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Application of Artificial Intelligence in Credit Co-operative Societies

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***Abstract*: In India Credit Co-operative Societies plays a vital role in helping farmers and deprived section of the society by providing affordable credit and their by uplifting their socio-economic life. They are also playing gigantic role in financial inclusion and thereby helping government of India in its mission of financial inclusion. The application of technology and more so the recent invention of Artificial Intelligence is expected to help the Credit Co-operative Societies to offer personalized services at lower cost but also provide security for financial operations, find out credit worthiness of members, detect fraud, and provide data driven inputs for better lending decision-making, minimizing default risks, resource optimisation, etc. As per the data available in India, only one credit cooperative society namely Sahaj Cooperative has implemented Artificial Intelligence in its operation. This has motivated the Researcher to take up the present study. The present study aims to assess the level of awareness among credit cooperative societies about Artificial Intelligence and its application, benefits. The study revealed that credit cooperative societies do not have awareness about Artificial Intelligence and its application, benefits. To bridge this awareness gap, educational and promotional measures need to be undertaken and National Federation of Urban Cooperative Banks and Credit Societies Ltd. (NAFCUB) and the National Federation of Cooperative Credit Societies Limited (NFCSF) are expected to play a vital role in this direction.**

***Keywords*: Artificial Intelligence, Credit Co-operative Societies, Fraud Detection, Risk Management.**

1. Introduction

Artificial Intelligence is a broad field of computer science that focuses on creating machines and computer programs capable of performing tasks such as reasoning, problem-solving, decision-making, observation, and awareness that typically done by human resources. These tasks are very crucial for Credit Co-operative Societies for smooth functioning, cost-cutting, product development, promotion, decision making, etc. As per the data available in India, only one credit cooperative society namely Sahaj Cooperative has implemented Artificial Intelligence in its operation. In the backdrop of this a study has been conducted to investigate awareness about Artificial Intelligence and its application, benefits in Credit Cooperative Societies

A. Objectives of the Study

i. To Investigate Awareness about Artificial Intelligence among Managers, Directors & Cashiers Credit Co-operative Societies.
ii. To Understand need of Application of Artificial Intelligence in Credit Co-operative Societies
iii. To Know the Prospect of Application of Artificial Intelligence
iv. To Draw Conclusion & Offer Recommendations

2. Literature Review

Anil Suresh, and N. Jennifer Rani (2020) had conducted a study on "Role of Artificial Intelligence in the Indian Banking Scenario". The main objective of the study is to assess awareness of Artificial Intelligence in daily banking and management. The study highlights Artificial Intelligence role in enhancing customer satisfaction, reducing fraud through applications like chat bots, and voice assisted banking. Maria Elisabete Ramos, Ana Azevedo and others (2022) had developed a framework for using AI technologies in cooperatives to avoid damaging the principles and values in cooperatives. Mohamed Hussain Thowfeek, Samsudeen Sabraz Nawaz and Mohamed Buhary Fathima Sanjeetha (2020) have made an attempt to study on "Drivers of Artificial Intelligence in Banking service Sectors". The main objective of the study is to identify the drivers of adoption of Artificial Intelligence in the banking sector. It is observed that poor data quality and the lack of sufficient digital data are major technological barriers to Artificial intelligence adoption in banks. They have recommended for modernization of IT architectures of banks for facilitating effective Artificial intelligence implementation. Tejinder Singh & Dr. Nitin Pathak (2020) have conducted a study on "Emerging Role of AI in Indian Banking Sector". The main objective of the study is to identify applications of Artificial Intelligence in banking. The study reveals that Artificial Intelligence can enhance fraud detection, customer service through chat bots, and will help in offering personalized banking services. Vanshika Bhardwaj (2025) has conducted a study on Artificial Intelligence in the Co-operative Business Model in India. According to him Artificial Intelligence is required for ensuring the sustainability and competitiveness of co-operatives in the digital age.

3. Research Methodology

Convenience sampling method is used for data collection.

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Table 1
Management system of credit cooperative societies

Management Systems	Online Management	Offline Management	Percentage (%) of Online Management
Human Resource Mgt.	4	29	12.12
Operational Management	2	31	6.1
Loan Management	-	33	0
Deposit Management	4	29	12.12
Service Management	-	33	0
Customer Management	-	33	0
Risk Management	-	33	0
Regulatory Compliance Mgt.	-	33	0
Customer Interaction System Mgt.	-	33	0
Complaint Management	-	33	0

Source: Fieldwork

Table 4
Areas of application of artificial intelligence in credit cooperative societies

Areas of Applications	Directors	%	Managers	%	Cashiers	%
Customer Service	6	4	7	77.8	2	22.2
Risk Mgt	1	6.7	2	22.2	3	33.3
Data Analytics	1	6.7	2	22.2	1	11.1
Fraud Detection	0	0	0	0	0	0
Operational Efficiency	2	13.3	2	22.2	2	22.2
Financial Forecasting	4	26.7	3	33.3	3	33.3

Source: Fieldwork

Sample size of study is 33 consisting of 9 managers, 9 cashier and 15 directors. The primary data for this study is collected through a structured questionnaire, which is designed to gather information on different aspects of Artificial Intelligence and its usage in Credit Cooperative societies. The questionnaire includes both close-ended and open-ended questions to capture qualitative insights. The face-to-face interviews were conducted in order to ensure that respondents fully understand the questions and provide them an opportunity to clarify any doubts they might have. Data is analyzed by using percentage method.

4. Data Analysis

Negligible percentage of respondents opined that the Credit Cooperative Societies are using Online Management System to manage the affairs of the societies [table 1].

It is evident from table 2 that respondents including majority of Directors and Cashiers of Credit Cooperative Societies were unaware about artificial intelligence. Even managers who are looking after operations of societies are also unaware about artificial intelligence (44.44%).

Table 2
Awareness about artificial intelligence

Respondent	Yes	Percentage
Director	5	40
Manager	6	55.56
Cashier	3	33.33

Source: Fieldwork

Table 3
Opinion about necessity of adoption of artificial intelligence in credit cooperative societies

Respondent	Yes	Percentage
Director	6	40
Manager	7	77.78
Cashier	3	33.33
Total	16	48.49

Source: Fieldwork

The table 3 depicts that majority of Mangers of Credit Cooperative Societies has expressed about need of adoption of artificial intelligence into the operations of Credit Cooperative Societies whereas the Majority of Director and Cashier of Credit Cooperative Societies believed that there is no need of adoption of artificial intelligence into the operations of Credit Cooperative Societies.

It is evident from table 4 that Directors, Managers and Cashiers expressed that there is need of adoption of artificial intelligence for improving the Customer Service. However, they were not showing any interest in adoption of artificial intelligence for i) managing risk, ii) Data Analytics, iii) improving operational efficiency, and iv) financial forecasting. In India financial mismanagement and governance failures, financial irregularities, fraudulent activities, and non-compliance with cooperative banking regulations is common among Credit Cooperative Societies. None of the respondent expressed their willingness about need of adoption of artificial intelligence for detection of financial frauds.

Minimum investment of 60 lakhs rupees is required for implementation of artificial intelligence in Credit Cooperative Societies in India which cover the cost of AI software and platform licenses, Hardware, Data Processing and Storage, Training, Maintenance, etc. None of the respondent including Directors and Mangers is aware about the minimum investment required for implementation of artificial intelligence in Credit Cooperative Societies [Table 5].

Table 5
Awareness about cost of implementation of artificial intelligence

Respondent	Response – Yes	Percentage
Director	0	0
Manager	0	0
Cashier	0	0

Source: Fieldwork

Majority of mangers of Credit Cooperative Societies are having knowledge about the benefits of adoption of artificial intelligence regarding Personalized Service and High Customer Experience [Table 6]. None of the Respondent is having

Table 6
Awareness about benefits of adoption of artificial intelligence

Benefits	Awareness					
	Directors	%	Managers	%	Cashiers	%
Risk Assessment	0	0	0	0	0	0
Personalized Service	3	20	5	55.6	0	0
High Customer Experience	3	20	5	55.6	0	0
Decision Making	1	6.7	2	22.2	1	11.1
Error Reduction	0	0	0	0	0	0
Sentiment Analysis	0	0	0	0	0	0

Source: Fieldwork

Table No. 7
Awareness about limitations of adoption of artificial intelligence

Benefits	Awareness					
	Directors	%	Managers	%	Cashiers	%
Integration Challenge	0	0	0	0	0	0
Maintenance & Updates	0	0	1	11.1	0	0
Technical Issues	0	0	2	22.2	0	0
Error Reduction	0	0	0	0	0	0
Sentiment Analysis	0	0	0	0	0	0

Source: Fieldwork

Table 8
Awareness about threats of adoption of artificial intelligence

Benefits	Awareness						
	Directors	%	Managers	%	Cashiers	%	Total %
Cyber Attacks	10	66.7	9	100	6	66.7	75.7
System Failures	12	80	9	100	5	55.6	78.8
Data Privacy Violation	15	100	9	100	5	55.6	87.9
Job Displacement	15	100	9	100	8	88.9	97
Environmental Harm	10	66.7	5	55.6	2	22.2	51.5

Source: Fieldwork

Table 9
Awareness about requirements for effective utilization of artificial intelligence

Benefits	Awareness						
	Directors	%	Managers	%	Cashiers	%	Total %
Governance Framework	0	0	0	0	0	0	0
Financial Regulations	0	0	0	0	0	0	0
Training	1	6.7	0	0	0	0	3.0
Strong Data Protection	0	0	2	22.2	0	0	6.1
Regular Audits	0	0	0	0	0	0	0
Stakeholders Engagement	0	0	0	0	0	0	0

Source: Fieldwork

knowledge about the benefits such as Risk Assessment, Error Reduction and Sentiment Analysis.

None of the Respondent is having knowledge about Limitations of Adoption of Artificial Intelligence such as Integration Challenge, Error Reduction and Sentiment Analysis [Table 7]. Only few managers are aware about Limitations such as Maintenance & Updates and technical hindrance.

It is evident from the table 8 that more than 50 percent of respondents are aware about Threats of Adoption of Artificial Intelligence such as Cyber Attacks, System Failures, Data Privacy Violation Job Displacement and Environmental Harm

The Table 9 depicts that none of the respondents are aware about Requirements for Effective Utilization of Artificial Intelligence such as Governance Framework, Financial Regulations, Regular Audits and Stakeholders Engagement. Only few managers are aware about requirements such as Training and Strong Data Protection.

A. Findings

1) The majority of respondents of Credit Cooperative Societies were unaware about artificial intelligence.
2) Majority of Director and Cashier of Credit Cooperative Societies believed that there is no need of adoption of artificial intelligence in Credit Cooperative Societies.
3) Respondents have opinioned that there is need of adoption of artificial intelligence for improving the Customer Service.
4) None of the respondent including Directors and Mangers is aware about the minimum investment required for implementation of artificial intelligence in Credit Cooperative Societies.
5) None of the Respondent is having knowledge about the benefits such as Risk Assessment, Error Reduction and Sentiment Analysis.
6) None of the Respondent is having knowledge about Limitations of Adoption of Artificial Intelligence such as Integration Challenge, Error Reduction and Sentiment Analysis
7) Majority of respondents are aware about Threats of Adoption of Artificial Intelligence such as Cyber Attacks, System Failures, Data Privacy Violation Job Displacement and Environmental Harm
8) None of the respondents are aware about Requirements for Effective Utilization of Artificial Intelligence such

as Governance Framework, Financial Regulations, Regular Audits and Stakeholders Engagement.

B. Suggestions and Conclusion

1) Suggestion

1) As adoption of artificial intelligence in credit cooperatives societies is expected to improvise the service quality and bring transparency in operations hence it is suggested that software developers in collaboration with National Federation of Urban Cooperative Banks and Credit Societies Ltd. (NAFCUB) and Management Educational Institutions shall conduct awareness cum training programme for Directors, Managers and cashiers of credit cooperatives societies.
2) National Federation of Urban Cooperative Banks and Credit Societies Ltd. (NAFCUB) shall organise the awareness camp for educating Directors, Managers and cashiers of credit cooperatives societies about cost advantages and benefits of implementation of artificial intelligence.
3) As huge investment is required for implementation of artificial intelligence, hence software developers are suggested to develop cheaper artificial intelligence software.
4) It is also suggested to software developers to develop integrated artificial intelligence containing AI security solution as respondents have expressed concerns regarding adoption of Artificial Intelligence such as Cyber Attacks, System Failures, and Data Privacy Violation.
5) Reserve Bank of India shall implement Governance Framework and Regulations for monitoring and evaluating the implementation of artificial intelligence in credit cooperative societies.

5. Conclusion

The application of artificial intelligence in credit cooperative societies provides significant opportunities to credit cooperative societies to enhance operational efficiency, customer satisfaction, and risk management. The key factor for successful implementation of artificial intelligence is adoption of balanced approach that combines technological advancements with human knowledge and ethical considerations. Adoption of artificial intelligence is expected to help credit cooperative societies to maintain competitive advantage in the financial sector. If efforts are made to address the concern raised by stakeholders can help credit cooperative societies to improve overall operational efficiency and cost down cost of operations and ensure transparency in its functioning.

References

[1] Ankur Aggarwal, D., A study of the scope of artificial intelligence in customer experience in banking sector in India, 2022, International Journal of Advance and Innovative Research, pp. 3-7.
[2] Krutika Sawant, Harshvardhan Soni and others, A Study of AI in Banking System, 2023, KOREA Review of International Studies, Volume 16, Issue 06, pp. 36-48.
[3] Manisha Paliwal and Ms. Saba Sayed, Report on Adoption of Industry 4.0 in Cooperative Banks in Pune District, 2022, Vaikunth Mehta National Institute of Cooperative Management, Pune.
[4] Maria Elisabete Ramos, Ana Azevedo and others, Cooperatives and the Use of Artificial Intelligence: A Critical View, 2022, Sustainability, MDPI, vol. 15(1), pp. 1-17.
[5] Mohamed Hussain Thowfeek, Samsudeen Sabraz Nawaz, and others, Drivers of Artificial Intelligence in Banking Service Sectors, 2020, Solid State Technology, vol. 63, Issue 5, pp. 6400-6411.
[6] Suresh Anli, and Rani N Jannifer, Role of Artificial Intelligence (AI) in the Indian Banking Scenario, 2020, Journal of Information Technology and Economic Development, vol. 11, Issue 2, pp. 1-11.
[7] Tejinder Singh & Nitin Pathak, Emerging Role of Artificial Intelligence in Indian Banking Sector, 2020, Journal of Critical Review, 7(16), pp. 1370-1373.
[8] Vanshika Bhardwaj, Artificial Intelligence in Cooperative Business Model in India, 2025, Journal of Research in Business and Management, 13(2), pp. 52-54.