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# Computerization of PACs – A Step towards Aligning Technology with Cooperatives

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**Abstract**

Primary Agricultural Cooperatives (PACs) serve as vital pillars of rural development and agricultural sustainability in India, yet many face challenges related to outdated operational practices and limited access to technology. This research paper explores the potential benefits of computerization in enhancing the efficiency, transparency, and sustainability of PACs, thereby aligning technology with the cooperative movement in the agricultural sector. Through a comprehensive review of literature, case studies, and empirical data, this paper examines the current landscape of PACs, highlighting inefficiencies in record-keeping, financial management, and member engagement. It proposes a framework for the computerization of PACs, leveraging digital platforms, database management systems, and mobile applications to streamline operations, facilitate real-time data access, and improve decision-making processes. Furthermore, this paper discusses the socio-economic implications of computerization, including increased farmer empowerment, enhanced market access, and improved agricultural productivity. It also addresses potential challenges such as infrastructure limitations, digital literacy gaps, and financial constraints, offering strategies for overcoming these obstacles. By embracing technology-driven solutions, PACs can catalyze rural development, strengthen farmer cooperatives, and contribute to the resilience and sustainability of India's agricultural sector. This research underscores the importance of aligning technology with cooperative principles to foster inclusive growth and equitable development in rural communities.

**Keywords:** Primary Agricultural Cooperatives, farmer empowerment, agricultural productivity and management systems.

## Introduction

Primary Agricultural Cooperatives (PACs) in India are grassroots-level organizations established to empower farmers, enhance agricultural productivity, and promote rural

development. These cooperatives play a crucial role in India's agricultural sector, which employs a significant portion of the population and contributes substantially to the country's GDP. Computerization of PACs (Primary Agricultural Cooperatives) indeed represents a significant step towards aligning technology with cooperatives in the agricultural sector. PACs play a crucial role in empowering farmers by providing them with collective bargaining power, access to credit, inputs, and marketing services. Integrating technology into their operations can enhance efficiency, transparency, and effectiveness in serving their members. Here's how computerization can benefit PACs and align them with modern technological advancements:

- **Improved record keeping:** Computerization allows PACs to maintain accurate and up-to-date records of members, transactions, inventory, and financials. This facilitates better management and decision-making processes.
- **Efficient financial management:** With computerized systems, PACs can automate financial transactions, track payments, and manage accounts more efficiently. This reduces errors, minimizes paperwork, and streamlines auditing processes.
- **Enhancement member services:** Technology enables PACs to offer online services such as account access, product ordering, and information dissemination to members. This improves dissemination to members. This improves convenience and accessibility especially for farmers in remote areas.
- **Market access and price information:** Computerization can integrate market information systems, providing PACs and their members with real-time pricing data market trends, and opportunities. This empowers farmers to make informed decisions about when and where to sell their produce.
- **Supply chain management:** Technology can optimize supply chain processes for PACs, from procurement of inputs to distribution of products ensures timely delivery, reduces This wastage, and improves overall efficiency.
- **Risk management:** Computerized systems can help PACs access and manage risks more effectively, whether related to financial management, crop production, or market volatility. This enables them to implement mitigation strategies and protect the interests of their members.

- **Data Analytics for Decision Making:** By collecting and analyzing data on member activities, market trends, and operational performance, PACs can gain valuable insights to drive strategic decision-making and enhance competitiveness.
- **Compliance and reporting:** Computerization simplifies compliance with regulatory requirements and enables PACs to generate accurate reports for stakeholders, government agencies, and auditors in a timely manner.
- **Capacity building and training:** Implementing computerized systems requires training and capacity building for PAC staff and members. This can also serve as an opportunity to enhance digital literacy and technical skills within the cooperative.
- **Integration with agricultural extension services:** PACs can leverage technology to connect with agricultural extension services, accessing valuable information on best practices, pest management, climate resilience, and other relevant topics to support their members.

**Computerization of PACS**

To help PACS become self-sufficient in line with the "Atmanirbhar Bharat Abhiyaan," the Centrally Sponsored Project for Computerization of Primary Agricultural Credit Societies was approved by the Government of India (GoI) on June 29, 2022. The project will run for five years, from 2022–2023 to 2026–2027, and is expected to benefit 63000 PACS nationwide with a total budget outlay of Rs. 2516 Cr. The goal of this project is to link all of the functional PACS with NABARD through State Cooperative Banks (StCBs) and District Central Cooperative Banks (DCCBs) by integrating them onto a common ERP (Enterprise Resource Planning) software. The Ministry of Cooperation provides funding for the program, and NABARD is in charge of carrying it out.

**Major objective of the scheme**

- Enhancing the PACS's operational efficiency.
- Loans disbursed quickly, transaction costs decreased, and payment imbalances decreased.
- Transparent accounting that is seamless with DCCBs and StCBs.
- Increasing farmers' trustworthiness in PACS operation.

**Components under the scheme**

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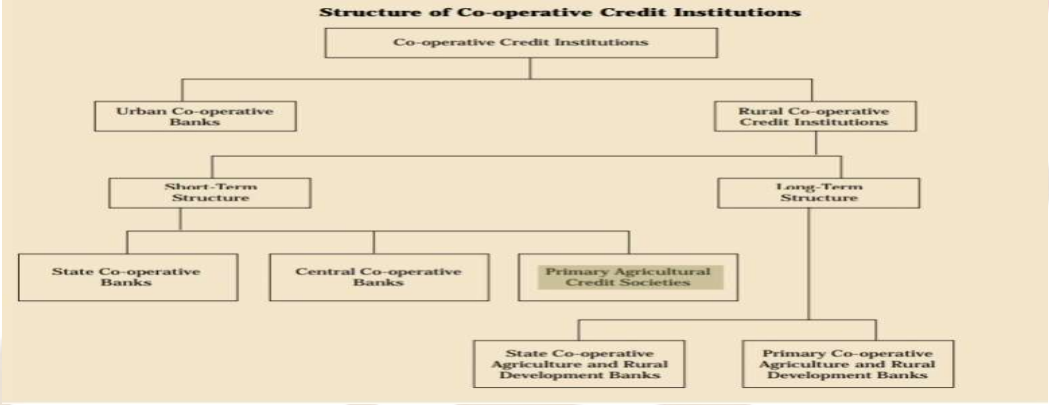
The PACS receives support in three different ways:

- **Hardware:** A computer, webcam, VPN, printer, and biometric device will be provided to every PACS participating in the program. This would make it possible to finish the remaining steps.
- **NLPS (National Level PACS Software)/ERP**: The PACS is developing an ERP to help it digitize its daily operations, better serve its members, and ensure accurate account reconciliation. The National Level PACS Software Vendor (NLPSV), which is creating the ERP modules, has been brought on board by NABARD.




**System Integrator (SI):** A SI will be assigned to each PACS to assist with digitizing legacy data, modifying the ERP, and tailoring the ERP to the state's regulations. **Structure of Primary Agricultural Credit Societies (PACS)** The Primary Agricultural Credit Societies (PACS) are an essential tier in the three-tier framework of the Short Term Cooperative Credit framework (STCCS). State Cooperative Banks (StCBs) and District Central Cooperative Banks (DCCBs), which make up the remaining two levels, are one tier apart. Prior to this, the National Bank for Agricultural and Rural Development (NABARD) took the lead in moving the majority of StCBs and DCCBs onto the Core Banking Solutions (CBS) platform, allowing them to provide their customers with cutting-edge, technologically advanced banking services. But up to now, the PACS had mainly fallen beyond the purview of the technological assistance. Based on seven principles of cooperation, PACs play an important role in the upliftment of the rural masses by fulfilling the credit requirements and credit-linked services like input supply, storage and marketing of agricultural produce etc.Today there are approximate more than one lakhs PACs operating in the country. The central

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government has been playing a pro-active role in the establishment of more PACs across India and further trying to upgrade it aligned with technology. Its one of the Initiative was to computerise the existing PACs with the aim of increasing transparency, accountability and facilitating the returns to the members/farmers directly to their accounts without any delays. Further, due to PACS's extensive outreach to Small and Marginal Farmers (SMFs), it holds a systemic importance

| States | No. of PACS Sanctioned | GoI Share released in FY 2022-23 & 2023-24 (in crore) |
|---|---|---|
| Andhra Pradesh | 2037 | 14.93 |
| Arunachal Pradesh | 14 | 0.21 |
| Assam | 583 | 6.41 |
| Bihar | 4495 | 32.95 |
| Chhattisgarh | 2028 | 14.86 |
| Goa | 58 | 0.32 |
| Haryana | 711 | 4.85 |
| Himachal Pradesh | 870 | 13.22 |
| Jharkhand | 1500 | 10.99 |
| Karnataka | 5491 | 40.25 |
| Madhya Pradesh | 4534 | 33.23 |
| Maharashtra | 12000 | 87.95 |
| Manipur | 232 | 2.55 |
| Meghalaya | 112 | 1.23 |
| Mizoram | 25 | 0.27 |
| Nagaland | 33 | 0.5 |
| Punjab | 3482 | 25.52 |
| Rajasthan | 5585 | 43.81 |
| Sikkim | 107 | 1.63 |
| Tamil Nadu | 4532 | 33.2 |
| Tripura | 268 | 2.95 |
| Uttar Pradesh | 3062 | 24.68 |
| West Bengal | 4167 | 30.54 |
| Gujarat | 5754 | 42.17 |
| Jammu & Kashmir | 537 | 5.25 |
| Puducherry | 45 | 0.44 |
| Andaman & Nicob | 46 | 0.52 |
| Ladakh | 10 | 0.12 |
| **Total** | 62,318 | 475.55 |
| ***Source: Ministry of Cooperation*** | | |

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In addition, it is considered that cooperatives should be developed into thriving businesses by giving them the technology assistance they need to offer a variety of services to its members and meet their needs. It was with this intent that the Government of India (GoI), on 29th June 2022 approved the Centrally Sponsored Project for Computerisation of Primary Agricultural Credit Societies for a period of five years from 2022-23 to 2026-27. The basic objectives were to raise the PACS's operational efficiency with quickloan disbursals, reduction in transaction expenses, transparent accounting – seamless with DCCBs and StCBs and increasing farmer's trustworthiness in PACS operation. The goal is to link all the functional PACS with NABARD through State Cooperative Banks (StCBs) and District Central Cooperative Banks (DCCBs) by integrating them onto a single ERP (Enterprise Resource Planning) platform. The entire process of computerization will be monitored by the National Level Monitoring and Implementation Committee (NLMIC). NABARD will be playing a pro-active role in the implementation of the process of computerization under the guidance and directions of NLMIC and Ministry of Cooperation, Government of India.

| Year | | Total No. of PACS to be computerized | Maintenance and hand-holding support |
|---|---|---|---|
| Year I | 2022-23 | 13,000 | Handholding support of total 5 years from 2022-23 to 2026-27. |
| Year II | 2023-24 | 20,000 | |
| Year III | 2024-25 | 30,000 | |
| Year IV | 2025-26 | | |
| Year V | 2026-27 | | |
| **Total** | | **63,000** | |

The total budgeted outlay for the computerization of 63000 PACS was Rs. 2516 Cr., across the country on a sharing of 60.73% by the central government, 29.25% by the respective state governments and 10.02% by NABARD. The cost has been broadly classified into different components such as Software with cyber security and datastorage, hardware, digitization, Support System, training and PMU and administration. The entire process has been phased as followsAs of now, 28 States and UTs have had their bids for the computerization of 62,318 PACS approved. The GoI has given Rs. 475.55 Cr. to the relevant States and UTs for this

purpose. After using money that was already provided to the States, Union Territories, and NABARD, the recommended revised estimate of the Government of India's contribution for the fiscal year 2023–2024 is Rs. 350 Cr.

**Current Status of Computerization of PACs across India**

The process of computerization across the viable/functional PACs had already begun. Many of the PACs notified for the process however are been under trial. In some cases, it has already begun and is in go live process. It should also be noted that some states like Kerala, Odisha and Telengana have been already computerised. As of November, 2023 a total number of 4525 PACs are in the process of computerization; 650 are in Go Live Process. The aim of this entire process is to align cooperatives at the grass root levels with the technology so that the allied technology driven activities can be executed not only in the interest of the members of PACs, but also in realising the vision of SahKar Se Samriddhi" A Step towards Atma Nirbhar Bharat and the realisation of its goal of a 5 $ dollar economy.The PACS computerizationis expected to offer a comprehensive ERP solution for all the economic activities listed in the Model Byelaws for PACS --- business planning, borrowing, warehousing, merchandising, asset management, human resource management, and financial services for short-, medium-, and long-term loans, procurement operations, and Public Distribution Shops (PDS) operations. This will also augment the employment opportunities to the rural youths. With the 54 initiatives of MoC, driven by technology in terms of CSC, Jan Aushadi Kendra, DBT etc., PACs role will be much more proactive towards rural empowerment and economic prosperity of the small and marginal farmers across India.

**Impact of Primary Agricultural Cooperatives (PACs)**

Computerization of Primary Agricultural Cooperatives (PACs) has profound impacts on their operational efficiency, enabling them to streamline administrative processes, enhance member services, and improve data management and analysis. Below are detailed explanations of each impact.

1. **Operational Efficiency**

- **Streamlining Administrative Processes:**

Implementation of digital platforms and software solutions streamlines various administrative tasks within PACs. This includes automating membership registration, managing inventory, processing transactions, and generating reports.

Digitalization reduces manual paperwork, minimizes errors, and speeds up routine processes, leading to significant time and cost savings.

Streamlined administrative processes enable PACs to operate more efficiently, freeing up resources to focus on core activities such as agricultural extension services, marketing, and member education

- **Enhancing Member Services:** Computerization facilitates improved communication and interaction between PACs and their members. Digital platforms, such as mobile apps or web portals, enable members to access information, make inquiries, and conduct transactions conveniently.

PACs can offer a broader range of services to members, including online access to account information, product catalogs, pricing updates, and market intelligence.

Enhanced member services foster stronger relationships between PACs and their members, promoting loyalty and trust.

- **Improving Data Management and Analysis:**

Digital systems enable PACs to capture, store, and analyze data more effectively. This includes member profiles, transaction records, inventory levels, market trends, and agricultural productivity indicators.

Centralized databases provide PACs with a comprehensive view of their operations, allowing for better decision-making and strategic planning.

Advanced analytics tools can extract valuable insights from data, enabling PACs to identify opportunities, optimize resource allocation, and mitigate risks more proactively.

Improved data management and analysis enhance PACs' ability to respond to changing market conditions, adapt their product offerings, and tailor services to meet the needs of their members more effectively.

**2. Governance and Accountability**

**Strengthening Leadership and Decision-Making**

Computerization equips PACs with digital tools for efficient communication, collaboration, and decision-making among board members and managemen.t

Real-time access to relevant data and analytics enables leaders to make informed decisions promptly, leading to more agile and effective governance.

Digital platforms facilitate strategic planning, goal setting, and performance monitoring, fostering a proactive approach to leadership within PACs.

**Enhancing Transparency and Auditability**

Digital record-keeping ensures transparent documentation of transactions, meetings, and decision-making processes, enhancing accountability within PACs.

Automated audit trails and compliance checks improve transparency and facilitate external audits, ensuring adherence to regulatory requirements and cooperative principles.

Members and stakeholders have access to accurate and up-to-date information about PAC activities, enhancing trust and confidence in the organization's governance.

**Facilitating Stakeholder Engagement**

Digital platforms provide channels for transparent communication and engagement with members, employees, suppliers, and other stakeholders.

PACs can conduct virtual meetings, surveys, and feedback mechanisms, allowing for broader participation and input in decision-making processes.

Enhanced stakeholder engagement fosters a sense of ownership and commitment among members, leading to greater support for PAC initiatives and objectives.

**3. Financial Management**

**Integrating Financial Services**

Computerization enables PACs to integrate financial services such as savings, credit, insurance, and electronic payments into their operations.

Digital banking platforms and mobile applications facilitate convenient access to financial services for members, especially in remote rural areas.

PACs can leverage partnerships with financial institutions and fintech companies to expand the range of financial products and services available to members.

**Enhancing Access to Credit and Insurance**

Digital platforms streamline the loan application and approval process, reducing paperwork and processing time for members seeking credit.

Automated credit scoring and risk assessment algorithms improve the efficiency and accuracy of lending decisions, expanding access to credit for smallholder farmers.

Integration with insurance providers allows PACs to offer crop insurance and other risk management products to members, enhancing their resilience to agricultural shocks.

**Improving Revenue Generation and Cost-Efficiency**

Digitalization of financial management processes, such as invoicing, billing, and expense tracking, improves accuracy and efficiency, reducing operational costs for PACs.

Access to real-time financial data and analytics enables PACs to identify cost-saving opportunities, optimize resource allocation, and improve revenue generation strategies.

PACs can leverage digital marketing and e-commerce platforms to expand their market reach and increase sales of agricultural products, enhancing overall financial performance.

**4. Market Integration**

**Leveraging Digital Platforms for Market Linkages**

PACs can utilize digital platforms such as online marketplaces, e-commerce websites, and mobile applications to connect farmers directly with buyers, processors, and retailers.

Digital marketing tools enable PACs to promote their products, differentiate their offerings, and reach niche markets, enhancing market access and profitability for members.

Digital platforms facilitate transparent pricing, negotiation, and contracting processes, reducing transaction costs and improving market efficiency for PACs.

**Enhancing Supply Chain Management**

Digitalization of supply chain management processes, such as inventory tracking, procurement, and logistics, improves visibility and coordination across the value chain.

PACs can utilize data analytics and forecasting tools to optimize inventory levels, reduce stockouts, and minimize wastage, improving supply chain efficiency and profitability.

Integration with suppliers, distributors, and logistics partners enables PACs to streamline procurement processes, negotiate favorable terms, and ensure timely delivery of inputs and outputs.

**Accessing Market Information and Trends**

Digital platforms provide access to real-time market information, including prices, demand trends, and consumer preferences, enabling PACs to make informed marketing and production decisions.

PACs can leverage data analytics and market intelligence tools to identify emerging opportunities, anticipate market trends, and adapt their product offerings to meet changing consumer needs.

Collaboration with agricultural extension services, research institutions, and industry associations allows PACs to access specialized market information and insights, enhancing their competitiveness and resilience in the marketplace.

**Benefits of Computerization:** The computerization of PACs offers a myriad of benefits that can contribute to their overall efficiency, transparency, and sustainability. One of the primary advantages is the automation of administrative processes, such as record-keeping, inventory management, and financial transactions. By digitizing these tasks, PACs can reduce manual errors, save time, and improve data accuracy. Furthermore, computerization facilitates real-time monitoring and reporting, enabling cooperative leadership to make informed decisions based on up-to-date information. Additionally, digital platforms can enhance communication and collaboration among members, stakeholders, and external partners, thereby fostering a sense of community and collective action within the cooperative. and electronic payments, can enhance financial inclusion among rural communities, enabling farmers to access credit, savings, and insurance products tailored to their needs.

**Recommendations**

However, it may be noted that the inherent problems/crisis of PACs needs to be resolved for an effective integration of techno savvy gadgets with the grass root lowest tier of the cooperatives. The resources of the PACs needs to strengthen on self-financed basis and not from the loans and finances from higher tiers. The problem of overdues and NPAs needs to be streamlined. As per the RBI report, PACS had reported lending worth Rs 1,43,044 crore and NPAs of Rs 72,550 crore. Maharashtra has 20,897 PACS of which 11,326 are in losses. Similar situation also does exist in some of the other states. PACS might play an even bigger role in the future, having played a critical part in the rural banking sector so far. This can only be accomplished by improving PACS's effectiveness, financial viability, and farmer

accessibility. Simultaneously, the regulatory structure has to be reinforced in order to guarantee that PACS are efficiently managed and capable of meeting farmer demands.

Further, in many rural locations, the smooth deployment of computerization might be impeded by inadequate infrastructure and unreliable internet connectivity. PACS in isolated areas could have problems with poor hardware, intermittent power supplies, and restricted access to high-speed internet. It's possible that cooperative members and farmers lack familiarity with digital technology. It could be necessary to provide them with training programmes well in advance to teach them the proper usage of computers and software. The age distribution in rural areas could also be problematic because elderly people can have a harder time adjusting. The new technology should seamlessly fit into the daily operations of the PACS without causing disruptions.

Once computerization is implemented, on-going maintenance and technical support become essential. PACS need to ensure that they have access to reliable support services to address any issues promptly and avoid downtime. It also needs to be noted that Complying with governmental policies and regulations concerning taxation, data management, and other areas can be difficult. PACS may need to allocate more resources in order to maintain compliance and be informed about these rules.Notwithstanding these obstacles, computerization has the potential to greatly enhance primary agricultural cooperative societies' productivity, openness, and general functioning. Implementing these strategies successfully can be aided by thorough planning, community involvement, and continuing assistance.

**Conclusion**

Overall, computerization of PACs represents a transformative opportunity to harness the power of technology in advancing the goals of agricultural cooperatives. By embracing digital innovations, PACs can enhance their competitiveness, resilience, and impact on the livelihoods of smallholder farmers. However, it's essential to ensure that technological solutions are accessible, affordable, and tailored to the specific needs and contexts of cooperative societies. Collaboration between stakeholders, including government agencies, development organizations, and technology providers, is critical to realizing the full potential of computerization in the cooperative sector.

The computerization of PACs represents a significant step towards aligning technology with cooperatives and harnessing its potential to enhance rural development. By leveraging digital tools and platforms, PACs can improve their efficiency, transparency, and socio-economic impact, ultimately empowering farmers and fostering inclusive growth. However, addressing the challenges associated with computerization requires concerted efforts from various stakeholders, including cooperatives, governments, technology providers, and civil society organizations. Moving forward, there is a need for continued research, innovation, and collaboration to unlock the full potential of technology in advancing the cooperative sector and achieving sustainable development goals.

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