online [73]. Social media boosts the fanbase while guarding against fraudulent acts by conceited supporters on social media [74], and SMM significance was studied to understand its potential and limitations [60]. The literature on Social Media Marketing (SMM) offers valuable insights into this marketing tool's diverse dimensions and applications, emphasizing its potential to enhance customer engagement and drive business success [75, 76, 77]. Through this comprehensive review, Table 1 provides a comprehensive overview of the critical factors and enablers fundamental to successful SMM implementation.

2.4 Social Media Marketing Enablers

The study's author drew inspiration from the extensive literature on SMM to design a comprehensive questionnaire that effectively explores the enablers of SMM and prioritizes them based on their significance. Through deep research, the author identified 19 critical success factors (CSFs) that enable the implementation of effective SMM practices, which are presented in **Table 1**.

Table 1. Identification of Enablers or Critical Success Factors (CSF).

Code	Critical Success Factor (Enabler)	Description	Source (s)
SMME1	Simple and Easy to use	It is an easy way to interact with customers, with little to no complicated tasks.	[53, 78]
SMME2	Perceived Value	Assessing a product's value is determined by weighing the benefits gained against the costs incurred.	[21, 79]
SMME3	Customer Support	All customer-business interactions enhance the customer experience and strengthen their relationship with the business.	[60, 75]
SMME4	Assurance	A promise or a positive statement aimed at instilling confidence.	[46, 80]
SMME5	Speed of Response	The rate at which a device or measurement system responds and produces the output.	[44]
SMME6	Perceived Firm Innovativeness	Stakeholders believe social media generates novel, creative, and efficient ideas and solutions.	[55, 68]
SMME7	Loyalty Intentions	The willingness to make a repeat purchase following a positive experience.	[70, 81]
SMME8	User friendly	It is simple to navigate and meets the customer's needs.	[71, 78]
SMMEF9	Reliable	Reliable and true to its commitments.	[69, 82]
SMME10	Safe for Data Sharing	It allows stakeholders to exchange data within their network securely.	[33, 62]
SMME11	Useful for Information	Information obtained through social media platforms and tools should be relevant to its intended purpose.	[9]
SMME12	Content creativity	Marketing that captivates consumers through innovative ideas and content on social media channels.	[71]
SMME13	Consumer Involvement	The involvement and engagement of consumers in any event or activity on social media.	[53]
SMME14	Control Mechanism	Social media platforms use different methods to maintain activity within predetermined limits.	[70, 73]
SMME15	Public opinion	The collection of opinions, attitudes, and beliefs a community expresses.	[46]
SMME16	Legal support	Social media support offers legal knowledge and counseling for users' rights and violations while safeguarding and advancing online interactions.	[54]
SMME17	Appropriateness for business	The appropriateness and relevance of using social media for a specific purpose or event within a business context.	[63]
SMME18	Customized Engagement	Providing customized and personalized solutions means catering to each customer's unique needs.	[75]
SMME19	Trust on the platform	The level of assurance users have in the security of online platforms encompasses people, technology, and processes.	[83]

3. Methodology Used and Results

3.1 Grey DEMATEL Approach and Data Collection Procedure

The present study has employed the DEMATEL (Decision Making Trial and Evaluation Laboratory) approach. This approach has the potential to CSF or enablers in social media marketing effectively. By analyzing the interrelationships among criteria and identifying the central criteria that represent the effectiveness of attributes, the DEMATEL approach can help determine the prominent CSFs or enablers that contribute to the success of social media

marketing campaigns. Furthermore, employing the DEMETAL method to investigate the degree of relationship among criteria can furnish valuable insights into the strengths and weaknesses of distinct factors, facilitating businesses to devise more practical strategies and accomplish better results [84, 85, 86]. The Grey DEMATEL approach employs Grey numbers to translate the uncertainty reflected in the qualitative comments of the experts into numerical ranges [87]. This facilitates the capture of inconsistencies in experts' views during the group decision-making process, offering greater flexibility in decision-making [88]. This study gathered valuable insights from experienced professionals in the retail, education, pharma, and transportation domains in Saudi Arabia. The DEMATEL approach employed in this study proposes a noteworthy advantage by not levying rigorous normality or independence restrictions on the sample data. This attribute of this approach permits researchers and scholars to collect valuable insights from experienced professionals, even with small sample sizes [89, 90, 91]. Moreover, existing literature endorses applying the DEMATEL approach as a popular and effective approach for Multiple Criteria Decision Making (MCDM) since it considers direct and indirect effects among critical success factors or enablers, augmenting the credibility and robustness of the study's results [85, 90, 91].

This powerful technique utilizes cause-based diagramming to uncover cause-effect correlations between elements [92]. This has been successfully applied in various circumstances to reveal the structure of complex cause-and-effect interactions, and experts have noted that it is well-suited to deal with uncertainty and ambiguity [85, 90, 91]. The extensive use of the Grey DEMATEL approach highlights its popularity as a valuable tool for decision-making. This information is paramount in establishing the credibility and reliability of the study's findings based on the DEMATEL approach. Furthermore, this approach portrays a favorable tool for researchers and scholars to accumulate valuable research insights and make scholarly decisions in intricate decision-making circumstances [91]. Consequently, the DEMATEL approach was utilized in this study to achieve the desired outcome. It strengthens the rigor and validity of the study's findings and offers valuable insights into the social media marketing landscape in Saudi Arabia [92]. **Figure 1** illustrates the study's framework, offering readers a lucid and succinct visual representation of the methodology used for this study.

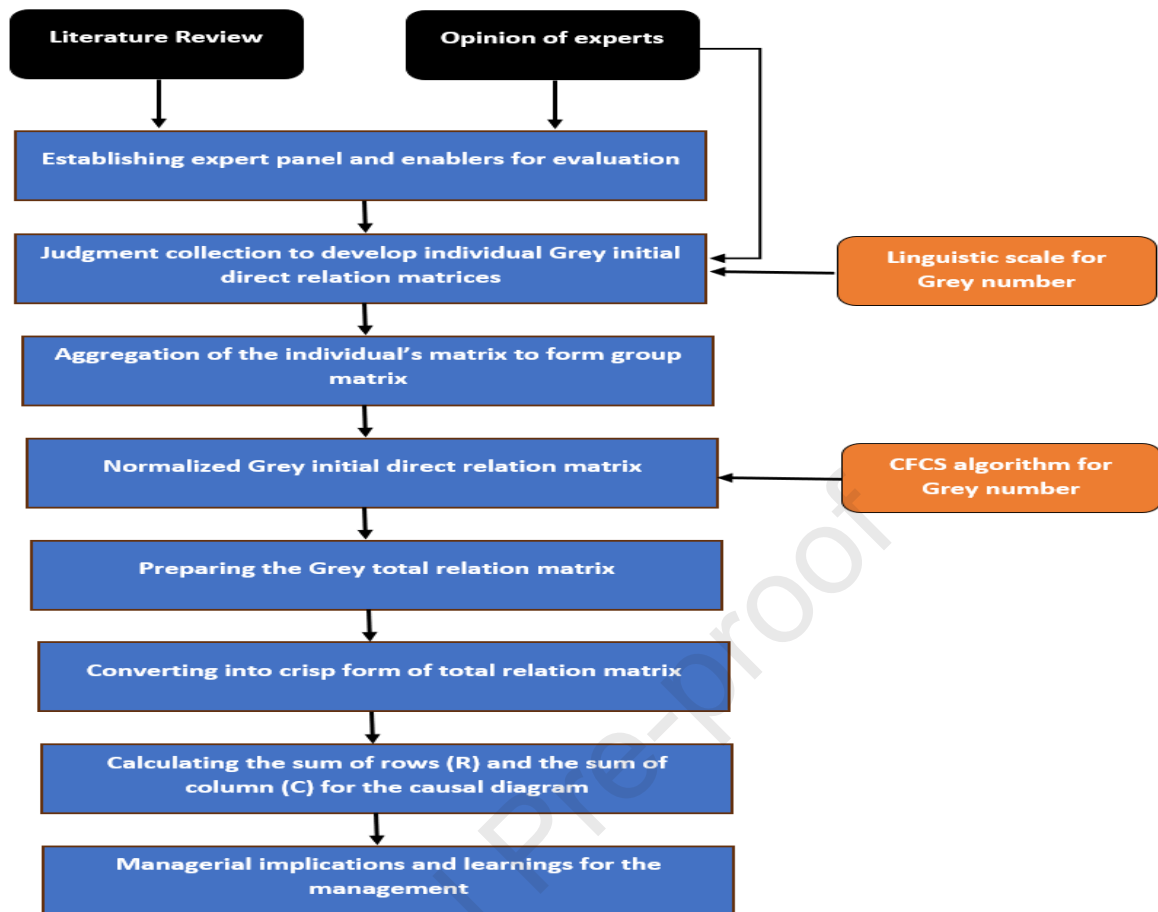


Figure 1. The framework adopted for the study.

Table 2. Experts' Profiles highlighting their diverse backgrounds and expertise.

<i>Expert Number</i>	<i>Domain</i>	<i>Experience</i>
Experts 1, 2, 11, 14, 18, and 21	Retail	Between 05 to 10 years
Experts 3, 4, 5, 6, 7, 9, 13, 15, and 17	Education	Between 05 to 20 years
Experts 10, 12, 16, 19, and 20	Pharma	Between 05 to 25 years
Expert 8	Transportation	06 years

Table 3. Linguistic Scale of Linguistic Variable and Its Grey Values.

<i>Linguistic variable</i>	<i>Grey values</i>
Very High (VH)	[0.75, 01.00]
High (H)	[0.50, 0.75]
Low (L)	[0.25, 0.50]
Very Low (VL)	[00, 0.25]
No (N)	[00, 00]

The experts' profiles are detailed in **Table 2**, highlighting their diverse backgrounds and expertise. These professionals have over nine years of combined experience, making their opinions highly valuable for this study. The research aimed to identify the key enablers of successful SMM strategies and the opinions of 21 experts were collected through a comprehensive questionnaire. The participants were asked to rate each component using a linguistic scale that included words such as No/VL/L/H/VH, as shown in **Table 3** for the Grey number used in the Grey DEMATEL approach [93]. Out of the 40 experts approached, 21 responded and shared their insights, with six coming from the retail domain, nine from the education domain, five from the pharma domain, and one from the transportation domain.

3.2 Key Results

This study has followed the below-stated steps of the grey DEMATEL approach to prepare linguistic scale, data collection, analysis of collected data, and interpretation of key results of this study. The subsequent section expounds on the various stages of the DEMATEL approach, a potent analytical tool employed to identify and evaluate the relationships between diverse CSFs or enablers of SMM.

3.2.1 Step 1: Prepare linguistic Scale for Analysis

The scale consists of five linguistic terms with assigned numerical values, ranging from no to very high influence. This standardized approach enhances accuracy and reliability by converting qualitative comments into numerical ranges. It is an essential tool for decision-making processes involving multiple components with intricate relationships.

3.2.2 Step 2: Develop an Initial Matrix

In this step, experts were asked to provide their ratings using the grey linguistic scale in Table 2 to assess the correlation between components. Each expert's ratings were used to create an initial matrix, resulting in K matrices if there were K experts. Once the initial matrices were created, the grey linguistic scale was utilized to transform the linguistic data acquired from the experts' ratings into grey numeric form. This transformation process enabled the capture of the uncertainty and ambiguity inherent in expert opinions, facilitating more accurate and reliable analysis. Let, $\otimes p_{ij}^k$ is the grey number, Then it is given as,

$$\otimes p_{ij}^k = (\underline{\otimes} p_{ij}^k, \overline{\otimes} p_{ij}^k) \quad (1)$$

where, n is the number of selected factors, and K is the number of experts following relationship $1 \leq k \leq K$; and $\underline{\otimes} p_{ij}^k, \overline{\otimes} p_{ij}^k$ represent the lower and upper limit for grey numbers respectively for K^{th} expert.

$$\tilde{Z}_k = [\otimes p_{ij}^k]_{n \times n} \quad (2)$$

The individual direct-influence grey matrix is shown in **Table .**

Table 4. Individual direct-influence grey matrix.

Code	S M M E 1	S M M E 2	S M M E 3	S M M E 4	S M M E 5	S M M E 6	S M M E 7	S M M E 8	S M M E 9	S M M E 10	S M M E 11	S M M E 12	S M M E 13	S M M E 14	S M M E 15	S M M E 16	S M M E 17	S M M E 18	S M M E 19
SMME1		V H	H	L	V H	V H	L	V H	H	L	L	L	L	L	L	L	H	L	V H
SMME2	V H		V H	H	H	V H	L	H	H	V H	V H	H	V H	H	L	H	V H	V H	V H
SMME3	H	V H		H	V H	H	H	H	V H	V H	V H	V H	V H	V H	H	H	V H	L	V H
SMME4	L	H	V H		V H	L	L	H	H	V H	V H	H	H	H	V H	H	V H	L	L
SMME5	V H	H	H	V H		H	V H	V H	V H	V H	V H	H	H	H	V H	L	V H	L	H
SMME6	V H	H	L	V H	V H		L	H	V H	H	H	H	H	H	V H	L	V H	L	H
SMME7	L	L	L	V H	H	H		H	V H	H	H	H	H	H	V H	L	H	L	V H
SMME8	V H	V H	L	V H	H	L	V H		L	H	H	H	H	H	V H	L	H	L	V H
SMME9	H	V H	L	V H	H	L	V H	V H		V H	H	H	H	H	V H	L	H	L	H
SMME10	L	V H	L	V H	H	L	V H	V H	V H		H	H	L	V H	V H	L	H	V H	L
SMME11	L	L	L	V H	H	L	V H	V H	V H	H		V H	L	V H	V H	V H	H	V H	V H
SMME12	L	L	V H	H	H	V H	V H	V H	V H	L	H		H	V H	V H	V H	H	V H	N O
SMME13	L	L	V H	L	H	V H	H	V H	V H	V H	V H	V H		H	V H	V H	H	H	V H
SMME14	L	H	V H	H	V H	V H	H	L	V H	H	H	H	H		V H	V H	H	H	H
SMME15	L	V H	V H	H	V H	H	H	L	V H	V H	V H	V H	V H	V H		V H	H	H	H
SMME16	L	L	H	H	V H	H	H	H	H	H	H	H	H	H	H		L	H	L
SMME17	H	L	H	V H	V H	H	H	V H	V H	V H	V H	V H	V H	V H	V H	V H		V H	V H
SMME18	L	L	H	V H	V H	H	H	V H	L	L	L	L	L	H	H	H	H		H
SMME19	V H	V H	H	V H	V H	H	H	V H	H	H	H	H	L	L	L	H	H	H	

3.2.3 Step 3: Average Direct Relation Matrix

Further, all the matrices were integrated using the method of aggregation as given by the grey theory using equation (3).

$$\otimes \tilde{p}_{ij} = \left(\frac{\sum_k \otimes p_{ij}^k}{K}, \frac{\sum_k \bar{\otimes} p_{ij}^k}{K} \right) \quad (3)$$

$$\tilde{Z} = [\otimes \tilde{p}_{ij}]_{n \times n} \quad (4)$$

The group direct-influence grey matrix is shown in Error! Reference source not found..

Table 5. Group direct-influence grey matrix.

Code	SM ME 1	SM ME 2	SM ME 3	SM ME 4	SM ME 5	SM ME 6	SM ME 7	SM ME 8	SM ME 9	SM ME 10	SM ME 11	SM ME 12	SM ME 13	SM ME 14	SM ME 15	SM ME 16	SM ME 17	SM ME 18	SM ME 19
SMME1	(0,0)	(0.66 7,0.9 17)	(0.48 8,0.7 38)	(0.35 7,0.6 07)	(0.63 1,0.8 81)	(0.57 1,0.8 21)	(0.39 3,0.6 43)	(0.59 5,0.8 45)	(0.45 2,0.7 02)	(0.41 7,0.6 67)	(0.41 7,0.6 67)	(0.47 6,0.7 26)	(0.34 5,0.5 95)	(0.54 8,0.7 98)	(0.44 ,0.69)	(0.40 5,0.6 55)	(0.59 5,0.8 45)	(0.34 5,0.5 95)	(0.57 1,0.8 21)
SMME2	(0.54 8,0.7 98)	(0,0)	(0.61 9,0.8 38)	(0.48 8,0.7 38)	(0.61 9,0.8 69)	(0.34 5,0.5 95)	(0.51 2,0.7 62)	(0.47 6,0.7 26)	(0.63 1,0.8 81)	(0.44 ,0.66 7)	(0.27 4,0.5)	(0.69 ,0.94)	(0.5, 0.75)	(0.31 ,0.56 19)	(0.36 9,0.6 71)	(0.32 1,0.5 02)	(0.45 2,0.7 86)	(0.53 6,0.7 86)	(0.47 6,0.7 26)
SMME3	(0.36 9,0.6 19)	(0.73 8,0.9 88)	(0,0)	(0.69 ,0.94)	(0.69 ,0.94)	(0.46 4,0.7 14)	(0.61 9,0.8 69)	(0.31 ,0.56)	(0.47 6,0.7 26)	(0.34 5,0.5 95)	(0.34 5,0.5 95)	(0.31)	(0.67 9,0.9 29)	(0.44 ,0.69)	(0.57 1,0.8 21)	(0.46 4,0.7 14)	(0.38 1,0.6 31)	(0.53 6,0.7 86)	(0.65 5,0.9 05)
SMME4	(0.52 4,0.7 74)	(0.48 8,0.7 38)	(0.52 4,0.7 74)	(0,0)	(0.28 6,0.5 36)	(0.28 6,0.5 36)	(0.26 2,0.5 12)	(0.28 6,0.5 36)	(0.59 5,0.8 45)	(0.56 ,0.81)	(0.31 ,0.56)	(0.45 2,0.7 02)	(0.71 4,0.9 64)	(0.36 9,0.6 19)	(0.58 3,0.8 33)	(0.35 7,0.6 07)	(0.29 8,0.5 48)	(0.47 6,0.7 26)	(0.39 3,0.6 43)
SMME5	(0.61 9,0.8 69)	(0.5, 0.75)	(0.5, 0.75)	(0.52 4,0.7 74)	(0,0)	(0.48 8,0.7 38)	(0.52 4,0.7 74)	(0.53 6,0.7 86)	(0.51 2,0.7 62)	(0.51 2,0.7 62)	(0.51 2,0.7 62)	(0.47 6,0.7 26)	(0.46 4,0.7 14)	(0.32 1,0.5 07)	(0.53 6,0.7 86)	(0.29 8,0.5 48)	(0.53 6,0.7 86)	(0.46 4,0.7 14)	(0.56 ,0.81)
SMME6	(0.67 9,0.9 29)	(0.52 4,0.7 74)	(0.47 6,0.7 26)	(0.29 8,0.5 48)	(0.75 ,1)	(0,0)	(0.45 2,0.7 02)	(0.46 4,0.7 14)	(0.48 8,0.7 38)	(0.46 4,0.7 14)	(0.48 8,0.7 38)	(0.47 6,0.7 26)	(0.5, 0.75)	(0.31 ,0.56 74)	(0.52 4,0.7 48)	(0.29 8,0.5 48)	(0.51 2,0.7 62)	(0.45 2,0.7 02)	(0.51 2,0.7 62)
SMME7	(0.28 6,0.5 36)	(0.27 4,0.5 24)	(0.28 6,0.5 36)	(0.35 7,0.6 07)	(0.70 2,0.9 52)	(0.71 4,0.9 64)	(0,0)	(0.72 6,0.9 76)	(0.53 8,0.5 48)	(0.29 8,0.5 48)	(0.54 8,0.7 98)	(0.39 3,0.6 21)	(0.57 1,0.8 14)	(0.46 4,0.7 98)	(0.54 8,0.7 98)	(0.41 7,0.6 67)	(0.51 2,0.7 62)	(0.48 8,0.7 38)	(0.52 4,0.7 74)
SMME8	(0.65 5,0.9 05)	(0.53 6,0.7 86)	(0.57 1,0.8 21)	(0.56 ,0.81)	(0.58 3,0.8 33)	(0.61 9,0.8 69)	(0.31 ,0.56)	(0,0)	(0.47 6,0.7 26)	(0.31 ,0.56)	(0.48 8,0.7 38)	(0.34 5,0.5 95)	(0.52 4,0.7 74)	(0.31)	(0.32 1,0.5 07)	(0.32 1,0.5 07)	(0.66 7,0.9 17)	(0.45 2,0.7 02)	(0.72 6,0.9 76)
SMME9	(0.52 4,0.7 74)	(0.61 9,0.8 69)	(0.45 2,0.7 02)	(0.5, 0.75)	(0.60 7,0.8 57)	(0.65 5,0.9 05)	(0.59 5,0.8 45)	(0.72 6,0.9 76)	(0,0)	(0.66 7,0.8 93)	(0.71 4,0.9 64)	(0.70 2,0.9 52)	(0.66 7,0.9 17)	(0.54 8,0.7 98)	(0.69 ,0.94)	(0.63 1,0.8 81)	(0.45 2,0.7 02)	(0.64 3,0.8 93)	(0.69 ,0.94)
SMME10	(0.41 7,0.6 67)	(0.52 4,0.7 74)	(0.28 6,0.5 36)	(0.48 8,0.7 38)	(0.44 ,0.69)	(0.34 5,0.5 95)	(0.46 4,0.7 14)	(0.39 3,0.6 48)	(0.29 8,0.5 48)	(0,0)	(0.27 4,0.5 24)	(0.29 8,0.5 48)	(0.46 4,0.7 14)	(0.53 6,0.7 86)	(0.51 2,0.7 62)	(0.27 4,0.5 24)	(0.28 6,0.5 36)	(0.31 6,0.5 36)	(0.66 7,0.9 17)
SMME11	(0.51 2,0.7 62)	(0.29 8,0.5 48)	(0.52 4,0.7 74)	(0.61 9,0.8 69)	(0.47 6,0.7 26)	(0.48 8,0.7 38)	(0.5, 0.75)	(0.51 2,0.7 62)	(0.51 2,0.7 62)	(0.5, 0.75)	(0,0)	(0.52 4,0.7 74)	(0.46 4,0.7 14)	(0.51 2,0.7 62)	(0.52 4,0.7 74)	(0.53 6,0.7 86)	(0.48 8,0.7 38)	(0.53 6,0.7 86)	(0.52 4,0.7 74)
SMME12	(0.48 8,0.7 38)	(0.41 7,0.6 67)	(0.47 6,0.7 26)	(0.45 2,0.7 02)	(0.48 8,0.7 38)	(0.45 2,0.7 02)	(0.44 ,0.69)	(0.52 4,0.7 74)	(0.52 4,0.7 74)	(0.25 ,0.5)	(0.5, 0.75)	(0,0)	(0.72 6,0.9 76)	(0.34 5,0.5 95)	(0.51 2,0.7 62)	(0.33 3,0.5 83)	(0.32 1,0.5 07)	(0.54 8,0.7 98)	(0.63 1,0.8 21)
SMME13	(0.42 9,0.6 79)	(0.40 5,0.6 55)	(0.56 ,0.81)	(0.53 6,0.7 86)	(0.46 4,0.7 14)	(0.59 5,0.8 45)	(0.51 2,0.7 62)	(0.52 4,0.7 74)	(0.53 6,0.7 86)	(0.51 2,0.7 62)	(0.51 2,0.7 62)	(0.52 4,0.7 74)	(0,0)	(0.5, 0.75)	(0.53 6,0.7 86)	(0.51 2,0.7 62)	(0.5, 0.75)	(0.48 8,0.7 38)	(0.51 2,0.7 62)
SMME14	(0.35 7,0.6 07)	(0.40 5,0.6 55)	(0.33 3,0.5 83)	(0.31 ,0.56)	(0.44 ,0.69)	(0.33 3,0.5 83)	(0.29 8,0.5 48)	(0.51 2,0.7 62)	(0.32 1,0.5 07)	(0.29 8,0.5 48)	(0.29 8,0.5 48)	(0.27 4,0.5 24)	(0.27 4,0.5 24)	(0,0)	(0.34 5,0.5 95)	(0.29 8,0.5 48)	(0.31 ,0.56)	(0.29 8,0.5 48)	(0.31 ,0.56)

SMME15	(0.31 ,0.56)	(0.66 7,0.9 17)	(0.51 2,0.7 62)	(0.51 2,0.7 62)	(0.67 9,0.9 29)	(0.64 3,0.8 93)	(0.69 ,0.94)	(0.42 9,0.6 79)	(0.65 5,0.9 05)	(0.70 2,0.9 52)	(0.56 ,0.81)	(0.72 6,0.9 76)	(0.70 2,0.9 52)	(0.61 9,0.8 69)	(0,0)	(0.44 ,0.69)	(0.72 6,0.9 76)	(0.70 2,0.9 52)	(0.70 2,0.9 52)	
SMME16	(0.52 4,0.7 74)	(0.31 ,0.56)	(0.44 ,0.69)	(0.44 ,0.69)	(0.34 5,0.5 95)	(0.44 ,0.69)	(0.42 9,0.6 79)	(0.48 8,0.7 38)	(0.45 2,0.7 02)	(0.39 3,0.6 43)	(0.31 ,0.56)	(0.31 ,0.56)	(0.29 8,0.5 48)	(0.27 4,0.5 24)	(0.27 4,0.5 24)	(0,0)	(0.25 ,0.5)	(0.27 4,0.5 24)	(0.25 4,0.5 24)	
SMME17	(0.52 4,0.7 74)	(0.36 9,0.6 19)	(0.32 1,0.5 71)	(0.57 1,0.8 21)	(0.39 3,0.6 43)	(0.36 9,0.6 19)	(0.28 6,0.5 36)	(0.33 3,0.5 83)	(0.35 7,0.6 07)	(0.33 3,0.5 83)	(0.40 5,0.6 55)	(0.36 9,0.6 19)	(0.36 9,0.6 19)	(0.33 3,0.5 83)	(0.33 3,0.5 83)	(0.29 8,0.5 48)	(0,0)	(0.29 8,0.5 48)	(0.29 8,0.5 48)	(0.34 5,0.5 95)
SMME18	(0.5, 0.75)	(0.36 9,0.6 19)	(0.5, 0.75)	(0.58 3,0.8 33)	(0.51 2,0.7 62)	(0.54 8,0.7 98)	(0.5, 0.75)	(0.52 4,0.7 74)	(0.47 6,0.7 26)	(0.44 ,0.69)	(0.5, 0.75)	(0.46 4,0.7 14)	(0.46 4,0.7 14)	(0.5, 0.75)	(0.5, 0.75)	(0.5, 0.75)	(0.5, 0.75)	(0.5, 0.75)	(0,0)	(0.47 6,0.7 26)
SMME19	(0.61 9,0.8 69)	(0.66 7,0.9 17)	(0.66 7,0.9 17)	(0.52 4,0.7 74)	(0.69 ,0.94)	(0.46 4,0.7 14)	(0.67 9,0.9 29)	(0.67 9,0.9 29)	(0.46 4,0.7 14)	(0.65 5,0.9 05)	(0.71 4,0.9 64)	(0.57 1,0.8 21)	(0.69 ,0.94)	(0.52 4,0.7 74)	(0.40 5,0.6 55)	(0.70 2,0.9 52)	(0.45 2,0.7 02)	(0.70 2,0.9 52)	(0,0)	

3.2.4 Step 4: Develop Normalized Direct Relation Grey Matrix

The normalized direct-influence grey matrix X was attained using equation (12), and corresponding data are shown in **Table 6**.

Table 6. Normalized direct-influence grey matrix.

Code	SM ME 1	SM ME 2	SM ME 3	SM ME 4	SM ME 5	SM ME 6	SM ME 7	SM ME 8	SM ME 9	SM ME 10	SM ME 11	SM ME 12	SM ME 13	SM ME 14	SM ME 15	SM ME 16	SM ME 17	SM ME 18	SM ME 19
SM ME 1	(0,0)	(0.04 3,0.0 59)	(0.03 1,0.0 47)	(0.02 3,0.0 39)	(0.04 1,0.0 57)	(0.03 7,0.0 53)	(0.02 5,0.0 41)	(0.03 8,0.0 54)	(0.02 9,0.0 45)	(0.02 7,0.0 43)	(0.02 7,0.0 43)	(0.03 1,0.0 47)	(0.02 2,0.0 38)	(0.03 5,0.0 51)	(0.02 8,0.0 44)	(0.02 6,0.0 42)	(0.03 8,0.0 54)	(0.02 2,0.0 38)	(0.03 7,0.0 53)
SM ME 2	(0.03 5,0.0 51)	(0,0)	(0.04 ,0.05 6)	(0.03 1,0.0 47)	(0.04 ,0.05 6)	(0.02 2,0.0 38)	(0.03 3,0.0 49)	(0.03 1,0.0 47)	(0.04 1,0.0 57)	(0.02 8,0.0 43)	(0.01 8,0.0 32)	(0.04 4,0.0 6)	(0.03 2,0.0 48)	(0.02 ,0.03 6)	(0.02 4,0.0 4)	(0.02 1,0.0 37)	(0.02 9,0.0 45)	(0.03 4,0.0 5)	(0.03 1,0.0 47)
SM ME 3	(0.02 4,0.0 4)	(0.04 7,0.0 64)	(0,0)	(0.04 4,0.0 6)	(0.04 4,0.0 6)	(0.03 ,0.04 6)	(0.04 ,0.05 6)	(0.02 ,0.03 6)	(0.03 1,0.0 47)	(0.02 2,0.0 38)	(0.02 2,0.0 38)	(0.02 ,0.03 6)	(0.04 4,0.0 6)	(0.02 8,0.0 44)	(0.03 7,0.0 53)	(0.03 ,0.04 6)	(0.02 4,0.0 41)	(0.03 4,0.0 5)	(0.03 4,0.0 58)
SM ME 4	(0.03 4,0.0 5)	(0.03 1,0.0 47)	(0.03 4,0.0 5)	(0,0)	(0.01 8,0.0 34)	(0.01 8,0.0 34)	(0.01 7,0.0 33)	(0.01 8,0.0 34)	(0.03 8,0.0 54)	(0.03 6,0.0 52)	(0.02 ,0.03 6)	(0.02 9,0.0 45)	(0.04 6,0.0 62)	(0.02 4,0.0 4)	(0.03 7,0.0 54)	(0.02 3,0.0 39)	(0.01 9,0.0 35)	(0.03 4,0.0 47)	(0.03 1,0.0 41)
SM ME 5	(0.04 ,0.05 6)	(0.03 2,0.0 48)	(0.03 2,0.0 48)	(0.03 4,0.0 5)	(0,0)	(0.03 1,0.0 47)	(0.03 4,0.0 5)	(0.03 4,0.0 5)	(0.03 4,0.0 5)	(0.03 3,0.0 49)	(0.03 3,0.0 49)	(0.03 1,0.0 47)	(0.03 ,0.04 6)	(0.02 1,0.0 37)	(0.03 4,0.0 5)	(0.01 9,0.0 35)	(0.03 4,0.0 5)	(0.03 ,0.04 6)	(0.03 6,0.0 52)
SM ME 6	(0.04 4,0.0 6)	(0.03 4,0.0 5)	(0.03 1,0.0 47)	(0.01 9,0.0 35)	(0.04 8,0.0 64)	(0,0)	(0.02 9,0.0 45)	(0.03 ,0.04 6)	(0.03 1,0.0 47)	(0.03 ,0.04 6)	(0.03 1,0.0 47)	(0.03 1,0.0 47)	(0.03 2,0.0 48)	(0.02 ,0.03 6)	(0.03 4,0.0 5)	(0.01 9,0.0 35)	(0.03 3,0.0 49)	(0.02 9,0.0 45)	(0.03 3,0.0 49)
SM ME 7	(0.01 8,0.0 34)	(0.01 8,0.0 34)	(0.01 8,0.0 34)	(0.02 3,0.0 39)	(0.04 5,0.0 61)	(0.04 6,0.0 62)	(0,0)	(0.04 7,0.0 63)	(0.03 4,0.0 5)	(0.01 9,0.0 35)	(0.03 5,0.0 51)	(0.02 5,0.0 41)	(0.03 7,0.0 53)	(0.03 ,0.04 6)	(0.03 5,0.0 51)	(0.02 7,0.0 43)	(0.03 3,0.0 49)	(0.03 1,0.0 47)	(0.03 4,0.0 5)
SM ME 8	(0.04 2,0.0 58)	(0.03 4,0.0 5)	(0.03 7,0.0 53)	(0.03 6,0.0 52)	(0.03 7,0.0 54)	(0.04 ,0.05 6)	(0.02 ,0.03 6)	(0,0)	(0.03 1,0.0 47)	(0.02 ,0.03 6)	(0.03 1,0.0 47)	(0.02 2,0.0 38)	(0.03 4,0.0 5)	(0.02 ,0.03 6)	(0.02 1,0.0 37)	(0.02 1,0.0 37)	(0.04 3,0.0 59)	(0.02 9,0.0 45)	(0.04 7,0.0 63)
SM ME 9	(0.03 4,0.0 5)	(0.04 ,0.05 6)	(0.02 9,0.0 45)	(0.03 2,0.0 48)	(0.03 9,0.0 55)	(0.04 2,0.0 58)	(0.03 8,0.0 54)	(0.04 7,0.0 63)	(0,0)	(0.04 3,0.0 57)	(0.04 6,0.0 62)	(0.04 5,0.0 61)	(0.04 3,0.0 59)	(0.03 5,0.0 51)	(0.04 4,0.0 6)	(0.04 1,0.0 57)	(0.02 9,0.0 45)	(0.04 1,0.0 57)	(0.04 4,0.0 6)

SM ME 10	(0.02 7,0.0 43)	(0.03 4,0.0 5)	(0.01 8,0.0 34)	(0.03 1,0.0 47)	(0.02 8,0.0 44)	(0.02 2,0.0 38)	(0.03 ,0.04 6)	(0.02 5,0.0 41)	(0.01 9,0.0 35)	(0.01 (0,0)	(0.01 8,0.0 34)	(0.01 9,0.0 35)	(0.03 ,0.04 6)	(0.03 4,0.0 5)	(0.03 3,0.0 49)	(0.01 8,0.0 34)	(0.01 8,0.0 34)	(0.02 ,0.03 6)	(0.04 3,0.0 59)
SM ME 11	(0.03 3,0.0 49)	(0.01 9,0.0 35)	(0.03 4,0.0 5)	(0.04 ,0.05 6)	(0.03 1,0.0 47)	(0.03 1,0.0 47)	(0.03 2,0.0 48)	(0.03 3,0.0 49)	(0.03 3,0.0 49)	(0.03 2,0.0 48)	(0.03 (0,0)	(0.03 4,0.0 5)	(0.03 ,0.04 6)	(0.03 3,0.0 49)	(0.03 4,0.0 5)	(0.03 4,0.0 5)	(0.03 1,0.0 47)	(0.03 4,0.0 5)	(0.03 4,0.0 5)
SM ME 12	(0.03 1,0.0 47)	(0.02 7,0.0 43)	(0.03 1,0.0 47)	(0.02 9,0.0 45)	(0.03 1,0.0 47)	(0.02 9,0.0 45)	(0.02 8,0.0 44)	(0.03 4,0.0 5)	(0.03 4,0.0 5)	(0.01 6,0.0 32)	(0.03 2,0.0 48)	(0.03 (0,0)	(0.04 7,0.0 63)	(0.02 2,0.0 38)	(0.03 3,0.0 49)	(0.02 1,0.0 37)	(0.02 1,0.0 37)	(0.03 5,0.0 51)	(0.04 1,0.0 55)
SM ME 13	(0.02 8,0.0 44)	(0.02 6,0.0 42)	(0.03 6,0.0 52)	(0.03 4,0.0 5)	(0.03 ,0.04 6)	(0.03 8,0.0 54)	(0.03 3,0.0 49)	(0.03 4,0.0 5)	(0.03 4,0.0 5)	(0.03 3,0.0 49)	(0.03 3,0.0 49)	(0.03 4,0.0 5)	(0.03 (0,0)	(0.03 2,0.0 48)	(0.03 4,0.0 5)	(0.03 3,0.0 49)	(0.03 2,0.0 48)	(0.03 1,0.0 47)	(0.03 3,0.0 49)
SM ME 14	(0.02 3,0.0 39)	(0.02 6,0.0 42)	(0.02 1,0.0 37)	(0.02 ,0.03 6)	(0.02 8,0.0 44)	(0.02 1,0.0 37)	(0.01 9,0.0 35)	(0.03 3,0.0 49)	(0.02 1,0.0 37)	(0.01 9,0.0 35)	(0.01 9,0.0 35)	(0.01 8,0.0 34)	(0.01 8,0.0 34)	(0.02 (0,0)	(0.02 2,0.0 38)	(0.01 9,0.0 35)	(0.02 ,0.03 6)	(0.01 9,0.0 35)	(0.02 ,0.03 6)
SM ME 15	(0.02 ,0.03 6)	(0.04 3,0.0 59)	(0.03 3,0.0 49)	(0.03 3,0.0 49)	(0.04 4,0.0 6)	(0.04 1,0.0 57)	(0.04 4,0.0 6)	(0.02 8,0.0 44)	(0.04 2,0.0 58)	(0.04 5,0.0 61)	(0.03 6,0.0 52)	(0.04 7,0.0 63)	(0.04 5,0.0 61)	(0.04 ,0.05 6)	(0.02 (0,0)	(0.04 8,0.0 44)	(0.04 7,0.0 63)	(0.04 5,0.0 61)	(0.04 5,0.0 61)
SM ME 16	(0.03 4,0.0 5)	(0.02 ,0.03 6)	(0.02 8,0.0 44)	(0.02 8,0.0 44)	(0.02 2,0.0 38)	(0.02 8,0.0 44)	(0.02 8,0.0 44)	(0.03 1,0.0 47)	(0.02 9,0.0 45)	(0.02 5,0.0 41)	(0.02 ,0.03 6)	(0.02 ,0.03 6)	(0.01 9,0.0 35)	(0.01 8,0.0 34)	(0.01 8,0.0 34)	(0.01 (0,0)	(0.01 6,0.0 32)	(0.01 8,0.0 34)	(0.01 6,0.0 32)
SM ME 17	(0.03 4,0.0 5)	(0.02 4,0.0 4)	(0.02 1,0.0 37)	(0.03 7,0.0 53)	(0.02 5,0.0 41)	(0.02 4,0.0 4)	(0.01 8,0.0 34)	(0.02 1,0.0 37)	(0.02 3,0.0 39)	(0.02 1,0.0 37)	(0.02 6,0.0 42)	(0.02 4,0.0 4)	(0.02 4,0.0 4)	(0.02 1,0.0 37)	(0.02 1,0.0 37)	(0.01 9,0.0 35)	(0.01 (0,0)	(0.01 9,0.0 35)	(0.02 2,0.0 38)
SM ME 18	(0.03 2,0.0 48)	(0.02 4,0.0 4)	(0.03 2,0.0 48)	(0.03 7,0.0 54)	(0.03 3,0.0 49)	(0.03 5,0.0 51)	(0.03 2,0.0 48)	(0.03 4,0.0 5)	(0.03 1,0.0 47)	(0.02 8,0.0 44)	(0.03 2,0.0 48)	(0.03 ,0.04 6)	(0.03 ,0.04 6)	(0.03 2,0.0 48)	(0.03 2,0.0 48)	(0.03 2,0.0 48)	(0.03 2,0.0 48)	(0.03 (0,0)	(0.03 1,0.0 47)
SM ME 19	(0.04 ,0.05 6)	(0.04 3,0.0 59)	(0.04 3,0.0 59)	(0.03 4,0.0 5)	(0.04 4,0.0 6)	(0.03 ,0.04 6)	(0.04 4,0.0 6)	(0.04 4,0.0 6)	(0.03 ,0.04 6)	(0.04 2,0.0 58)	(0.04 6,0.0 62)	(0.03 7,0.0 53)	(0.04 4,0.0 6)	(0.03 4,0.0 5)	(0.02 6,0.0 42)	(0.04 5,0.0 61)	(0.02 9,0.0 45)	(0.04 5,0.0 61)	(0.04 (0,0)

$$\tilde{X} = \frac{1}{r} * \tilde{Z} \tag{5}$$

where,

$$r = \max_{1 \leq i \leq n} (\sum_{j=1}^n \otimes \tilde{p}_{ij}) \tag{6}$$

3.2.5 Step 5: Construction of Grey Total Relation Matrix

The Grey total relation matrix \tilde{T} is defined as,

$$\tilde{T} = \tilde{X}(I - \tilde{X})^{-1} \tag{7}$$

where I is the identity matrix, and \tilde{X} is the normalized direct-influence matrix. The Grey total relation matrix \tilde{T} is presented in **Table .**

Table 7. Grey total relation matrix.

Code	SM ME1	SM ME2	SM ME3	SM ME4	SM ME5	SM ME6	SM ME7	SM ME8	SM ME9	SM ME10	SM ME11	SM ME12	SM ME13	SM ME14	SM ME15	SM ME16	SM ME17	SM ME18	SM ME19
SM ME1	(0.03 9,0.2 51)	(0.08 ,0.30 5)	(0.06 8,0.2 9)	(0.06 1,0.2 87)	(0.08 2,0.3 21)	(0.07 4,0.3)	(0.06 2,0.2 83)	(0.07 6,0.3 05)	(0.06 7,0.2 92)	(0.06 2,0.2 77)	(0.06 2,0.2 79)	(0.06 7,0.2 87)	(0.06 3,0.2 97)	(0.06 8,0.2 79)	(0.06 5,0.2 87)	(0.05 8,0.2 64)	(0.07 3,0.2 91)	(0.05 9,0.2 82)	(0.07 7,0.3 12)
SM ME2	(0.07 3,0.2 98)	(0.03 9,0.2 48)	(0.07 6,0.2 96)	(0.06 9,0.2 93)	(0.08 1,0.3 19)	(0.06 ,0.28 5)	(0.06 9,0.2 89)	(0.06 9,0.2 96)	(0.07 8,0.3 01)	(0.06 3,0.2 76)	(0.05 4,0.2 68)	(0.08 ,0.29 8)	(0.07 3,0.3 05)	(0.05 4,0.2 64)	(0.06 1,0.2 81)	(0.05 3,0.2 58)	(0.06 4,0.2 81)	(0.07 1,0.2 92)	(0.07 2,0.3 05)
SM ME3	(0.06 4,0.2 97)	(0.08 6,0.3 17)	(0.04 ,0.25 3)	(0.08 3,0.3 14)	(0.08 8,0.3 33)	(0.06 9,0.3 01)	(0.07 8,0.3 04)	(0.06 1,0.2 96)	(0.07 1,0.3 02)	(0.06 ,0.28 1)	(0.06 ,0.28 2)	(0.05 9,0.2 85)	(0.06 6,0.3 26)	(0.06 3,0.2 8)	(0.07 5,0.3 02)	(0.06 3,0.2 75)	(0.06 2,0.2 86)	(0.07 3,0.3 01)	(0.08 4,0.3 25)
SM ME4	(0.06 7,0.2 82)	(0.06 6,0.2 79)	(0.06 7,0.2 77)	(0.03 5,0.2 34)	(0.05 7,0.2 84)	(0.05 3,0.2 67)	(0.05 1,0.2 6)	(0.05 4,0.2 7)	(0.07 2,0.2 85)	(0.06 7,0.2 71)	(0.05 2,0.2 58)	(0.06 2,0.2 7)	(0.08 2,0.3 03)	(0.05 4,0.2 54)	(0.07 ,0.28)	(0.05 2,0.2 48)	(0.05 2,0.2 58)	(0.06 4,0.2 74)	(0.06 3,0.2 85)
SM ME5	(0.07 8,0.3 08)	(0.07 1,0.3)	(0.07 ,0.29 5)	(0.04 2,0.3 01)	(0.04 4,0.2 72)	(0.07 ,0.3)	(0.07 1,0.2 95)	(0.07 3,0.3 05)	(0.07 3,0.3 02)	(0.06 9,0.2 87)	(0.06 9,0.2 89)	(0.06 8,0.2 91)	(0.07 2,0.3 09)	(0.05 6,0.2 7)	(0.07 2,0.2 97)	(0.05 2,0.2 62)	(0.07 1,0.2 92)	(0.06 8,0.2 94)	(0.07 8,0.3 17)
SM ME6	(0.08 1,0.3 08)	(0.07 2,0.2 97)	(0.06 8,0.2 9)	(0.05 8,0.2 84)	(0.09 ,0.32 9)	(0.03 9,0.2 51)	(0.06 6,0.2 87)	(0.06 9,0.2 98)	(0.06 9,0.2 95)	(0.06 5,0.2 81)	(0.06 7,0.2 84)	(0.06 7,0.2 88)	(0.07 3,0.3 07)	(0.05 4,0.2 66)	(0.07 ,0.29 2)	(0.05 2,0.2 59)	(0.06 9,0.2 87)	(0.06 6,0.2 89)	(0.07 4,0.3 1)
SM ME7	(0.05 8,0.2 85)	(0.05 6,0.2 81)	(0.05 6,0.2 78)	(0.06 1,0.2 87)	(0.08 6,0.3 25)	(0.08 3,0.3 09)	(0.03 7,0.2 43)	(0.08 5,0.3 13)	(0.07 2,0.2 97)	(0.05 5,0.2 7)	(0.07 1,0.2 87)	(0.06 2,0.2 82)	(0.07 7,0.3 1)	(0.06 3,0.2 74)	(0.07 1,0.2 93)	(0.05 9,0.2 65)	(0.06 9,0.2 87)	(0.06 8,0.2 9)	(0.07 4,0.3 09)
SM ME8	(0.08 1,0.3 09)	(0.07 3,0.3)	(0.07 4,0.2 98)	(0.07 4,0.3 01)	(0.08 ,0.32 1)	(0.07 7,0.3 05)	(0.05 7,0.2 8)	(0.04 ,0.25 5)	(0.06 9,0.2 96)	(0.05 6,0.2 73)	(0.06 7,0.2 85)	(0.05 9,0.2 81)	(0.07 4,0.3 1)	(0.05 4,0.2 67)	(0.05 8,0.2 82)	(0.05 4,0.2 62)	(0.07 8,0.2 98)	(0.06 6,0.2 9)	(0.08 7,0.3 23)
SM ME9	(0.08 2,0.3 42)	(0.08 7,0.3 45)	(0.07 6,0.3 3)	(0.08 ,0.33 8)	(0.09 2,0.3 66)	(0.09 ,0.34 8)	(0.08 4,0.3 37)	(0.09 5,0.3 56)	(0.04 9,0.2 92)	(0.08 6,0.3 31)	(0.09 ,0.33 8)	(0.09 ,0.34 2)	(0.09 4,0.3 61)	(0.07 7,0.3 19)	(0.09 ,0.34 3)	(0.08 ,0.31 7)	(0.07 4,0.3 24)	(0.08 8,0.3 42)	(0.09 6,0.3 64)
SM ME10	(0.05 9,0.2 66)	(0.06 5,0.2 71)	(0.05 ,0.25 4)	(0.06 3,0.2 69)	(0.06 4,0.2 83)	(0.05 4,0.2 61)	(0.06 ,0.26 3)	(0.05 8,0.2 67)	(0.05 1,0.2 58)	(0.03 ,0.21 2)	(0.04 8,0.2 46)	(0.05 ,0.25 2)	(0.06 4,0.2 78)	(0.06 2,0.2 55)	(0.06 3,0.2 66)	(0.04 5,0.2 34)	(0.04 9,0.2 49)	(0.05 2,0.2 55)	(0.07 6,0.2 91)
SM ME11	(0.07 2,0.3 04)	(0.05 9,0.2 89)	(0.07 1,0.2 98)	(0.07 8,0.3 08)	(0.07 4,0.3 18)	(0.07 1,0.3 01)	(0.07 ,0.29 5)	(0.07 3,0.3 06)	(0.07 2,0.3 02)	(0.06 8,0.2 88)	(0.03 7,0.2 44)	(0.07 1,0.2 95)	(0.07 2,0.3 11)	(0.06 7,0.2 83)	(0.07 1,0.2 98)	(0.06 7,0.2 78)	(0.06 8,0.2 91)	(0.07 9,0.2 99)	(0.07 6,0.3 16)
SM ME12	(0.06 9,0.2 93)	(0.06 4,0.2 87)	(0.06 7,0.2 87)	(0.06 6,0.2 89)	(0.07 3,0.3 09)	(0.06 7,0.2 9)	(0.06 4,0.2 83)	(0.07 2,0.2 97)	(0.07 1,0.2 93)	(0.05 1,0.2 64)	(0.06 7,0.2 81)	(0.03 7,0.2 39)	(0.08 6,0.3 17)	(0.05 5,0.2 64)	(0.06 4,0.2 88)	(0.05 4,0.2 58)	(0.05 6,0.2 72)	(0.07 2,0.2 91)	(0.08 ,0.31 1)
SM ME13	(0.06 8,0.3 01)	(0.06 6,0.2 98)	(0.07 4,0.3 02)	(0.07 4,0.3 05)	(0.07 4,0.3 2)	(0.07 8,0.3 09)	(0.07 1,0.2 98)	(0.07 4,0.3 09)	(0.07 4,0.3 05)	(0.06 9,0.2 9)	(0.07 ,0.29 2)	(0.07 1,0.2 97)	(0.04 3,0.2 69)	(0.06 7,0.2 84)	(0.07 3,0.3 01)	(0.06 6,0.2 78)	(0.06 9,0.2 93)	(0.07 ,0.29 8)	(0.07 6,0.3 17)
SM ME14	(0.05 ,0.23 9)	(0.05 2,0.2 41)	(0.04 7,0.2 33)	(0.04 6,0.2 35)	(0.05 8,0.2 57)	(0.04 8,0.2 37)	(0.04 5,0.2 3)	(0.05 9,0.2 5)	(0.04 7,0.2 36)	(0.04 4,0.2 24)	(0.04 4,0.2 25)	(0.04 3,0.2 27)	(0.04 6,0.2 42)	(0.02 4,0.1 85)	(0.04 8,0.2 33)	(0.04 1,0.2 14)	(0.04 5,0.2 28)	(0.04 5,0.2 31)	(0.04 9,0.2 45)
SM ME15	(0.06 8,0.3 27)	(0.08 9,0.3 45)	(0.07 9,0.3 32)	(0.08 ,0.33 7)	(0.09 5,0.3 67)	(0.08 8,0.3 45)	(0.08 9,0.3 41)	(0.07 6,0.3 37)	(0.08 9,0.3 45)	(0.08 8,0.3 33)	(0.08 ,0.32 7)	(0.09 1,0.3 41)	(0.09 5,0.3 61)	(0.08 1,0.3 21)	(0.04 7,0.2 85)	(0.06 8,0.3 03)	(0.09 ,0.33 8)	(0.09 1,0.3 43)	(0.09 5,0.3 63)
SM ME16	(0.06 2,0.2 58)	(0.04 9,0.2 44)	(0.05 6,0.2 48)	(0.05 6,0.2 52)	(0.05 4,0.2 61)	(0.05 7,0.2 52)	(0.05 5,0.2 46)	(0.06 ,0.25 8)	(0.05 7,0.2 52)	(0.05 1,0.2 38)	(0.04 7,0.2 34)	(0.04 7,0.2 38)	(0.05 ,0.25 3)	(0.04 3,0.2 26)	(0.04 6,0.2 38)	(0.02 4,0.1 88)	(0.02 3,0.2 32)	(0.04 6,0.2 38)	(0.04 8,0.2 51)
SM ME17	(0.06 2,0.2 6)	(0.05 3,0.2 49)	(0.04 9,0.2 43)	(0.06 5,0.2 61)	(0.05 7,0.2 66)	(0.05 2,0.2 49)	(0.04 6,0.2 39)	(0.05 1,0.2 5)	(0.05 2,0.2 49)	(0.04 8,0.2 36)	(0.05 3,0.2 42)	(0.05 1,0.2 43)	(0.05 5,0.2 59)	(0.04 7,0.2 31)	(0.05 ,0.24 3)	(0.04 4,0.2 24)	(0.02 8,0.2 03)	(0.04 7,0.2 42)	(0.05 3,0.2 59)
SM ME18	(0.07 1,0.2 99)	(0.06 2,0.2 9)	(0.06 9,0.2 93)	(0.07 5,0.3 03)	(0.07 5,0.3 17)	(0.07 3,0.3 01)	(0.06 9,0.2 92)	(0.07 3,0.3 03)	(0.06 9,0.2 96)	(0.06 4,0.2 81)	(0.06 8,0.2 86)	(0.06 6,0.2 88)	(0.07 1,0.3 07)	(0.06 6,0.2 79)	(0.06 9,0.2 93)	(0.06 4,0.2 72)	(0.06 8,0.2 88)	(0.03 8,0.2 48)	(0.07 2,0.3 09)
SM ME19	(0.08 6,0.3 42)	(0.08 8,0.3 43)	(0.08 8,0.3 38)	(0.08 ,0.33 5)	(0.09 5,0.3 65)	(0.07 7,0.3 32)	(0.08 8,0.3 37)	(0.09 1,0.3 49)	(0.07 7,0.3 31)	(0.08 4,0.3 27)	(0.08 8,0.3 33)	(0.08 1,0.3 29)	(0.09 3,0.3 57)	(0.07 5,0.3 13)	(0.07 2,0.3 22)	(0.08 4,0.3 16)	(0.07 3,0.3 19)	(0.09 ,0.34)	(0.05 1,0.3 02)

3.2.6 Step 6: Develop the Crisp Total Relation Matrix

The modified 'Converting Fuzzy Data into Crisp Scores (CFCS)' method is a valuable tool for converting fuzzy data into crisp scores, enabling more accurate and reliable analysis of complex data [94, 95]. The step-by-step outline of the modified CFCS method in the context of grey numbers involves converting linguistic data into numerical values using the grey linguistic scale, calculating the weighted average of these values using the grey relational coefficient (GRC), determining the maximum and minimum values of the weighted average for each component, calculating the range of the weighted average, normalizing the range using the maximum possible range, and finally, converting the normalized range into crisp scores using the modified CFCS method. Below is the step-by-step outline of the modified CFCS method, presented in the context of grey numbers:

- i) Transforming into a crisp number

$$\underline{\otimes} \hat{p}_{ij} = \left(\underline{\otimes} \tilde{p}_{ij} - \min_j \underline{\otimes} \tilde{p}_{ij} \right) / \Delta_{min}^{max} \quad (8)$$

$$\overline{\otimes} \hat{p}_{ij} = \left(\overline{\otimes} \tilde{p}_{ij} - \min_j \overline{\otimes} \tilde{p}_{ij} \right) / \Delta_{min}^{max} \quad (9)$$

$$\text{where } \Delta_{min}^{max} = \max_j \overline{\otimes} p_{ij} - \min_j \underline{\otimes} p_{ij} \quad (10)$$

- ii) Determine the total normalized crisp values:

$$p_{ij} = \left(\frac{(\underline{\otimes} \hat{p}_{ij}(1-\underline{\otimes} \hat{p}_{ij})) + (\overline{\otimes} \hat{p}_{ij} \times \overline{\otimes} \hat{p}_{ij})}{(1-\underline{\otimes} \hat{p}_{ij} + \overline{\otimes} \hat{p}_{ij})} \right) \quad (11)$$

- iii) Determine the crisp values:

$$p_{ij}^* = \left(\min_j \underline{\otimes} \tilde{p}_{ij} + (p_{ij} \times \Delta_{min}^{max}) \right) \quad (12)$$

The crisp Total Relation Matrix was obtained in the below equation (13).

$$T = [\hat{p}_{ij}^*] \quad (13)$$

3.2.7 Step 7: Calculation of Prominence and Influence Values

Table 8 displays the crisp total relation matrix, which provides a comprehensive overview of the cause-and-effect relationships between various components in the social media marketing landscape in Saudi Arabia.

Table 8. Crisp total relation matrix.

Code	SM ME1	SM ME2	SM ME3	SM ME4	SM ME5	SM ME6	SM ME7	SM ME8	SM ME9	SM ME10	SMM EM11	SMM EM12	SMM EM13	SM ME14	SM ME15	SM ME16	SM ME17	SM ME18	SM ME19
SM ME1	0.15	0.21	0.20	0.19	0.23	0.21	0.19	0.21	0.20	0.186	0.188	0.197	0.201	0.19	0.19	0.17	0.20	0.18	0.22
SM ME2	3937	9192	062	3179	2001	1138	1138	6412	0938	993	669	152	675	2649	559	5864	5048	8736	2147
SM ME3	0.20	0.15	0.21	0.20	0.22	0.19	0.20	0.20	0.21	0.187	0.175	0.213	0.214	0.17	0.18	0.16	0.19	0.20	0.21
SM ME4	9304	1385	0278	3229	9567	1746	0203	5581	4855	028	341	907	325	2435	9492	8543	1905	383	3542
SM ME5	0.20	0.23	0.15	0.22	0.24	0.20	0.21	0.19	0.21	0.188	0.189	0.190	0.237	0.19	0.21	0.18	0.19	0.21	0.23
SM ME6	2317	171	5379	7838	4312	9283	7115	9652	0447	278	297	457	511	0317	3779	7308	3523	1836	6043
SM ME7	0.19	0.19	0.19	0.13	0.18	0.17	0.16	0.17	0.19	0.187	0.167	0.182	0.218	0.16	0.19	0.16	0.16	0.18	0.19
SM ME8	4433	1303	054	9692	8025	4512	8139	702	9624	191	463	907	841	7228	5275	1382	7561	6988	3411
SM ME9	0.22	0.20	0.20	0.21	0.17	0.20	0.20	0.21	0.21	0.198	0.200	0.201	0.216	0.17	0.20	0.17	0.20	0.20	0.22
SM ME10	0408	931	5346	1135	1343	861	5996	4539	195	938	576	176	384	8166	7953	0892	4008	2784	582
SM ME11	0.22	0.20	0.20	0.18	0.24	0.15	0.19	0.20	0.20	0.191	0.195	0.198	0.215	0.17	0.20	0.16	0.19	0.19	0.21
SM ME12	2126	7987	0175	8959	2757	3354	7094	636	4648	854	58	074	383	4107	3624	7884	9164	8435	833
SM ME13	0.18	0.18	0.18	0.19	0.23	0.22	0.14	0.22	0.20	0.177	0.200	0.190	0.220	0.18	0.20	0.17	0.19	0.20	0.21
SM ME14	9212	5818	3737	3126	779	387	7292	7611	7916	569	428	258	616	5918	4799	7213	8692	0798	8246
SM ME15	0.22	0.21	0.20	0.21	0.22	0.21	0.18	0.15	0.20	0.180	0.196	0.188	0.218	0.17	0.18	0.17	0.21	0.19	0.23
SM ME16	2035	0452	9754	2201	9962	6992	6074	6967	485	379	64	271	841	4912	7905	1253	2809	9634	6929
SM ME17	0.24	0.25	0.23	0.24	0.27	0.25	0.24	0.26	0.18	0.242	0.249	0.252	0.269	0.22	0.25	0.22	0.22	0.25	0.27
SM ME18	6688	2458	4415	2757	1399	6597	4805	6477	799	159	284	517	162	6923	3536	7586	8781	0764	3035
SM ME19	0.17	0.18	0.16	0.18	0.19	0.17	0.17	0.17	0.16	0.123	0.157	0.162	0.189	0.17	0.18	0.14	0.15	0.16	0.20
SM ME20	8047	6046	3373	2576	2496	1292	6805	8175	7226	537	305	374	432	3347	1063	7511	9436	5536	7019
SM ME21	0.21	0.19	0.20	0.22	0.22	0.20	0.20	0.21	0.21	0.198	0.147	0.205	0.217	0.19	0.20	0.19	0.20	0.20	0.22
SM ME22	2624	3321	8315	0224	4108	9696	4953	469	1015	94	798	712	487	4909	808	1587	068	9577	3645
SM ME23	0.20	0.19	0.19	0.19	0.21	0.19	0.19	0.20	0.20	0.171	0.193	0.144	0.231	0.17	0.19	0.16	0.18	0.20	0.22
SM ME24	2884	5615	7476	8722	7044	9439	3062	8139	4642	422	907	531	364	432	9618	8807	0169	3684	3566
SM ME25	0.20	0.20	0.21	0.21	0.22	0.22	0.20	0.21	0.21	0.201	0.203	0.207	0.168	0.19	0.21	0.19	0.20	0.20	0.22
SM ME26	7603	4112	3141	5141	5435	0521	7913	7577	4922	626	297	655	683	5471	0893	1155	3499	756	4764
SM ME27	0.15	0.15	0.14	0.14	0.17	0.15	0.14	0.16	0.15	0.140	0.141	0.141	0.153	0.10	0.14	0.13	0.14	0.14	0.15
SM ME28	4336	7099	8646	9251	1326	1469	4519	8127	0132	236	359	944	184	3028	8926	2895	3648	5696	738
SM ME29	0.22	0.25	0.23	0.24	0.27	0.25	0.25	0.23	0.25	0.244	0.234	0.252	0.270	0.23	0.18	0.20	0.24	0.25	0.27
SM ME30	6333	4278	7036	1924	5191	3221	1001	9177	3641	271	49	637	315	1152	1543	9895	9477	387	1576
SM ME31	0.17	0.15	0.16	0.16	0.17	0.16	0.16	0.17	0.16	0.154	0.148	0.151	0.162	0.14	0.15	0.10	0.14	0.15	0.16
SM ME32	5024	6573	4079	6846	1456	7557	1948	3606	7878	482	928	442	87	111	0432	5365	5264	0533	0292
SM ME33	0.17	0.16	0.15	0.17	0.17	0.16	0.15	0.16	0.16	0.151	0.157	0.157	0.170	0.14	0.15	0.14	0.11	0.15	0.16
SM ME34	6499	2671	5962	9079	6428	2618	1549	2098	1612	248	904	984	238	726	6562	0302	6008	3944	917
SM ME35	0.20	0.19	0.20	0.21	0.22	0.21	0.20	0.21	0.20	0.191	0.197	0.197	0.214	0.19	0.20	0.18	0.19	0.15	0.21
SM ME36	8755	6263	3485	4192	3955	1658	2011	2604	5147	197	691	993	171	1084	3131	5915	9021	0726	6406
SM ME37	0.25	0.25	0.24	0.24	0.27	0.23	0.24	0.25	0.23	0.237	0.244	0.236	0.266	0.22	0.22	0.22	0.22	0.25	0.19
SM ME38	0255	1946	8135	08	345	6004	7388	7863	5276	577	561	65	091	0885	5287	9734	4342	0969	6793

To obtain the sum of rows (D) and columns (R), we add up the values in each row to yield the D values and the values in each column to yield the R values. This provides valuable information on the relevance and dominance of each factor in the social media marketing landscape in Saudi Arabia, which are as shown:

$$T = [t_{ij}]_{n \times n}, i, j = 1, 2, \dots, n \quad (14)$$

$$D = [\sum_{j=1}^n t_{ij}]_{n \times 1} = [t_i]_{n \times 1} \quad (15)$$

$$R = [\sum_{i=1}^n t_{ij}]_{1 \times n} = [t_j]_{1 \times n} \quad (16)$$

Table 9 provides valuable information on the prominence and influence of different factors in the social media marketing landscape in Saudi Arabia. The table displays the results of adding and subtracting the D (dominance) and R (relevance) values assigned to each factor in the analysis.

Table 9. Prioritization and cause-and-effect groups of enablers.

Code	CSF/Enabler	D	R	D+R	D-R	Rank	Cause/Effect
SMME1	Simple and Easy to use	3.773	3.853	7.6226	-0.080	8	<i>Effect</i>
SMME2	Perceived Value	3.746	3.818	7.564	-0.071	10	<i>Effect</i>
SMME3	Customer Support	3.936	3.730	7.666	0.207	7	<i>Cause</i>
SMME4	Assurance	3.452	3.821	7.272	-0.369	15	<i>Effect</i>
SMME5	Speed of Response	3.865	4.198	8.063	-0.333	4	<i>Effect</i>
SMME6	Perceived Firm Innovativeness	3.786	3.830	7.615	-0.044	9	<i>Effect</i>
SMME7	Loyalty Intentions	3.771	3.699	7.470	0.072	13	<i>Cause</i>
SMME8	User friendly	3.817	3.903	7.720	-0.086	6	<i>Effect</i>
SMME9	Reliable	4.677	3.815	8.492	0.863	2	<i>Cause</i>
SMME10	Safe for Data Sharing	3.263	3.555	6.818	-0.292	16	<i>Effect</i>
SMME11	Useful for Information	3.897	3.591	7.488	0.307	12	<i>Cause</i>
SMME12	Content creativity	3.708	3.674	7.382	0.035	14	<i>Cause</i>
SMME13	Consumer Involvement	3.941	4.057	7.998	-0.116	5	<i>Effect</i>
SMME14	Control Mechanism	2.803	3.435	6.238	-0.632	19	<i>Effect</i>
SMME15	Public opinion	4.631	3.717	8.349	0.914	3	<i>Cause</i>
SMME16	Legal support	2.976	3.311	6.287	-0.335	18	<i>Effect</i>
SMME17	Appropriateness for business	3.009	3.623	6.632	-0.614	17	<i>Effect</i>
SMME18	Customized Engagement	3.825	3.736	7.561	0.090	11	<i>Cause</i>
SMME19	Trust on the platform	4.574	4.088	8.662	0.486	1	<i>Cause</i>

3.2.8 Step 8: Develop the cause-effect diagram

Figure 2 provides a comprehensive visual representation of the cause-and-effect relationships between various factors in the social media marketing landscape in Saudi Arabia.

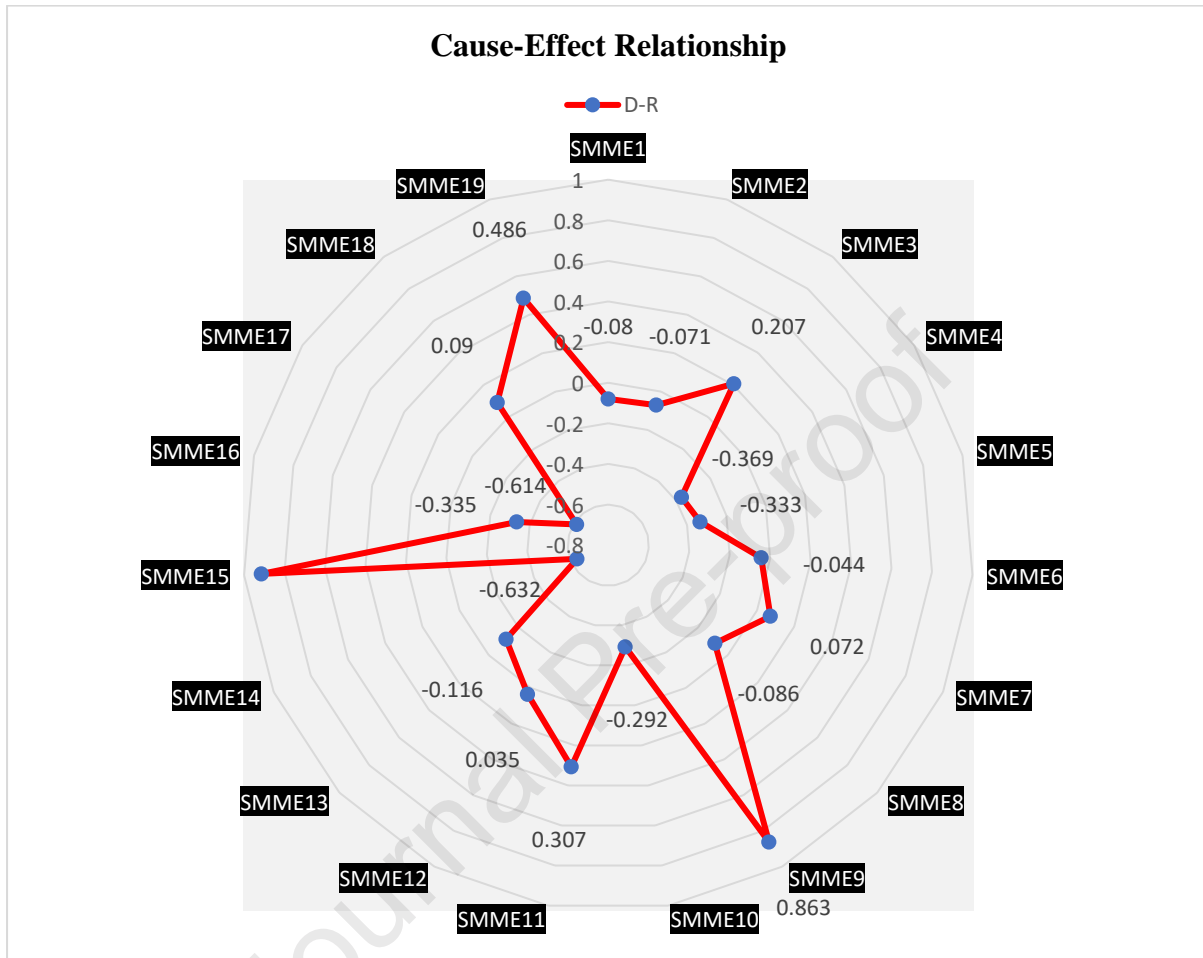


Figure 2. The cause-effect diagram for the enablers of Social Media Marketing.

This diagram is essential for understanding the complex interplay between different components and how they influence each other. D+R illustrates the 'total importance' of the issues. In contrast, D-R, signifying the 'net influence' of the issues and classifying them into cause and effect categories. If D-R is positive, it means the net influence of the issue is positive, classifying it in the cause group. If D-R is negative, it means the net influence of the issue is negative, classifying it in the effect group [39]. The results and discussions of this study are presented in the next section, highlighting notable findings centered on the causal diagram. **Figure 2** provides an overview of these findings and is a valuable tool for visualizing the complex relationships between various components in the social media marketing landscape in Saudi Arabia.

4. Discussions

The study's first research question (**RQ1**) investigates CSFs or enablers of SMM that support businesses and marketers in the social media setting. The study delivers a fresh perspective by pinpointing 19 key issues hampering the adoption of SMM presented in **Table 9** under the cause category, which includes issues with positive (D+R) scores and the effects category comprising issues with negative (D-R) scores. It is worth emphasizing that the cause category issues significantly impact the effects category, and hence, businesses must prioritize addressing these prominent issues during SMM adoption. **Figure 3** depicts the issues related to cause and effect, and using the Stimulus (S), Organism (O), and Response (R) model, the theoretical grounding has been presented, and a conceptual model was designed to outline the SMM enablers.

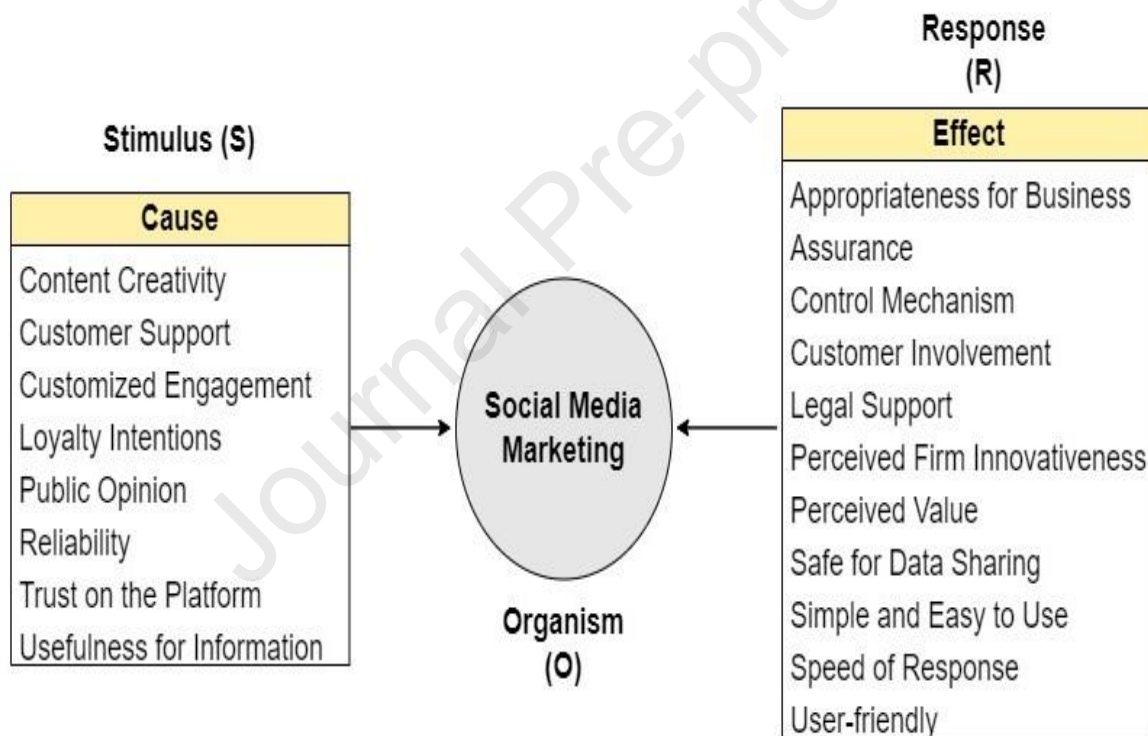


Figure 3. Conceptual framework and Theoretical Grounding using the S-O-R Model.

The S-O-R model, introduced by Woodworth in 1929, presents a practical framework for comprehending how external stimuli interact with internal strategies to shape consumer behavior [96, 97]. In the context of social media marketing, the model underscores the significance of various critical success factors or enablers, such as content creativity, customer support, customized engagement, loyalty intentions, public opinion, reliability, trust on the platform, and usefulness for information, as probable stimuli that can impact consumers'

internal states [97, 98, 99]. Moreover, it emphasizes the importance of SMM strategies, including appropriateness for business, assurance, control mechanism, customer involvement, legal support, perceived firm innovativeness, perceived value, safety for data sharing, simple and easy to use, speed of response, and user-friendly, in augmenting consumers' responses [97, 98, 99]. By identifying these CSFs or enablers, businesses and marketers can better comprehend the needs and preferences of their target consumers and devise more effective SMM strategies by boosting marketing campaigns using social media platforms. Companies can design effective SMM strategies that are captivating stimuli and facilitate positive internal states. This can further stimulate more desirable consumer responses. Hence, the conceptual model presented in **Figure 3** can act as a marketing tool and support businesses and marketers in comprehending and enforcing the S-O-R model in SMM campaigns to remain competitive in today's digital business environment.

The second research question (RQ2) uncovers critical success factors or enablers of SMM that hold the most significant potential for supporting businesses and marketers in the social media setting. The R+C scores serve as a significant indicator of the importance of issues related to SMM enablers or CSFs. In essence, issues with higher R+C scores are prioritized more in the ranking process. Based on this scoring system, the top ten emerging issues are presented in **Figure 4**. The top ten issues are all essential in their own right, and businesses should prioritize them accordingly when implementing SMM practices by understanding the significance of these issues on the success of a business's SMM campaigns. However, it is essential to note that these issues play a crucial role in adopting and implementing SMM practices in the business community. Trust on the platform has been ranked first, consistent with prior studies' findings. For instance, building trust on social media platforms is crucial for user engagement, and brands can build customer trust through long-term interactions and communication on social media platforms [100]. Similarly, the trust developed on the platform can positively impact social media adoption [101]. Reliable has been ranked as the second significant issue and existing studies support that reliable interactions facilitated online allow social media users to reflect on their identity and engage better [102]. Furthermore, social media platforms need to engage with users to build trust in the content, which enhances the reliability and credibility of the source of content [103].

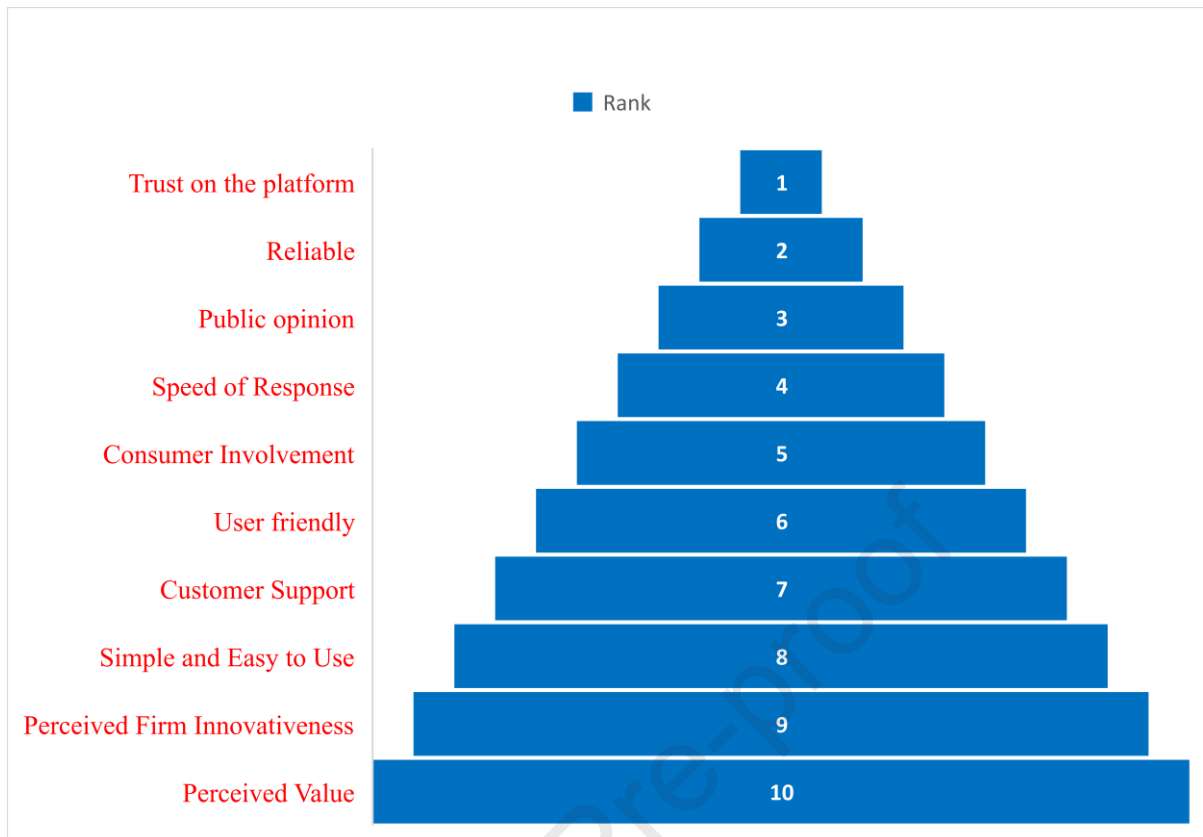


Figure 4. Prioritizing the significance of SMM Enablers of CSFs

Public opinion has been ranked third, associated with the second issue. By incorporating trust on the social media platform and extending reliability regarding its usage, businesses and marketers can create a positive public opinion through reliable social media contents [104, 105]. Moreover, adequate customer support and user-friendly navigation can create a positive attitude toward a brand among users, leading to increased engagement and adoption rates [106]. Perceived ease of use augments social media adoption [107]. However, inadequate social media content tools and navigation can cause substantial losses to businesses [108]. Therefore, it is crucial for businesses to carefully consider and address these issues to achieve success in SMM campaigns. However, speed of response was considered as the most crucial factor in the SMM efforts which was further influenced by key issues namely, trust on the platform, public opinion, and reliable, highlighting its prominence in the overall SMM strategy [106]. However, Saudi Arabian organizations may not be fully aware of the potential benefits of SMM in restructuring their business strategies to achieve long-term organizational goals and are encouraged to pay more attention to these significant issues.

The study's third research question (**RQ3**) presents the prioritization of SMMEs that enhance the development and implementation of effective marketing strategies of businesses

and marketers in the social media setting. The results of this study are consistent with previous studies highlighting the importance of addressing these issues to achieve success in SMM [104, 107, 108, 109]. In today's fast-paced business environment, effective utilization of SMM and speed of response can significantly enhance productivity and outcomes. The positive influence of online social networks on business performance was explored, and the barriers that deter companies from effectively innovating through social media were discovered [47]. Several CSFs of SMM in the context of health promotion using this approach were explored [110]. Furthermore, this study provides valuable insights into organizations' challenges when integrating SMM into their strategies. In contrast, CSFs for health promotion via social media were researched to identify barriers companies encountered in their SMM efforts [111]. The consequences of SMM on passenger retention were explored, and the challenges companies encountered in adopting SMM were identified [112]. Similarly, another study underlined how social media capabilities enable businesses to augment internationally; this study diverged by identifying the barriers that hamper businesses from harnessing the full potential of SMM [6]. Furthermore, as an enabler of empowerment for women in small businesses, social media pivoted the spotlight to the challenges businesses confront in adopting SMM [113]. However, another study highlighted social media as a stimulus for pivoting marketing focus, which revealed the critical issues hamper this SMM adoption [114]. Customer involvement in SMM is affected by their trust on the platform and the reliability of the platform, including people's perception of that platform and marketing initiatives [106]. Since industries are fragmented, the implications of these enablers of CSFs may differ from one organization to another. Hence, Saudi Arabian organizations may emphasize developing and implementing effective SMM strategies to build competitive advantage and flourish in the digital business landscapes by harnessing the power of social media platforms.

5. Implications of the study, Limitations of the study, and Future research directions

5.1.1 Theoretical Implications

The study findings contribute to the existing literature on SMM by presenting insights into enablers or critical success factors of social media marketing by outlining the cause-effect relationship of one enabler with another. Further, this research has served to augment the conceptual understanding of SMM enablers and enrich available SMM literature where limited research about SMM is available, specifically in the Saudi Arabian context. This study proposes a conceptual model grounded in the S-O-R model, which can help academics, scholars, and researchers conduct further studies. The study's findings offer future research

avenues for the academic community in Saudi Arabia and beyond, enabling them to develop a conceptual or analytical model based on the results of this study. Moreover, future researchers can explore the identified critical issues in diverse sectors and geographical settings and contribute to the theoretical body of knowledge in the field of SMME. Therefore, this study has significant implications for the Saudi Arabian academic community as a valuable reference for future research in the field of SMM.

5.1.2 Practical Implications

The findings of this study are highly significant and contribute immensely to the existing body of knowledge on SMM, providing marketers with valuable, evidence-based insights to plan their marketing strategies related to social media. By prioritizing CSFs, organizations can optimize their SMM efforts and allocate their resources effectively for maximum benefit, which is crucial in today's highly competitive business environment. This study is essential for businesses seeking to enhance their social media presence and drive business success through effective SMM practices to achieve their goals. The study's outcomes provide a comprehensive understanding of the enablers of SMM and facilitate the development of a roadmap for organizations to navigate the dynamic and ever-changing landscape of social media marketing. Marketers and companies may consider employing the enablers of this study to boost SMM communications and digital customer engagement, enhance market share, and build brand loyalty and online reputation. The top ten issues or SMM enablers can be used as an effective communication tool over social media platforms. The experts' opinions are critical in identifying the key enablers contributing to successful SMM strategies in Saudi Arabia. Overall, this study provides a unique and valuable perspective on the SMM landscape in Saudi Arabia, and the insights gathered from experienced professionals can be highly beneficial for marketers and businesses looking to establish a solid social media presence. This study can augment the conceptual understandings of organizations in Saudi Arabia and worldwide and assist them in understanding the enablers of SMM. With the widespread acceptance of several social media networking platforms, companies in the kingdom may use them for their electronic presence and to run promotional campaigns. Furthermore, marketing professionals may consider carefully integrating the study's key findings and redesigning their overall marketing strategy by adding SMM as an integrated marketing communication tool. Therefore, this study has significant implications for the Saudi Arabian business community.

5.2 Limitations of the Study

The present study has several limitations. First, this research focuses on SMM only and cannot be generalized to other digital marketing tools. The study's scope was limited to only Social Media Marketing Enablers (SMME) and 19 substantial issues. Future research could expand the scope to include other factors influencing SMM strategies and validate the present study by conducting further studies on other digital marketing tools or issues. Second, this study cannot be generalized as it is limited to Saudi Arabian contexts and has employed the DEMATEL approach. The study's focus on Saudi Arabian organizations provides valuable insights into SMM adoption in the kingdom. However, future researchers could explore the findings' generalizability to other countries and regions. Future research should validate the results of this study in other countries, particularly in the context of the MENA (Middle East and North Africa) region, using different research approaches. While the DEMATEL approach was used exclusively in the study, other methods could complement the findings. A mixed-method approach could provide a more comprehensive understanding of the research topic. Third, the present study focused on collecting data from experts from academia and industry with a limited sample size. Future studies should examine the. The sample size of 21 experts who provided insights from four different sectors, namely, retail, education, pharma, and transportation, was critical in identifying key elements of successful social media marketing strategies. However, expanding the sample size and including experts from other sectors could provide a more comprehensive view of the topic in further studies. These limitations provide future research opportunities to enhance the theoretical understanding of SMM in Saudi Arabia and beyond.

5.3 Future Research Directions

The study's limitations have opened up new opportunities for future research on social media marketing strategies. Researchers, academics, and scholars can address the limitations by expanding the sample size to include more than 21 experts from diverse sectors, educational backgrounds, skills, and experiences. In addition, future research could investigate the adoption of social media marketing among global organizations to understand how SMM enablers differ from the Saudi Arabian context. Moreover, researchers could conduct an in-depth study by identifying more than 19 issues in the context of Digital marketing enablers, E-Business enablers, and E-commerce enablers. Future research directions in the form of research questions (FRQ) are presented in **Table 10**.

Table 10. Future Research Directions.

Study Source	Research Theme	Research Context	Geographical Context	Research Methodology	Future Research Questions (FRQ)
[47]	Social Media Marketing Enablers	Business Transformation	Saudi Arabia/Global	Literature Review, Case Studies, Surveys, DEMATEL Approach, Empirical Approach	FRQ1: How do social media marketing enablers drive business transformation?
[67]	Social Media Marketing Strategy	Marketing	Saudi Arabia/Global	Literature Review, Case Studies, Empirical Approach, DEMATEL Approach	FRQ2: What are the comprehensive strategic actions for successful social media marketing in marketing organizations?
[75]	Strategic Social Media Marketing	Marketing	Saudi Arabia/Global	Literature Review, Conceptual Framework Development, DEMATEL Approach	FRQ3: What elements comprise a holistic framework for strategic social media marketing, and how can organizations implement it effectively?
[114]	Evolution of Social Media Marketing	Marketing Evolution	Saudi Arabia/Global	Literature Review, Conceptual Framework, DEMATEL Approach	FRQ4: How has social media marketing evolved, and what are the implications for businesses and marketing strategies?
[68]	Social Media and Innovation	Innovation	Saudi Arabia/Global	Systematic Literature Review, DEMATEL Approach	FRQ5: How does social media contribute to innovation in organizations, and what are the future research directions in this area?
[53]	Social Network Structure and Innovation	Innovation	Saudi Arabia/Global	Network Analysis, Surveys, DEMATEL Approach	FRQ6: How does the structure of social networks influence innovation performance in organizations, and what are the mechanisms at play?
[33]	Social Media Enablers and Inhibitors	Social Networking	Saudi Arabia/Global	Literature Review	FRQ7: What are the relationships between social media enablers and inhibitors in the context of social networking sites?
[6]	Social Media in International Ventures	International Business	Saudi Arabia/Global	Surveys, Network Analysis, Literature Review,	FRQ8: How do social media-specific advantages enable the network embeddedness of international entrepreneurial ventures?
[112]	Social Media Impact on Retention	Airline Industry	Saudi Arabia /Global	DEMATEL Approach, Literature Review	FRQ9: How do social media marketing activities affect passenger retention in the airline industry?

These research themes encompass diverse domains, contexts, and methodological approaches, reflecting the multifaceted nature of social media marketing's influence on various aspects of business and society. From social media marketing enablers driving business transformation to investigating the intricate relationship between social media marketing and passenger retention in the airline industry, a wealth of uncharted territory is awaiting scholarly exploration. Scholars could craft comprehensive strategic frameworks that guide organizations in maximizing social media's potential while delving into the unexplored intersection of social media and innovation. Developing holistic strategic frameworks can help organizations navigate the ever-evolving social media landscape effectively. Understanding the evolution of social media marketing over time and its transformative impact on businesses and marketing strategies is paramount for scholars and practitioners alike. Exploring the factors influencing consumer behavior in the context of social media marketing can yield actionable insights for marketers seeking to enhance their online presence. In conclusion, the table outlines a comprehensive research agenda that underscores the dynamic nature of social media marketing enablers.

6. Conclusion

Social media has emerged as a crucial marketing tool for businesses worldwide, enabling them to connect with their target audience and adapt to the ever-changing business landscape. However, identifying the enablers of SMM adoption is crucial to ensure sustainable business development. This study investigates the critical issues hindering SMM adoption in Saudi Arabian organizations. To accomplish this goal, the study conducted an extensive literature review and consulted experts from various sectors, including retail, education, pharma, and transportation, to identify 19 key issues that impede the adoption of SMM in Saudi Arabian organizations. The study then analyzed these issues using the DEMATEL approach to determine their impact level and cause-effect relationships. The study's findings highlighted several critical causal issues that significantly affect the adoption of social media marketing in Saudi Arabian organizations. For instance, issues related to customer support and trust on the platform were instrumental in determining a business's social media marketing success. Similarly, safe data sharing and perceived value significantly impact a business's social media presence. This study contributes significantly to social media marketing by shedding light on the critical issues hindering its compelling adoption in Saudi Arabian companies. What sets this research apart from existing studies is its distinctive focus on identifying the barriers and challenges organizations face when harnessing the absolute prospect of social media for

marketing purposes. While many previous studies have investigated the enabling aspects of social media marketing, this study brings a different approach by pinpointing 19 critical issues that serve as roadblocks to successfully implementing social media marketing strategies. Unlike studies that underline the positive consequence of social media on business performance or empowerment, this study delves deep into the challenges companies encounter when incorporating social media marketing into their overall business strategies. Furthermore, this study embraces the DEMATEL approach to investigate these issues, furnishing a robust framework for understanding their impact levels and cause-effect relationships. This analytical technique adds depth and accuracy to the findings, making them favorably actionable for businesses seeking to enhance their social media marketing strategies. This research presents a novel outlook by underscoring organizations' barriers and challenges in adopting social media marketing strategies. By pinpointing these barriers, businesses and marketers can accumulate valuable insights into overcoming them, eventually directing to more successful and compelling social media marketing campaigns. This body of research provides a comprehensive understanding of SMM from various perspectives, highlighting its potential to foster customer interactions and engagement. The author of the present study has undertaken a rigorous effort to synthesize the extensive body of literature on factors and enablers affecting the effectiveness of SMM. By effectively synthesizing the existing literature, the study has provided valuable insights into the diverse dimensions of SMM, emphasizing the critical success factors (enablers) that businesses should consider when developing their SMM strategies.

This study is a helpful aid for academics and practitioners aiming to helm the intricate landscape of social media marketing in Saudi Arabia and beyond. The study recommends that businesses in Saudi Arabia address "cause" and "effects" category issues when implementing social media marketing practices. By addressing the "cause" issues, businesses can positively impact the "effects" and enhance their overall social media marketing success. This approach can help organizations overcome challenges and leverage the opportunities offered by social media marketing to promote themselves globally. While the sample size of 21 experts provided valuable insights from four sectors, including retail, education, pharma, and transportation, expanding the sample size and including experts from other sectors could provide a more comprehensive view of the topic. Nonetheless, the study's focus on Saudi Arabian organizations provides valuable insights into social media marketing adoption in the region. The research directions collectively offer a vibrant landscape for future investigations, ensuring that the field of SMM remains at the forefront of contemporary academic inquiry and industry

practice. This study provides valuable insights for Saudi Arabian organizations to understand the most significant SMM enablers to achieve profitable growth. By addressing the identified issues, Saudi Arabian organizations can overcome challenges and leverage the opportunities offered by social media marketing to promote themselves globally. The insights from this research can be valuable for researchers, academics, and scholars worldwide seeking to understand social media marketing enablers. Future studies could explore the generalizability of the findings to other countries and regions and address the limitations of previous research to make valuable contributions to this field and provide useful insights for organizations seeking to improve their SMM strategies.

Declarations

Author contribution statement

Author: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools, or data; Wrote the paper.

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Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

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