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# A Structural Analysis of Credit Card Management Challenges: An ISM–MICMAC Approach from Customer and Banker Perspectives

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**ABSTRACT:** Credit cards have become an essential part of today's banking and electronic payment systems, as they provide convenience and short-term credit access. However, their management presents a number of interconnected challenges for customers and banking institutions, such as financial costs, problems of repayment, fraud and data-security problems, technical problems, customer service problems, lack of awareness and difficulty in controlling expenditure. The current study intends to find out the main challenges in credit card management and to analyse how they are interrelated from the combined perspective of customers and bankers. The main data were gathered through purposive sampling of 110 respondents, 99 customers, and 11 bankers through Zoom meetings and direct interaction. Seven critical challenges were identified and analysed through the application of Interpretive Structural Modelling (ISM) and MICMAC (Cross-Impact Matrix Multiplication Applied to Classification). The ISM analysis reveals a three levels hierarchical structure with high interest rates and financial costs associated with credit card (C1) and lack of awareness and understanding of credit card terms (C6) at the base level, difficulty in repayment and financial burden (C2), fraud and data security (C3), technical and transaction related difficulties (C4), and customer service and complaint resolution (C5) at the intermediate level, and difficulty in spending control and credit management (C7) as the dependent outcome. According to the results of the MICMAC analysis, C1 and C6 are independent variables, C2–C5 are linkage variables and C7 is a dependent variable. The results indicate that credit card management difficulties are linked, not separate, with financial costs and awareness factors being important driving elements in the structural system. The study offers an integrated customer-banker perspective and offers useful insights for improving credit card management, customer awareness, service delivery, transaction security and responsible credit utilisation.

## 1. INTRODUCTION

The financial services sector is undergoing rapid change, radically altering how people and businesses access, use and manage credit. Credit cards have become an important element of modern retail banking among numerous digital financial instruments. They provide consumers with convenient access to short-term credit, allow for cashless transactions, and support online and point-of-sale payments. The growing convergence of digital technologies with banking services has also broadened the role of credit cards in the broader digital payments ecosystem. In India, Reserve Bank of India (RBI) has noted a substantial rise in the usage of credit cards with the credit cards accounting for 61 per cent of the volume and 76 per cent of the value of card payments in 2023–24. RuPay credit cards have also been integrated with Unified Payments Interface (UPI) as part of the changing credit-card ecosystem.

Yet, the growth in credit card usage is not without a number of problems for the customers and banking institutions. From the customer's point of view, credit cards can bring high interest rates, annual fees, late payment charges, problems with repayment

and difficulties in controlling expenditure. Simultaneously, with the increasing digitalisation of card transactions, concerns have emerged about fraud, unauthorised transactions, misuse of personal and financial information and data security. As part of the wider measures to enhance the security of digital payment transactions, the RBI has also taken measures like card transaction controls and Card-on-File tokenisation.

Managing credit cards also poses operational and service challenges for banks and their customers. Credit card service may be negatively impacted by technical malfunctions, transaction problems, lack of acceptance, slow complaint resolution, and inadequate customer service. The RBI payment statistics continue to indicate large volumes and values of credit card transactions. This highlights the need for an efficient and secure card-payment ecosystem.

Another dimension of credit card management that is important is the level of customer awareness and understanding. Credit card users should be aware of interest rates, fees and charges, the obligation to repay, credit limits, security of transactions and effect of delayed repayment. Inadequate knowledge about these can lead to difficulty in making financial decisions and can be a factor in credit management issues. Therefore, financial literacy has become an important element of the broader financial inclusion agenda in India. The RBI's Annual Report 2024–25 notes that efforts are underway to improve financial literacy and financial inclusion, including scaling up the Center for Financial Literacy activity across the country.

Individual credit card challenges may be assessed in isolation, but many of these problems are structurally interrelated. For example, financial costs and a lack of awareness can influence repayment behaviour, and difficulties in repayment can have consequences for spending control. Technical issues and customer service enquiries may also be related to fraud and data security concerns. Therefore, it is not enough to identify the challenges to be able to explain the structure of the problem. It is important to understand which challenges are the main drivers, which are highly dependent on other challenges and how they are connected to each other within the overall system of credit card management.

In this regard, the present study "A Structural Analysis of the Challenges of Credit Card Management: An ISM–MICMAC Approach from Customer and Banker Perspectives" identifies and structurally analyses the seven major challenges of credit card management. They include high interest rates and associated financial costs; repayment difficulties and financial burden; fraud, unauthorised transactions and data security; technical and transaction-related difficulties; customer service and complaint resolution issues; lack of awareness and understanding of credit card terms; and spending control and credit management difficulties.

The study uses Interpretive Structural Modelling (ISM) and MICMAC (Cross-Impact Matrix Multiplication Applied to Classification) to understand the interrelationships among these challenges. The ISM is used to determine the hierarchical relationships among the identified challenges by using the Structural Self-Interaction Matrix (SSIM),

Thus, the study offers a systematic structural view on the understanding of credit card management challenges, going beyond their identification and looking at their hierarchical relations, drivers and dependencies. The results provide useful information to both banking institutions and credit card users by identifying the underlying factors that are structurally associated with other problems and the factors that arise as dependent outcomes in the credit card management system.

## 2. LITERATURE REVIEW

The literature on credit card management has developed along several related dimensions such as credit card adoption and use behaviour, financial burden and repayment, consumer spending behaviour, service quality, fraud and security, and financial literacy. Existing studies have mainly investigated these dimensions separately, and have devoted relatively little attention to the structural relationships among different challenges faced by credit card users and issuing institutions. Therefore, the existing study reviews the literature under the major themes relevant to credit card management.

### 2.1 Key Challenges in Credit Card Management: A Review of the Literature

#### 2.1.1 Credit Card Usage and Consumer Behaviour

The initial studies on credit card adoption in India were primarily conducted on the basis of consumer perceptions, adoption behaviour and factors influencing the acceptance of credit card services. Shukla (2011) studied consumer attitudes toward credit cards in India and emphasised the role of service quality in determining customer satisfaction. The study suggested that the increase in the number of credit card customers alone may not guarantee effective utilisation as customer expectation and

services provided by card issuers need to be in sync. This finding is relevant to the present study as it establishes the importance of investigating the customer and issuer side challenges in credit card management.

Then research started to focus on the behavioural determinants of credit card use. Singh et al. (2022) examined the relationship between credit cards and impulsive buying behaviour of Indian consumers. The study, using data from 184 respondents and a random forest methodology, found that problems in managing funds were associated with a higher probability of incurring debt. The study also found relationships between past bill repayment, the amount billed and the current bill payment. The results show that credit card usage is highly related to financial management and repayment behaviour.

Sriram et al. (2023) explored the antecedents of credit card usage behaviour: An Indian perspective. In the study, different consumer groups were identified based on their motivation for using credit cards and the factors such as power-prestige, credit card features and ease of use were taken into consideration. Also, the authors highlighted the significance of financial well-being, financial literacy, self-efficacy and consumer attitudes to understand credit card behaviour. It was also found that in the Indian context limited research work has been done on the association of credit card usage and financial well-being.

The relationship between credit card use and online impulse buying has been studied more recently. Tandon et al. (2026) studied the impact of social media and credit card usage on online impulse buying and post-purchase dissonance of 413 Indian online shoppers. Using the Stimulus-Organism-Response framework, structural equation modelling was used to demonstrate a positive relationship between credit card usage and impulse purchasing. "The findings imply that the convenience and deferred-payment features of credit cards may affect spending behaviour in digital environments.

Similarly, research on impulsive buying in India has found that the availability of credit cards can act as a situational factor that influences consumers' purchasing behaviour. In a study of 508 mall shoppers, credit card use was found to be associated with impulsive buying behaviour, along with other personal and situational variables.

### 2.1.2 Financial Burden, Repayment and Credit Management

Financial burden and repayment problem is an important area in credit card research. Credit cards enable consumers to get short term credit but they cost them more money if they take too long to pay it back. Fund-management behaviour, past bill repayment and present payment obligations are related to consumers' potential exposure to debt, as found by Singh et al. (2022). This implies that this kind of repayment is not a stand-alone activity, but is linked to wider patterns of financial management. Sriram et al. (2023) also associated credit card usage with financial well-being and argued that psychological, social and economic factors can influence consumers' financial behaviour. The discussion of financial literacy and financial self-efficacy suggests that the ability to understand and manage financial obligations may affect consumers' use of credit cards.

The literature on impulse buying also suggests that the availability of credit cards may encourage spending beyond immediate cash resources. Studies in India have found associations between credit card use and impulsive or compulsive buying behaviour, suggesting that spending behaviour can lead to subsequent problems in repayment and financial management.

### 2.1.3 Fraud, Unauthorised Transactions and Data Security

The rapid digitalisation of payment transactions has added to the importance of security-related issues in credit card management. The Reserve Bank of India has recognised cybersecurity and fraud as the main risks in the digital payments ecosystem. The RBI has identified threats like phishing, card skimming, malware, ransomware and other forms of cyberattack as risks to consumer trust and payments-system security.

RBI's regulatory measures have also increasingly been focused on security of card transactions. Earlier efforts added authentication requirements for card-not-present transactions, while later efforts added transaction controls and other security mechanisms.

Empirical studies have tried to identify the determinants of credit card fraud. Credit card fraud in India was examined by Puri et al. (2024/2025) using primary data from 7,500 credit card holders. The study found transaction-related variables such as transaction distance, deviation from median purchase price, chip and PIN usage and online ordering to be significant factors associated with credit card fraud.

The RBI Annual Report for 2024-25 also discloses that digital payment frauds, including card and internet frauds, were one of the prominent categories in terms of number of frauds reported.

### 2.1.4 Technical and Transaction-Related Difficulties

Credit card services are increasingly based on digital infrastructure, payment networks, authentication systems, mobile applications, point-of-sale terminals, and online transaction platforms. Consequently technical reliability has become an important aspect of the customer experience.

Research on digital payment systems has pointed out that secure and reliable technological infrastructure are prerequisites for wider adoption. RBI research on digital payments has identified cyber security, system reliability, consumer protection and digital access as important elements in ensuring confidence in electronic payment systems.

Sutradhar and Ghosh (2023) have studied the distribution and use of digital payment cards in India using the data from NSS 77th Round Survey. Their findings showed that ownership of bank accounts was widespread, but ownership and use of debit or credit cards was much lower. This points to a difference between access to banking accounts and use of payment-card instruments.

The literature thus suggests that effective credit card management is contingent on the availability, reliability, and usability of the technological infrastructure supporting transactions, not only on financial characteristics.

### 2.1.5 Customer Service and Complaint Resolution

Another important dimension of credit card management is the customer service as customers often depend on banks and card issuers for transaction disputes, reporting fraud, queries on payments, technical problems, blocking of card, and resolving complaints.
Lenka et al. (2009) investigated service quality, customer satisfaction and customer loyalty in Indian commercial banks by collecting responses from 350 customers. Their results found that human, technical and tangible aspects of service quality affect customer satisfaction with the human aspects being particularly important.

Kaura (2013) examined the antecedents of customer satisfaction in Indian public and private sector banks. A study of 445 retail banking customers found that service quality, service convenience and perceived price/fairness were important factors associated with customer satisfaction.

Further, Kaura et al. (2015) examined the Indian retail banking on service quality, service convenience and perceived price fairness. The study highlighted the significance of five dimensions of banking service experiences which are human behaviour, information technology, transaction convenience, access convenience and post-benefit convenience.

Potluri et al. (2016) also studied service quality and customer satisfaction in Indian banks based on answers from 600 customers. Their study found differences in the perceived service quality and satisfaction among the banking institutions. Chakrabarti et al's (2008) text-mining study of service quality perceptions across major private-sector banks was especially relevant to the present study. The credit card was among the banking product categories studied. The results showed that responsiveness and tangibles were important in the users evaluations, highlighting the need for prompt and efficient delivery of service.

### 2.1.6 Awareness, Financial Literacy and Understanding of Credit Card Terms

Credit card users should understand interest rates, annual fees, late-payment charges, minimum payments, credit limits, repayment obligations and the consequences of delayed payment.

Sriram et al. (2023) have discussed financial literacy and financial self-efficacy as important factors for financial well-being and credit card behaviour. In their review, they suggested that financial knowledge may not be the only reason for financial outcomes. Psychological and behavioural factors may also influence how people make financial decisions.

The wider literature on digital financial services also indicates that online literacy and awareness are factors in consumers' ability to use financial technologies securely. RBI research highlighted consumer awareness and cyber security as key elements in promoting safe adoption of digital payments.

### 2.1.7 Integrated Perspective on Credit Card Management Challenges

The literature review indicates that credit card management is a multidimensional phenomenon. Existing studies have studied financial burden, repayment behaviour, impulsive spending, service quality, fraud, digital security, technical issues and financial literacy individually. But there's no saying those factors don't depend on each other. For example, poor awareness of credit card terms may lead to inappropriate repayment decisions that may further exacerbate financial burden. Financial burden may later affect control on spending and the overall credit management. Fraud and security concerns, too, may create further customer service needs, as customers will want banks to investigate unauthorised transactions and to resolve complaints. Technical issues can also slow down the transaction completion and raise the demand for customer service.

Thus, existing literature suggests interrelationships between credit card management challenges but most studies have focused on individual relationships, behavioural outcomes, customer satisfaction, prediction or adoption rather than development of a hierarchical structural model of the challenges.

**Table 1:** Code and Description of Key Credit Card Management Challenges Based on the Literature

| Code | Final ISM Variable | Description | References |
|---|---|---|---|
| C1 | **High Interest Rates and Associated Financial Costs** | Credit card usage may involve interest charges, annual fees, late-payment charges, and other associated costs. These financial costs increase the overall cost of credit and may affect customers' ability to manage credit effectively. | Kaura (2013); Kaura et al. (2015); Singh et al. (2022) |
| C2 | **Repayment Difficulties and Financial Burden** | Credit card management requires timely repayment of outstanding balances. Difficulties in managing repayments can increase financial pressure and contribute to debt-related problems. | Singh et al. (2022); Sriram et al. (2023) |
| C3 | **Fraud, Unauthorized Transactions and Data Security** | Digital credit card transactions involve concerns related to fraud, unauthorized transactions, misuse of personal information, and data security. These risks can affect customer confidence and create additional challenges for banks in transaction monitoring and dispute resolution. | Reserve Bank of India (2024); Puri et al. (2025) |
| C4 | **Technical and Transaction-Related Difficulties** | Credit card services depend on technological infrastructure, payment networks, authentication systems, and digital platforms. Technical failures and transaction-related problems may affect the smooth use and delivery of credit card services. | Lenka et al. (2009); Sutradhar & Ghosh (2023) |

| | | | |
|---|---|---|---|
| C5 | **Customer Service and Complaint Resolution Issues** | Credit card customers may require assistance with billing issues, fraudulent transactions, technical problems, card blocking, and transaction disputes. Delayed or inadequate customer service can negatively affect the customer experience. | Lenka et al. (2009); Kaura et al. (2015); Potluri et al. (2016) |
| C6 | **Lack of Awareness and Understanding of Credit Card Terms** | Effective credit card management requires an understanding of interest rates, fees, repayment obligations, credit limits, and terms and conditions. Limited financial knowledge may affect customers' ability to make appropriate credit-management decisions. | Sriram et al. (2023) |
| C7 | **Spending Control and Credit Management Difficulties** | Credit cards provide purchasing power without requiring immediate cash payment, which may encourage excessive or impulsive spending. Difficulty controlling expenditure can subsequently affect outstanding balances and overall credit management. | Singh et al. (2022); Tandon et al. (2026) |

**Source: Based on Literature Review**

**2.2 Research Gap**

The literature review identifies the following major research gaps:

1. **Fragmented treatment of challenges**: Existing studies generally explore credit card usage, financial burden, fraud, service quality, spending behaviour or financial literacy independently. Few studies have incorporated these dimensions into a single structural model.

**2. Limited customer-banker perspective:** Much of the existing literature focuses on consumers or on banking service quality. Relatively little attention has been paid to the integration of the customer and banker perspectives to credit card management problems.

**3. Interrelations understudy:** Prior studies have identified relationships among individual factors but have not clarified the hierarchy structure in which one challenge influences another.

**4. Limited identification of driving and dependent factors:** Need to distinguish between foundational challenges, intermediate/linkage challenges and outcome orientated challenges.

**5. Methodological gap:** Traditional statistical methods such as regression, factor analysis, SEM, classification and predictive modelling are useful for identifying associations or predictors but do not necessarily provide a hierarchical structural representation of interconnected challenges.

**6. Partial application of ISM–MICMAC in credit card management:** The reviewed literature offers limited evidence of an ISM–MICMAC framework specifically designed to determine the driving power and dependence relationships among customer and banking challenges in credit card management.

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**2.3 Objectives**

1. **To identify the major challenges faced by customers and banks in managing credit cards.**

2. **To develop a hierarchical structural model of the identified credit card management challenges and analyse their driving and dependence relationships using ISM–MICMAC.**

## 3. RESEARCH METHODOLOGY

The present study is descriptive and exploratory in nature. The study is designed to identify and analyse the challenges regarding credit card management from the combined perspective of customers and bankers. The study has a total sample of 110 respondents consisting of 99 customers and 11 bankers who are purposively sampled. The main data was obtained through Zoom meetings and face-to-face contact by which the perception of the respondents about the challenges of managing credit cards and their interrelationship was obtained. The customer perspective addresses practical issues concerning financial costs, repayment, security, technical problems, customer service, awareness and spending management, whereas the banker perspective provides insights on operational, security, service and credit-management aspects.

The customer and banker views on structural analysis were combined to form an integrated stakeholder framework consisting of seven major challenges.

Interpretive Structural Modelling (ISM) was used to find the hierarchical relations among these variables by means of Structural Self Interaction Matrix (SSIM), Initial Reachability Matrix, Final Reachability Matrix (FRM), level partitioning, conical matrix and ISM digraph. Then, MICMAC analysis was used to classify the identified challenges according to their driving and dependence power. The integrated customer-banker approach allows the study to gain an integrated understanding of the interconnected challenges of the credit card management system.

## 4. DATA ANALYSIS AND INTERPRETATION

The data collected from 110 respondents, 99 customers and 11 bankers were pooled together and analysed from the perspectives of both stakeholder groups. The identified credit card management problems have been distilled into seven variables. Interpretive Structural Modelling (ISM) was used to study the interrelationships among these variables. The Structural Self Interaction Matrix (SSIM) was formed from the pooled opinions of customers and bankers and then converted into the Initial Reachability Matrix and the Final Reachability Matrix (FRM). The FRM was applied to find the driving power and dependence power of each variable and to make level partition. Then a conical matrix and ISM digraph were developed to represent the hierarchical relations and directional relation between the challenges.

Finally, a MICMAC analysis was carried out to classify the variables according to their driving and dependence power.

### 4.1 Structural Self-Interaction Matrix (SSIM):

The SSIM is developed to establish the contextual relationships among the seven identified credit card management challenges using the standard ISM symbols **V, A, X, and O**, based on the combined perspectives of customers and bankers.

**Table 2** SSIM

| **Variables** | **1** | **2** | **3** | **4** | **5** | **6** | **7** |
|---|---|---|---|---|---|---|---|
| C1 | | V | V | O | O | O | V |
| C2 | | | X | A | A | A | V |
| C3 | | | | V | V | O | O |
| C4 | | | | | V | O | O |
| C5 | | | | | | O | O |
| C6 | | | | | | | V |
| C7 | | | | | | | |

**Source:** Researcher's Calculation based on the responses

The symbols indicate the **direction of influence** between the factors:

- **V:** The factor in the row influences the factor in the column.
- **A:** The factor in the column influences the factor in the row.
- **X:** Both factors influence each other.
- **O:** No significant direct relationship is identified.

**4.2 Initial Reachability Matrix:**

The SSIM is converted into a binary Initial Reachability Matrix by applying the standard ISM conversion rules.

**Table 3** Initial Reachability Matrix

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Driving Power |
|---|---|---|---|---|---|---|---|---|
| C1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 4 |
| C2 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 3 |
| C3 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 |
| C4 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 3 |
| C5 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 |
| C6 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 3 |
| C7 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Dependence Power | 1 | 6 | 3 | 2 | 3 | 1 | 4 | |

**Source:** Researcher's Calculation

**4.3 Final Reachability Matrix (FRM):**

The Initial Reachability Matrix is further processed by applying the principle of **transitivity** to obtain the Final Reachability Matrix (FRM). The FRM is subsequently used to determine the **driving power and dependence power** of each variable.

**Table 4** Final Reachability Matrix

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Driving Power |
|---|---|---|---|---|---|---|---|---|
| C1 | 1 | 1 | 1 | 1* | 1* | 0 | 1 | 6 |
| C2 | 0 | 1 | 1 | 1* | 1* | 0 | 1 | 5 |
| C3 | 0 | 1 | 1 | 1 | 1 | 0 | 1* | 5 |
| C4 | 0 | 1 | 1* | 1 | 1 | 0 | 1* | 5 |
| C5 | 0 | 1 | 1* | 1* | 1 | 0 | 1* | 5 |
| C6 | 0 | 1 | 1* | 1* | 1* | 1 | 1 | 6 |
| C7 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Dependence Power | 1 | 6 | 6 | 6 | 6 | 1 | 7 | |

**Source:** Researcher's Calculation

The Final Reachability Matrix (FRM) indicates the direct and transitive relationships among the seven identified credit card management challenges.

**4.4 Level Partitioning:**

The reachability set, antecedent set, and their intersection are determined for each variable. Based on these sets, the variables are assigned to different hierarchical levels.

**Table 5** Level Partitioning Iteration (Level 1)

| **Elements(Mi)** | **Reachability Set R(Mi)** | **Antecedent Set A(Ni)** | **Intersection Set R(Mi)∩A(Ni)** | **Level** |
|---|---|---|---|---|
| 1 | 1, 2, 3, 4, 5, 7, | 1, | 1, | |
| 2 | 2, 3, 4, 5, 7, | 1, 2, 3, 4, 5, 6, | 2, 3, 4, 5, | |
| 3 | 2, 3, 4, 5, 7, | 1, 2, 3, 4, 5, 6, | 2, 3, 4, 5, | |
| 4 | 2, 3, 4, 5, 7, | 1, 2, 3, 4, 5, 6, | 2, 3, 4, 5, | |
| 5 | 2, 3, 4, 5, 7, | 1, 2, 3, 4, 5, 6, | 2, 3, 4, 5, | |
| 6 | 2, 3, 4, 5, 6, 7, | 6, | 6, | |
| 7 | 7, | 1, 2, 3, 4, 5, 6, 7, | 7, | 1 |
| 1 | 2 | 3 | | |

**Source:** Researcher's Calculation

The method of level partitioning determines the hierarchical position of the seven variables through the comparison of their reachability sets, antecedent sets, and intersection sets. A variable is assigned to a level if its reachability set equals its intersection with the antecedent set.

From the table the first iteration C1, C6 are the top level variables and the rest of the variables are in the lower levels.

**Table 6** Level Partitioning Iteration (Level 2)

| **Elements(Mi)** | **Reachability Set R(Mi)** | **Antecedent Set A(Ni)** | **Intersection Set R(Mi)∩A(Ni)** | **Level** |
|---|---|---|---|---|
| 1 | 1, 2, 3, 4, 5, | 1, | 1, | |
| 2 | 2, 3, 4, 5, | 1, 2, 3, 4, 5, 6, | 2, 3, 4, 5, | 2 |
| 3 | 2, 3, 4, 5, | 1, 2, 3, 4, 5, 6, | 2, 3, 4, 5, | 2 |
| 4 | 2, 3, 4, 5, | 1, 2, 3, 4, 5, 6, | 2, 3, 4, 5, | 2 |
| 5 | 2, 3, 4, 5, | 1, 2, 3, 4, 5, 6, | 2, 3, 4, 5, | 2 |
| 6 | 2, 3, 4, 5, 6, | 6, | 6, | |
| 7 | | 1, 2, 3, 4, 5, 6, | | 1 |
| 1 | 2 | 3 | | |

**Source:** Researcher's Calculation

The Level Partitioning Iterations compare the reachability set, antecedent set and their intersection set for each variable to establish the hierarchical structure of the identified credit card management challenges. In the first iteration, C7 (Spending Control and Credit Management Difficulties) is Level 1 which means it is the top or outcome position of the hierarchy. C2, C3, C4 and C5 have the reachability and intersection sets of { 2,3,4,5 } in same iteration. Therefore they are put at Level 2. So C1 and C6 do not get assigned a level in this iteration since their reachability sets extend beyond the variables identified at this level. So they are kept for next iterations. The next iteration involves removing the Level 1 variable and determining the appropriate locations of the remaining variables in the hierarchy. The iterative process shows that the credit card management challenges are interrelated and arranged in the hierarchical structure

**Table 7** Level Partitioning Iteration (Level 3)

| Elements(Mi) | Reachability Set R(Mi) | Antecedent Set A(Ni) | Intersection Set R(Mi)∩A(Ni) | Level |
|---|---|---|---|---|
| 1 | 1, | 1, | 1, | 3 |
| 2 | | 1, 6, | | 2 |
| 3 | | 1, 6, | | 2 |
| 4 | | 1, 6, | | 2 |
| 5 | | 1, 6, | | 2 |
| 6 | 6, | 6, | 6, | 3 |
| 7 | | 1, 6, | | 1 |
| 1 | 2 | 3 | | |

**Source:** Researcher's Calculation

The Level Partitioning Iteration establishes the hierarchical structure of the credit card management challenges by repeatedly analysing the reachability, antecedent, and intersection sets of the identified variables. Finally, C1 (High Interest Rates and Associated Financial Costs) and C6 (Lack of Awareness and Understanding of Credit Card Terms) are placed at Level 3, forming the foundational layer of the hierarchy. Overall, the level partitioning demonstrates a three-level hierarchical relationship, with C1 and C6 at the base, C2–C5 in the intermediate layer, and C7 at the top as the resultant challenge.

**4.5 Conical Matrix:**

The variables are rearranged according to their identified levels to construct the **Conical Matrix**, which provides a systematic representation of the variables' hierarchical relationships.

**Table 8** Conical Matrix

| Variables | 7 | 2 | 3 | 4 | 5 | 1 | 6 | Driving Power | Level |
|---|---|---|---|---|---|---|---|---|---|
| 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 2 | 1 | 1 | 1 | 1* | 1* | 0 | 0 | 5 | 2 |
| 3 | 1* | 1 | 1 | 1 | 1 | 0 | 0 | 5 | 2 |
| 4 | 1* | 1 | 1* | 1 | 1 | 0 | 0 | 5 | 2 |
| 5 | 1* | 1 | 1* | 1* | 1 | 0 | 0 | 5 | 2 |
| 1 | 1 | 1 | 1 | 1* | 1* | 1 | 0 | 6 | 3 |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6 | 1 | 1 | 1* | 1* | 1* | 0 | 1 | 6 | 3 |
| Dependence Power | 7 | 6 | 6 | 6 | 6 | 1 | 1 | | |
| Level | 1 | 2 | 2 | 2 | 2 | 3 | 3 | | |

**Source:** Researcher's Calculation

The Conical Matrix (CM) is obtained by rearranging the variables according to their identified hierarchical levels and helps present the final ISM structure in a systematic form.

In the given matrix, C7 is placed at Level 1, C2, C3, C4 and C5 at Level 2, and C1 and C6 at Level 3. The matrix also shows that C1 and C6 have the highest driving power of 6, indicating that they exert influence on a larger number of variables. C2–C5 have a driving power of 5, while C7 has the lowest driving power of 1.

In terms of dependence power, C7 has the highest value (7), whereas C2–C5 have a dependence power of 6, and C1 and C6 have the lowest dependence power (1). The asterisks (*) indicate transitive relationships established during the ISM process.

Overall, the Conical Matrix demonstrates a three-level hierarchical structure, with C1 and C6 forming the foundational level, C2–C5 constituting the intermediate level, and C7 representing the outcome level of credit card management challenges.

**4.6 ISM Digraph:**

The final relationships among the variables are represented through an **ISM Digraph**, illustrating the directional and hierarchical structure of the identified credit card management challenges.

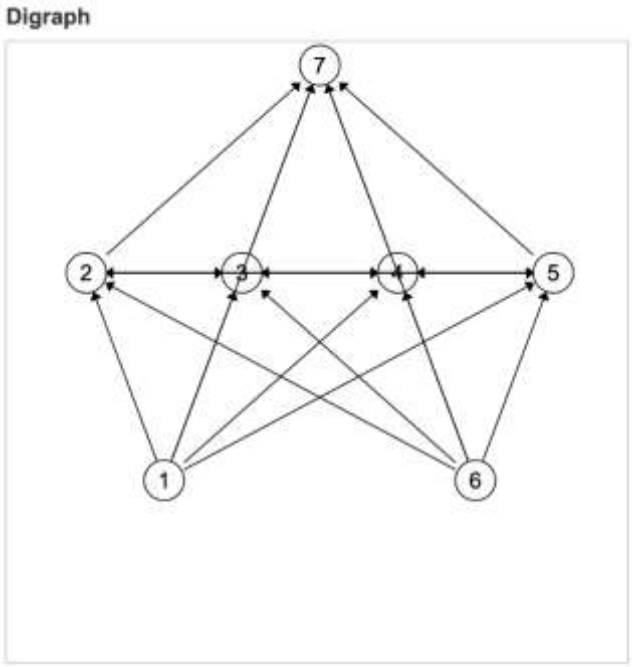



**Figure 1:** Digraph

**Source: Using Smart ISM Software**

The ISM Digraph presents the hierarchical relationships among the seven credit card management challenges identified in the study. The diagram places C7 (Spending Control and Credit Management Difficulties) at the top level (Level 1), indicating its position as the principal outcome or dependent challenge in the model. C2 (Repayment Difficulties and Financial Burden), C3 (Fraud, Unauthorized Transactions and Data Security), C4 (Technical and Transaction-Related Difficulties), and C5 (Customer Service and Complaint Resolution Issues) form the intermediate Level 2, showing their interconnected relationships and their

role in linking the foundational factors with C7. At the bottom, C1 (High Interest Rates and Associated Financial Costs) and C6 (Lack of Awareness and Understanding of Credit Card Terms) constitute Level 3, representing the foundational factors of the model. The directional arrows illustrate the relationships among the variables, while the overall structure demonstrates that credit card management challenges are interdependent and hierarchically arranged rather than isolated issues. Thus, the digraph provides a visual representation of how foundational financial-cost and awareness-related challenges are connected with intermediate operational and service-related issues, ultimately leading to difficulties in spending and credit management.

### 4.7 MICMAC Analysis

Following the ISM analysis, MICMAC (Cross-Impact Matrix Multiplication Applied to Classification) is used to classify the variables according to their driving and dependence power. The variables are categorised into four groups: Independent variables, characterised by high driving and low dependence power; Linkage variables, characterised by high driving and high dependence power; Dependent variables, characterised by low driving and high dependence power; and Autonomous variables, characterised by low driving and low dependence power. This classification helps identify the key driving factors, highly interconnected factors, and dependent outcomes within the credit card management system.

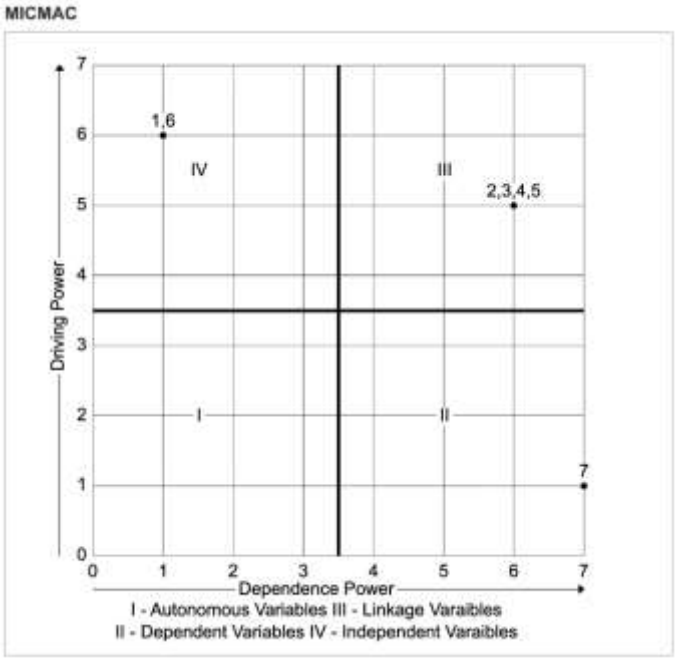



**Figure 1:** MICMAC Analysis

**Source: Using Smart ISM Software**

The MICMAC analysis demonstrates that C1 (High Interest Rates and Associated Financial Costs) and C6 (Lack of Awareness and Understanding of Credit Card Terms) are independent variables with strong driving power (6) and low dependence power (1). C2–C5 are linkage variables with driving power 5 and dependence power 6, indicating strong interrelationships. C7 (Spending Control and Credit Management Difficulties) is a dependent variable with driving power of 1 and dependence power of 7. No autonomous variables were detected

## 5. FINDINGS OF THE STUDY

The ISM–MICMAC analysis provides a hierarchical understanding of the challenges associated with credit card management from the combined perspectives of customers and bankers. The analysis identifies seven major challenges, namely high interest rates and associated financial costs (C1), repayment difficulties and financial burden (C2), fraud, unauthorised transactions and data security (C3), technical and transaction-related difficulties (C4), customer service and complaint resolution issues (C5), lack of awareness and understanding of credit card terms (C6), and spending control and credit management difficulties (C7).

The ISM hierarchy places C1 and C6 at Level III, indicating their position as foundational factors in the structural model. C2, C3, C4 and C5 occupy Level II, representing intermediate and highly interconnected challenges. C7 occupies Level I, indicating a highly dependent outcome within the model. The Final Reachability Matrix shows that C1 and C6 have the highest driving power, while C7 has the highest dependence power.

The MICMAC analysis further classifies C1 and C6 as independent variables, C2, C3, C4 and C5 as linkage variables, and C7 as a dependent variable. No variable falls within the autonomous category. Thus, the analysis indicates that financial costs and awareness-related issues function as major driving factors, while repayment, security, technical and service-related issues are strongly interconnected, ultimately contributing to spending control and credit management difficulties.

## 6. IMPLICATIONS OF THE STUDY

### 6.1 Managerial Implications

The findings provide useful insights for banks and credit card service providers. Since C1 and C6 demonstrate strong driving characteristics, banks may give greater attention to transparent communication of interest rates, fees, charges, repayment conditions, and other credit card terms. Improving customer awareness may help customers understand their financial obligations and make more informed credit-management decisions.

The linkage variables—C2, C3, C4 and C5—require coordinated attention because changes in one area may influence other areas. Banks can strengthen fraud-prevention mechanisms, transaction security, technical infrastructure, complaint-handling systems, and customer support simultaneously rather than treating these issues independently.

### 6.2 Customer Implications

The findings highlight the importance of financial awareness and responsible credit management among credit card users. Customers need to understand the costs associated with credit card use, repayment obligations, credit limits, transaction-security practices, and the consequences of delayed payments. Greater awareness and effective spending control may assist customers in managing credit card-related financial difficulties.

### 6.3 Theoretical Implications

The study contributes to the existing literature by integrating diverse credit card management challenges into a single ISM–MICMAC framework. Rather than examining individual challenges independently, the study demonstrates their hierarchical and interdependent structure. The combined customer–banker perspective further provides a broader stakeholder-oriented understanding of credit card management.

## 7. LIMITATIONS OF THE STUDY

The study has certain limitations. First, the analysis is based on a relatively small sample of 110 respondents, comprising 99 customers and 11 bankers; therefore, the findings should be interpreted within the context of the selected respondents. Second, purposive sampling was used, which may limit the generalisability of the findings to the wider population of credit card customers and banking professionals. Third, the ISM relationships are based on stakeholder judgements collected through Zoom meetings and direct interaction and therefore reflect the perceptions of the participating respondents. Fourth, the study develops a combined customer–banker structural model and does not separately compare the ISM structures of the two stakeholder groups. Finally, the study focuses on seven consolidated challenges and may not capture every possible factor affecting credit card management.

## 8. CONCLUSION

The present study examined the challenges associated with credit card management by integrating the perspectives of customers and bankers and applying the ISM–MICMAC methodology. Seven major challenges were structurally analysed to determine their hierarchical relationships, driving power, and dependence power. The findings indicate that high interest rates and associated financial costs (C1) and lack of awareness and understanding of credit card terms (C6) occupy the foundational level and possess strong driving characteristics. Repayment difficulties, fraud and data security, technical and transaction-related difficulties, and customer service issues (C2–C5) constitute interconnected intermediate challenges, whereas spending control and credit management difficulties (C7) emerge as a highly dependent outcome.

The study demonstrates that credit card management challenges should not be viewed as isolated problems. Instead, they form an interconnected structure in which foundational financial and awareness-related factors are linked with repayment, security, technical, and service-related challenges and ultimately with spending and credit-management difficulties. The ISM–MICMAC framework therefore provides a systematic approach for understanding these relationships and offers a basis for banks and customers to consider credit card management from an integrated stakeholder perspective.

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