Working Paper No.43

Dynamic Mentorship Framework for FPOs and PACs (2025)

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Bankers Institute of Rural Development
Lucknow

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Foreword

Agriculture has long been the backbone of India's economy, providing livelihoods to nearly half of the nation's workforce and contributing significantly to its GDP. Despite its importance, the sector faces persistent challenges, particularly for small and marginal farmers who struggle with fragmented landholdings, limited access to credit, inadequate infrastructure, and restricted market reach. These issues often result in low bargaining power and reduced profitability, threatening the sustainability of agricultural livelihoods.

Recognizing these challenges, the Government of India, in collaboration with development agencies, has actively promoted the establishment of Farmer Producer Organizations (FPOs) as a transformative solution. The recent focus and thrust placed on Primary Agriculture Credit Societies (PACS) through the various intervention by the government also attempts at bringing about a vibrancy in PACS. both FPOs and PACS aim at empowering farmers by fostering collective action, enabling them to pool resources, leverage economies of scale, and enhance access to quality inputs, credit, technology, and direct market linkages. Through these organizations, farmers can engage more effectively in agricultural production, processing, and trade, ultimately improving their economic viability and socio-economic conditions.

This Working Paper highlights the vital role these organizations play in strengthening Indian agriculture by ensuring better market access, improving financial inclusion, facilitating technology adoption, and mitigating risks associated with climate change and price fluctuations. The Central Government's initiatives, such as the 10,000 FPOs Scheme, PACS Computerization, M-PACS initiatives, NABARD's support programs, and digital agriculture initiatives, are crucial in fostering an enabling environment for these organizations to thrive.

Despite their potential both face several hurdles, including limited access to capital, operational inefficiencies, regulatory constraints, and inadequate infrastructure. Addressing these challenges through strategic financial support, capacity building, policy reforms, and infrastructure development is essential for their long-term success.

This Working Paper underscores the need for a collaborative and dynamic approach involving government agencies, private stakeholders, and farmer communities to realize the vision of a sustainable and inclusive agricultural ecosystem in India.

I am sure that this Working Paper will be useful for all the stakeholders involved in promotion and development of Farmers Collectives to make them competitive value chain actor. I am thankful to Farm Sector Development Department (FSDD) of NABARD for sustained guidance, encouragement, and proactive support extended for refining the approach.

I extend my deep appreciation to Shri Rajesh Yadav, FM, BIRD, Lucknow for his meticulous research, innovative use of the theoretical framework in authoring this working paper. The inputs provided by Smt. Shefali Agrawal, Joint Director and Dr. Sriram Appulingam, General Manager, BIRD in enhancing the quality of the paper is acknowledged. I also thank the Faculty Members for their steadfast support. I also want to convey my gratitude to the officials of POPIs/FPOs who contributed significantly to the development of this valuable and comprehensive document.

I sincerely hope that this working paper will be of immense benefit to policy makers, bankers and all other relevant stakeholders.

Nirupam Mehrotra
Director, BIRD, Lucknow

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ABBREVIATIONS

AAAVC	Agri and Allied Value Chain
ABP	Assessment of Yearly Business Potential
AGM	Annual General Meeting
AH	Animal Husbandry
AI	Artificial Intelligence
AIF	Agri Infrastructure Fund
APEDA	Agricultural and Processed Food Products Export Development Authority
AVC	Agri-value chain
AVCF	Agri-value chain finance
B2B	Business-to-Business
B2C	Business-to-Consumer
BIRD	Bankers Institute of Rural Development
BOD	Board of Director
C2C	Consumer to Consumer
CBP	Capacity Building Program
CEO	Chief Executive Officer
CHC	Custom Hiring Centre
CIPHET	Central Institute of Post-Harvest Engineering and Technology
COC	Cost of Cultivation
CSR	Corporate Social Responsibility
CSS	Central Sector Scheme
DCCB	District Co-operative Central Bank
DOC	Day Old Chick
DORB	De-Oiled Rice Bran
DPR	Detailed Project Report
e-NAM	e-National Agriculture Market
EWS	Early Warning Signal
F2F	Face-to-Face
FC	Fixed Cost
FCC	FPO Credit Cards
FI	Financial Institution
FM	Faculty Member
FM-CHC	Farm Mechanisation - Custom Hiring Centre
FMP	Formulation of Marketing Plan
FPO	Farmer Producer Organisation
FPP	Formulation of Financial Plan
GAIBP	Gross Aggregatable Input Business Potential
GI	Geographical Indication
GST	Goods and Services Tax
IBP	Input Business Plan
ICT	Information and Communication Technology
IGA	Input Gap Assessment

INR	Indian Rupees
IOT	Internet of Things
KCC	Kisan Credit Card
MIS	Management Information Systems
MOC	Month Old Chick
MOOC	Massive Open Online Course
MSP	Minimum Support Price
NABARD	National Bank for Agriculture and Rural Development
NAIBP	Net Aggregatable Input Business Potential
NAOBP	Net aggregatable output business potential
NBFC	Non-Banking Financial Company
NRM	Natural Resources Management
NTFP	Non-timber forest products
OECD	Organisation for Economic Co-operation and Development
ONDC	Open Network for Digital Commerce
PACS	Primary Agricultural Credit Societies
PH	Post Harvest
PODF	Producers Organization Development Fund
PODF-ID	Producers' Organization Development Fund – Interest Differential
PPPCL	Purvanchal Poultry Producer Company Limited
PRODUCE	Producers' Organization Development and Upliftment Corpus
PSL	Priority Sector Lending
RBI	Reserve Bank of India
RCC	Resource, Capability, and Collaboration
RKVY	Rashtriya Krishi Vikas Yojana
RMP	Risk Management Plan
RTM	Research, Trainings and Mentorship
SCM	Supply Chain Management
SFAC	Small Farmers' Agri-Business Consortium
SMS	Subject Matter Specialist
SOP	Standard Operating Procedure
SSS	State Government Sponsored Schemes
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TT	Technology Transfer
UAV	Unmanned Aerial Vehicle
VC	Variable Cost
VCA	Venture Capital Assistance
VCM	Value Chain Management
VGF	Viability Gap Funding

1 Introduction

Enhancing Profitability and Inclusivity in Indian Agriculture Value Chains

The Indian agricultural ecosystem faces significant challenges due to dynamic fragmentation in the cost of means of production and economic rent of producers within modern agri and allied agri value chains (AAAVCs). These inefficiencies lead to reduced economies of scale, high price spreads, and declining farm profitability. Addressing these structural inefficiencies requires a strategic approach involving resource pooling, collectivization, and value chain integration. However, these interventions necessitate substantial investments in institutional development, infrastructure, support services, and digitalization.

Market Opportunity and Financial Estimates

As per the latest notification of Ministry of Agriculture and Family Welfare, the provisional gross cropped area in India stands at 219.35 million hectares. Analyzing the data reveals a significant business potential:

- **Gross Aggregatable Input Business Potential (GAIBP)**: Estimated at **INR 4.44 lakh crore**, with an average aggregatable cost of means of production of **INR 49,866=00 per hectare**.
- **Agri-Value Chain Finance (AVCF) Requirement**: Estimated at **INR 2.22 lakh crore** to support aggregation of input costs.
- **Allied Agriculture Contribution**: Further increases AVCF demand for output business, including post-harvest aggregation, processing, and collective marketing.

Strategic Opportunity: Collective Action Through FPOs

Farmer Producer Organizations (FPOs) have emerged as a transformative solution, leveraging the power of collective action to enable small farmers to overcome these challenges. By aggregating production and integrating market linkages, FPOs allow farmers to capitalize on economies of scale, access advanced technologies, and strengthen their market bargaining power. This approach aligns with the dual objectives of improving farmer incomes and enhancing the efficiency of the agricultural value chain.

Journey of FPO Promotion: From Pilot to Scalable Model

Since 2003, India has embarked on a long-term strategic initiative to promote FPOs, focusing initially on awareness-building, research, and pilot implementation across diverse regions. This phase emphasized the testing of new-generation cooperative models designed to bridge the gaps in the agricultural sector. Over time, the initiative has witnessed strong engagement from key stakeholders - ranging from public and private sector actors to community-based organizations - resulting in the formation of self-sustaining FPOs.

The FPO movement in India has gained momentum in the last decade. A few events that marked the journey traversed so far are -

- National Policy and Process Guidelines for FPOs with a dedicated source of funding from Rashtriya Krishi Vikas Yojana (RKVY) programme
- Equity Grant and Credit Guarantee Scheme of SFAC
- NABARD support through dedicated funds viz., PRODUCE Fund & PODF
- Credit support by banks and NBFCs including NABKISAN
- Introduction of Government of India's Central Sector Scheme for formation of 10000 FPOs in 2020
- State Governments formulated FPO policy and provide incentives to FPOs
- Agriculture Infrastructure Fund (AIF) which supports creation of storage and primary processing infrastructure at farm-gate level, recognizes FPOs as eligible beneficiaries for interest subvention.
- Revision of Priority Sector Lending (PSL) guidelines of RBI classifying loans extended up to ₹5.00 crore per FPO as priority sector financing and the guidance note
- Rating tools developed by NABARD to boost much needed credit support to FPOs
- The credit guarantee support provided to lending institutions through NABARD subsidiary i.e., NABSanrakshan under CSS on 10000 FPOs is providing the much-needed impetus to expand credit outreach to FPOs

Initiatives of NABARD

- Creation of dedicated fund viz., Producers Organization Development Fund (PODF) in 2011-12 which was a loan cum grant model for developing and demonstrating innovative financing models and to facilitate mainstreaming of such funding mechanism through banking institutions for achieving larger outreach
- Promoting and nurturing of new FPOs through PRODUCE fund and PODF-ID
- Setting up "FPO Resource Centre" in BIRD, Lucknow with Massive Open Online Courses (MOOCs), basic & advanced training modules for training of FPO functionaries; strengthening of subsidiaries for financing of FPOs
- Extending Credit Guarantee Cover viz NABKISAN and NABSanrakshan, respectively
- Developing a guidance note on financing of FPOs and
- Lendability assessment tool for the banking sector

Key drivers of this success include:

- **Sectoral Collaboration:** Public and private sector partnerships have played a pivotal role in promoting awareness, providing financial support, and facilitating capacity building.
- **Institutional Innovation:** The evolution of FPO models has been characterized by the integration of both traditional cooperative principles and modern business practices. The models deployed in India - spanning producer-driven, facilitator-driven, corporate-driven, and value chain integration - have been tailored to optimize scalability and impact.

Challenges faced by FPOs

However, despite the multitude of support available, it is observed that FPOs perform better only when its governance, management system, and capital structure are strong. Other factors like market and financial accessibility, farmer-members' engagement, infrastructure, pricing mechanism, etc. also need to be strengthened to scale up the business of the FPOs for its long-term growth and viability. The major challenges faced by the FPO ecosystem are as follows (NABARD, 2024):

a. Lack of awareness among the farmers
b. Lack of professionalism, leadership, and managerial capabilities
c. Lack of understanding about business plan and scaling opportunities
d. Poor capitalization and inadequate credit availability for investment
e. Inadequate measures for hedging of risks
f. Lack of corporate ownership and controls

In order to address the above challenges, in the recent times, several FPOs have come up with solutions such as farm to home supply, usage of digital technology, business diversification, value addition and processing, etc. Such FPOs have demonstrated better premium for farmers' produce, timely delivery of agri services and agri inputs, lowering the cost of production and increase in net income for farmers. However, as these reforms are in the form of an ongoing process, they require a continuous enabling ecosystem support. NABARD being lead player in the FPO ecosystem, intends to provide such support through its inclusive and flexible operational guidelines. As FPOs can play a pivotal role in transforming the agricultural landscape in India, NABARD is spearheading initiatives to empower these organizations, thereby enhancing farmers' income and market access through collective action and digital integration, through adoption of the following core strategies -

1. Consolidation of Existing FPOs

NABARD aims to strengthen current FPOs through a multi-faceted approach:

- **Accelerate Business Growth:** Support operational scaling and market penetration.
- **Enhance Credit and Market Linkages:** Facilitate access to financial resources and market opportunities.
- **Upgrade Performance Ratings:** Focus on improving C and D rated FPOs to enhance credibility.
- **Promote Federations:** Encourage collaboration among FPOs to strengthen bargaining power.
- **Assess Capacity Building Needs:** Identify training requirements for effective management.
- **Stabilize Data Management:** Establish a robust Management Information System (MIS) for performance tracking.
- **Resolve Compliance Issues:** Address statutory challenges faced by FPOs.
- **Integrate with ONDC:** Onboard FPOs onto the Open Network for Digital Commerce platform.
- **Document Success Stories:** Capture and disseminate impactful case studies.

2. Targeted Formation of New FPOs

New FPOs will be strategically formed based on specific agricultural needs:

- **Focus on Agri-Allied Sectors:** Prioritize sectors such as animal husbandry, fisheries, NTFP, beekeeping, and mushrooms.
- **Leverage NRM Projects:** Saturate areas with existing Natural Resource Management (NRM) projects to maximize impact.

3. Digital Technology Integration

NABARD will support the infusion of digital technologies within the FPO ecosystem:

- **Streamline Bookkeeping and Compliance:** Enhance operational efficiency through digital solutions.
- **Optimize Business Operations:** Implement technology for better management practices.
- **Facilitate Credit Operations:** Use digital platforms to improve access to finance.

Expected Outcomes

The strategic initiatives by NABARD are expected to yield significant benefits:

- **Increased Bargaining Power:** Collective action enhances farmers' negotiating capabilities, leading to better prices for their produce.
- **Improved Market Access:** Formal market entry provides competitive pricing opportunities for farmers.
- **Enhanced Productivity:** Adoption of modern agricultural technologies boosts output and quality.
- **Financial Inclusion:** Access to formal credit channels enables better investment in agriculture.
- **Sustainable Livelihoods:** Overall improvements in income contribute to enhanced living standards for farmers.

NABARD's ongoing commitment to fostering a robust FPO ecosystem is crucial for sustainable agricultural development in India. By focusing on consolidation, targeted formation, and digital integration, NABARD is positioned to empower farmers, enhance their income potential, and drive rural economic growth.

However, it is also evident that certain additional interventions are required in order to address the following challenges being faced by FPOs in a more effective manner -

- Lack of professionalism, leadership, and managerial capabilities
- Lack of understanding about business plan and scaling opportunities
- Poor capitalization and inadequate credit availability for investment

The Facilitator-Driven Model: Scaling FPOs for Maximum Impact

The majority of FPOs in India have been developed under the PRODUCE Fund, PODF (NABARD), and the 10000 Central Sector Scheme for promotion of FPOs, with a strong emphasis on the **facilitator-driven model**. This model enables the professionalization of farming operations, with external facilitation playing a critical role in establishing and scaling FPOs. Facilitators provide essential support in areas such as governance, financial management, and market access, thereby ensuring the sustainability and growth of these organizations.

However, a number of studies indicate that FPOs in India exhibit a success rate of only 10-15%, with most focusing solely on input supply and trading. A limited number of FPOs have been able to transition into processing and value-added activities. As a result, FPOs face significant barriers in realizing their full potential in the agricultural value chain.

Key Observations:

4. Management Models:

- **Professional Management**: High-performing FPOs tend to adopt professional management structures, resulting in stronger business growth. However, this often leads to reduced engagement from board members and farmers, limiting long-term strategic alignment.
- **Entrepreneurial Leadership**: In some FPOs, dynamic entrepreneurial leadership by a few board members drives success, though this is often coupled with lower member participation and a paternalistic management style.
- **Member-led Models**: A few FPOs thrive with direct member involvement, where board members serve in various operational roles. This fosters greater dynamism and high engagement but may lack professional governance.

5. Capability Building:

Keeping in view the diverse agro-climatic conditions not only within a State but also across States, as also the State specific agricultural dynamics, it is important to develop an enhanced dynamic capability for the FPOs to remain competitive and break market barriers. Static capacity-building programs alone are insufficient. Continuous mentorship and a dynamic approach to capability building are essential for fostering long-term competitiveness.

6. Financial Constraints:

- India's Gross Cropped Area is approximately 219.35 million hectares, and the estimated Gross Aggregatable Input Business Potential (GAIBP) for agricultural inputs is Rs. 4.44 lakh crore. The total financing required for agri-value chain finance (AVCF) stands at approximately Rs. 2.22 lakh crore.
- Furthermore, additional financing is needed for value-added activities such as post-harvest aggregation, processing, and marketing, necessitating the development of tailored financial models to address the specific needs of different agro-climatic zones.

Structural Challenges in Farmer Producer Organizations (FPOs)

To address these inefficiencies, the **Producer Company Act, 2002** (within the ambit of the Companies Act, 1956) was enacted, leading to the incorporation of **44,460 FPOs as of September 2024**. However, several barriers hinder their scaling and effectiveness:

- **High Fixed Costs and Low Gross Margins**: Impacting financial viability.
- **High Marketing and Compliance Costs**: Increasing operational burdens.
- **Limited Financial Resources**: Restricting growth and scalability.
- **Single Value Chain Dependency**: Constraining diversification.
- **Complex Regulatory and Legal Framework**: Hindering ease of operations.
- **Lack of Digitalization and Governance Mechanisms**: Impeding efficiency.
- **Absence of a Continuous Mentoring Framework**: Affecting sustainability.

Setting up a Research, Training & Mentorship (RTM) Centre in BIRD

In order to overcome the challenges being faced by the FPOs, it is envisaged to provide a dynamic mentorship framework for FPOs by setting up a Research, Training & Mentorship (RTM) Centre in BIRD, with the following segments

Synergizing FPOs and PACS: A Complementary Model

Primary Agricultural Credit Societies (PACS) function similarly to FPOs in many aspects, except for their credit-oriented role. Given their overlapping business ecosystem and membership base, there is a pressing need to create an **enabling environment** that fosters synergy rather than competition. A complementary business model leveraging PACS and FPOs in tandem can enhance efficiency and scale.

Strategic Intervention: BIRD Lucknow's Mentorship Framework

To restore profitable and inclusive AAAVCs, a comprehensive strategy is required, focusing on:

- **Policy Support**: Streamlining regulations and compliance.
- **Financial Interventions**: Expanding access to AVCF.
- **Infrastructure Development**: Strengthening aggregation, storage, and processing facilities.
- **Digital Transformation**: Leveraging technology for real-time decision-making.
- **Capacity Building and Mentorship**: Empowering FPOs and PACS for long-term sustainability.

BIRD Lucknow has conceptualized a **mentorship framework** for PACS and FPOs, addressing key structural challenges through:

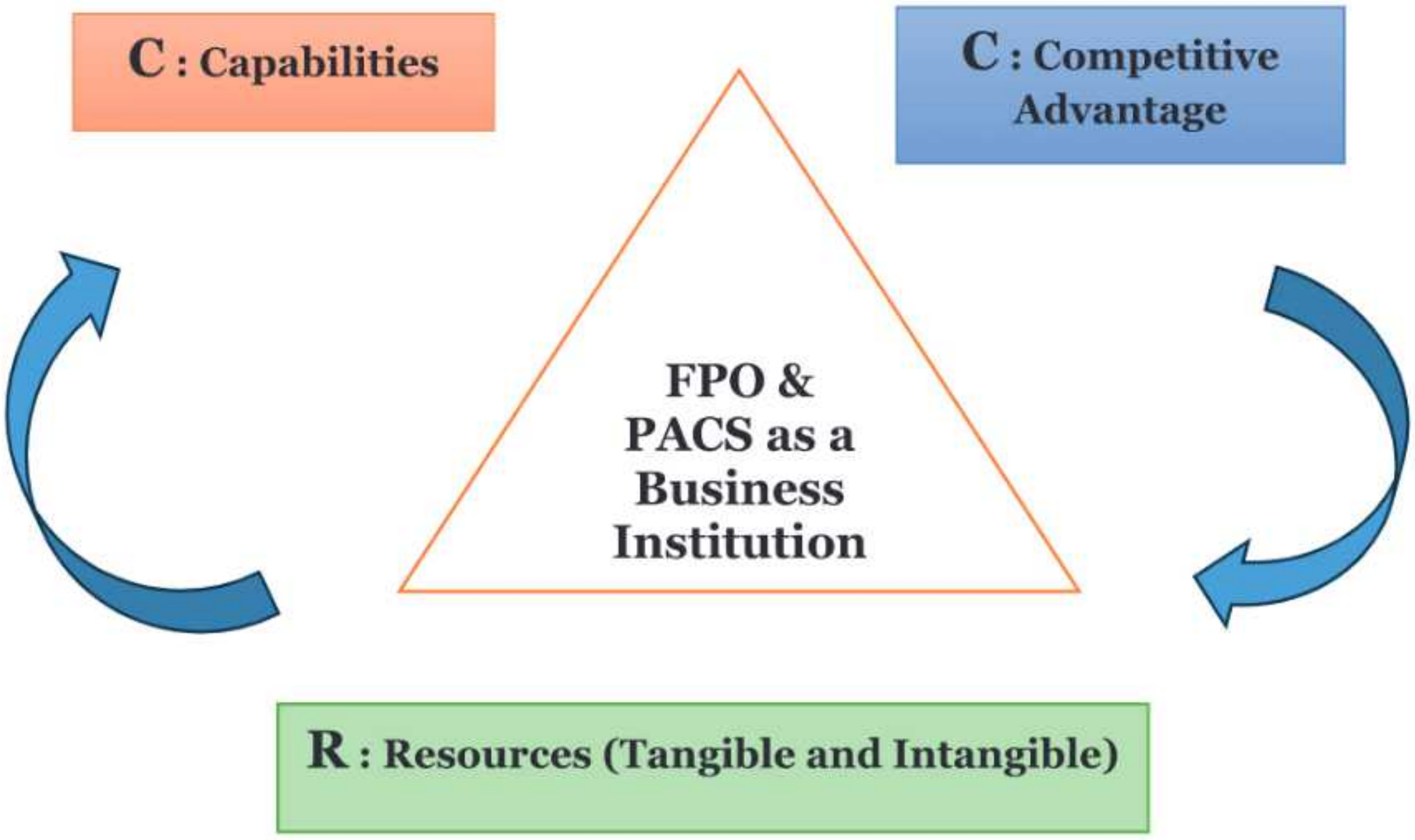
- **RCC Pillars**: Resource, Capability, and Competitiveness.
- **10-Step Value Chain Approach**: Driving integration and efficiency.
- **Digital Technology Convergence**: Enhancing operational effectiveness.

1. •Conceptualised RCC Framework for FPO's/ PACS
2. •10 Step Value Chain Approach for FPO's/ PACS
3. •Digitalization of Agri and Allied Agri Value Chains for FPO's/PACS
4. •Institutional setup, role and responsibilities of Research, Trainings and Mentorship (RTM) Centre
5. •Financial Resource Management : Budget for Research, Trainings and Mentorship (RTM) Centre, BIRD, Lucknow

By implementing these interventions, the Indian agricultural ecosystem can transition towards a **more efficient, scalable, and inclusive value chain**, ensuring enhanced farm profitability and sustainable rural economic growth.

2 RCC: Resource, Capability and Competitiveness Framework

RCC: Conceptualised RCC Framework for FPO's/ PACS



Conceptualized RCC Framework

The RCC (Resource, Capability, and Collaboration) framework for FPOs emphasizes the integration of various resources to enhance agri-business competitiveness. This framework identifies seven key resource categories:

a. Physical Resources: Infrastructure and equipment necessary for production.
b. Financial Resources: Capital for investment and operational costs.
c. Skilled Human Resources: Trained personnel to manage operations effectively.
d. Technological Resources: Tools and systems that improve the effectiveness and efficiency of the agri-value chain on a real time basis by capturing qualitative and quantitative characteristics of the relevant actors and factors across the agri-value chain.
e. Informational Resources: Access to market data and agricultural research.
f. Intangible Resources: Brand reputation and community trust.
g. Collaborative Resources: Partnerships with other organizations for shared benefits.

These resources can be energized through dynamic capabilities, enabling FPOs to break market barriers and actively participate in modified agricultural value chains.

RESOURCES

1. Physical Resources

- ✓ Potential marketable and marketed surplus single or multiple commodities.
- ✓ Extent and status of allied agriculture sector

2. Financial Resources

- ✓ Equity share
- ✓ Equity grant
- ✓ Promotional and development support
- ✓ Interest and capital subsidies
- ✓ CSR fund
- ✓ Donations / Awards
- ✓ Supply Credit
- ✓ Input Credit
- ✓ Director / Member debt
- ✓ Reserve and surplus from business operations
- ✓ Loan and advances.

3. Level of Skilled Human Resources

- ✓ CEO
- ✓ Managers
- ✓ Accountant
- ✓ Supporting staff

4. Technological Resources

- ✓ Technologies before the farm link
- ✓ Technologies farm and producer link
- ✓ Technologies after farm link

5. Informational Resources

- ✓ Flow of information and knowledge across the value chains
- ✓ Flow of information of actors and factors

6. Intangible Resources

- ✓ Brand Development / process innovation / patent / GI Indicator

7. Trade Contract / collaboration

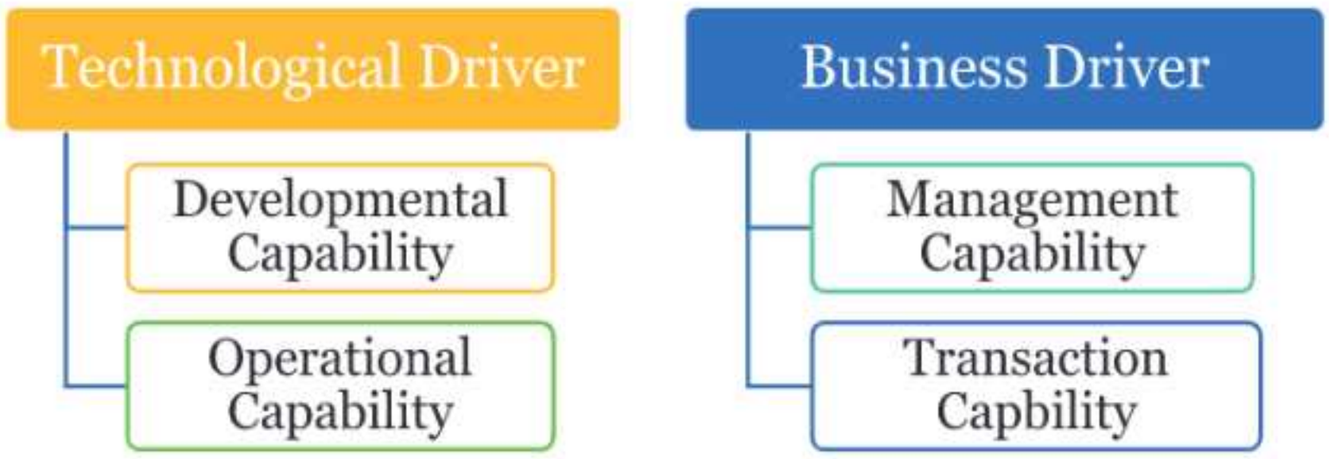
- ✓ B2B and B2C networks and federations of FPOs
- ✓ Corporate linkages
- ✓ Future Marketing

- ✓ Contract Farming
- ✓ FPO federation

8. Infrastructure and Support services

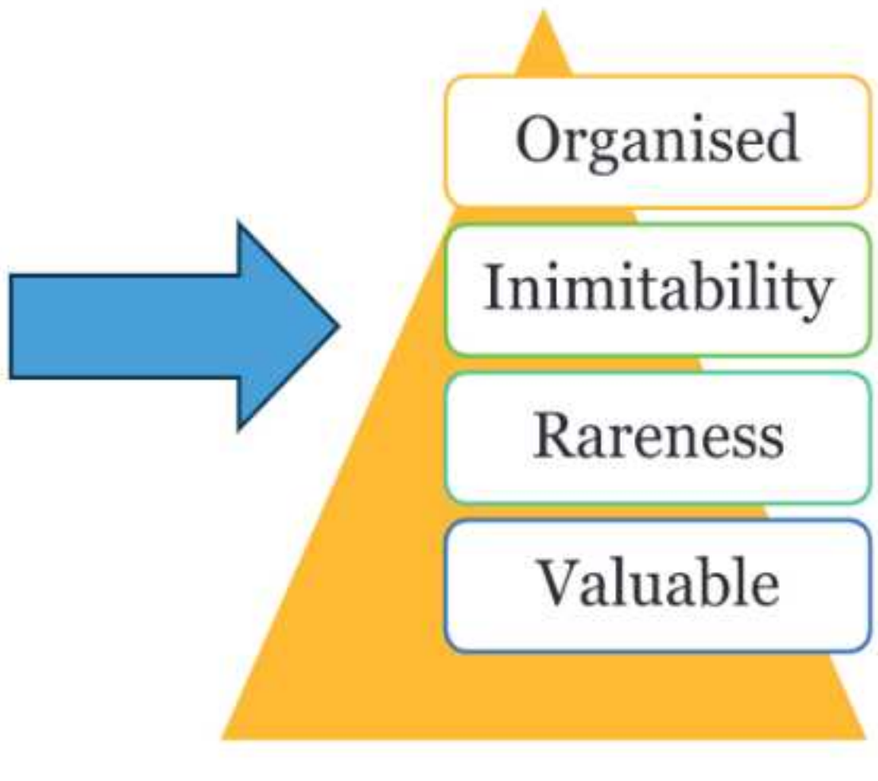
- ✓ Inbound Infrastructure and services
- ✓ Processing Infrastructure
- ✓ Outbound infrastructure and services

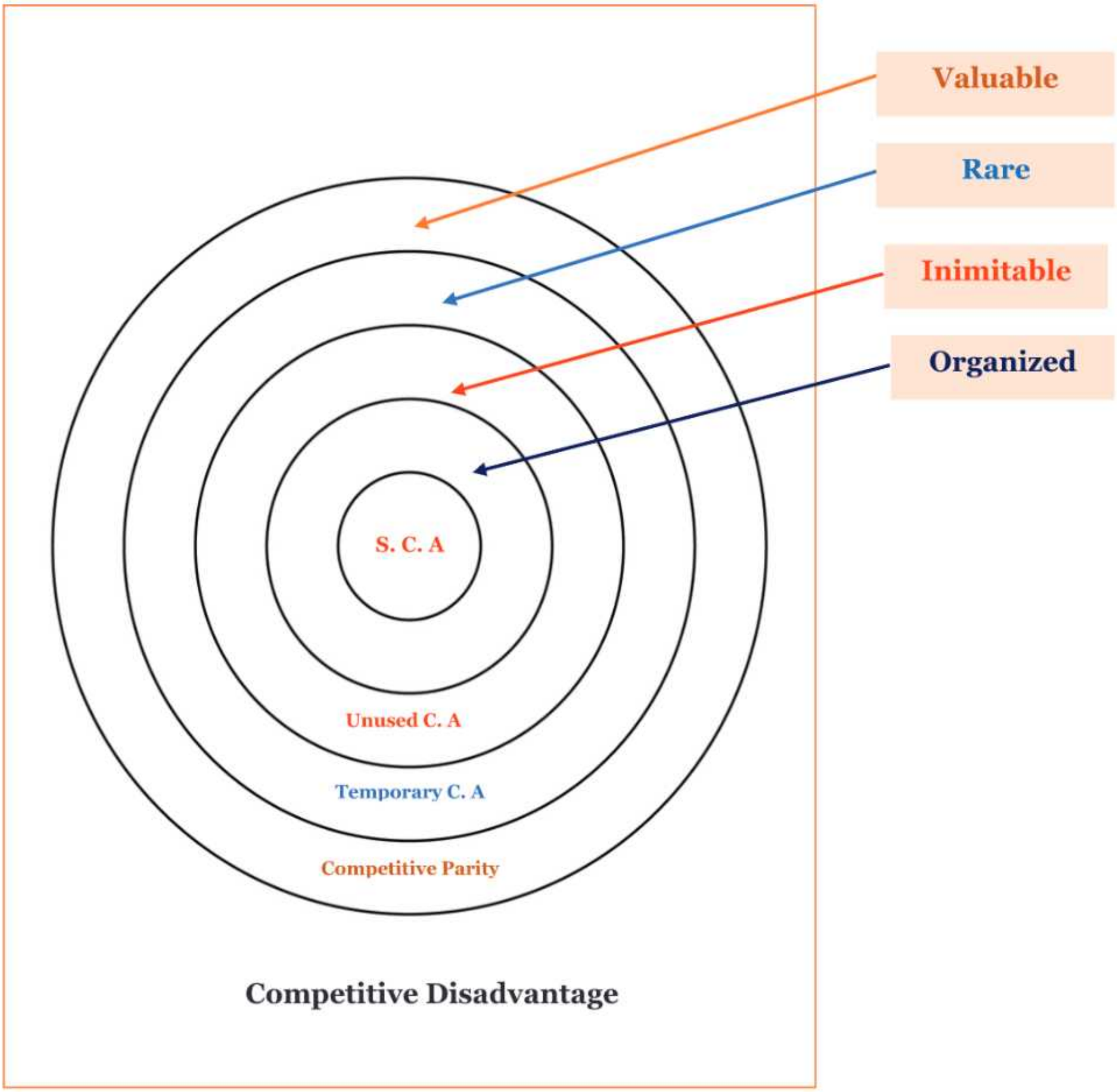
CAPBILITIES



Competitive Advantage (Dynamic Competitiveness)

1. Price of product
2. Cost of product
3. Quality of product
4. Economies of scale
5. Characteristics of resource potential
6. Path Dependent
7. Enterprise brand
8. Patent





Valuable	Inimitable	Rare	Organised	Stage of Competitive Advantage
NO				Competitive Disadvantage
YES		NO		Competitive Parity
YES	NO	YES		Temporary Competitive Advantage
YES	YES	YES	NO	Unused Competitive Advantage
YES	YES	YES	YES	Sustainable Competitive Advantage

VIRO Framework to uncover sustainable competitive advantage

3 Capability: Analysis and discussions of determinants

CAPBILITIES

1. Developmental Capability

- ✓ Strategic dealing with technology
- ✓ Creating new product
- ✓ New process
- ✓ New technique
- ✓ New Product (mainly)

2. Operational Capability

How the FPO uses its previously developed knowledge, ability, routine and technical system to efficient operating technology to produce tradeable goods and services, which are derived from establishing competitive priority aiming to take advantage of

- ✓ Lower cost
- ✓ High quality
- ✓ Delivery time
- ✓ Flexibility
- ✓ Workflow

3. Management Capability

- ➢ Arises from the transaction that the FPO assumes when it proposes to fill a market gap
- ➢ Role of coordinator and entrepreneur
- ➢ Seeking to allocate the production factor optimally
- ➢ Minimizing the transaction costs and uncertainty
- ➢ Ability to integrate and combine production resources to achieve higher level of resources

TECHNOLOGY CAPABILITIES

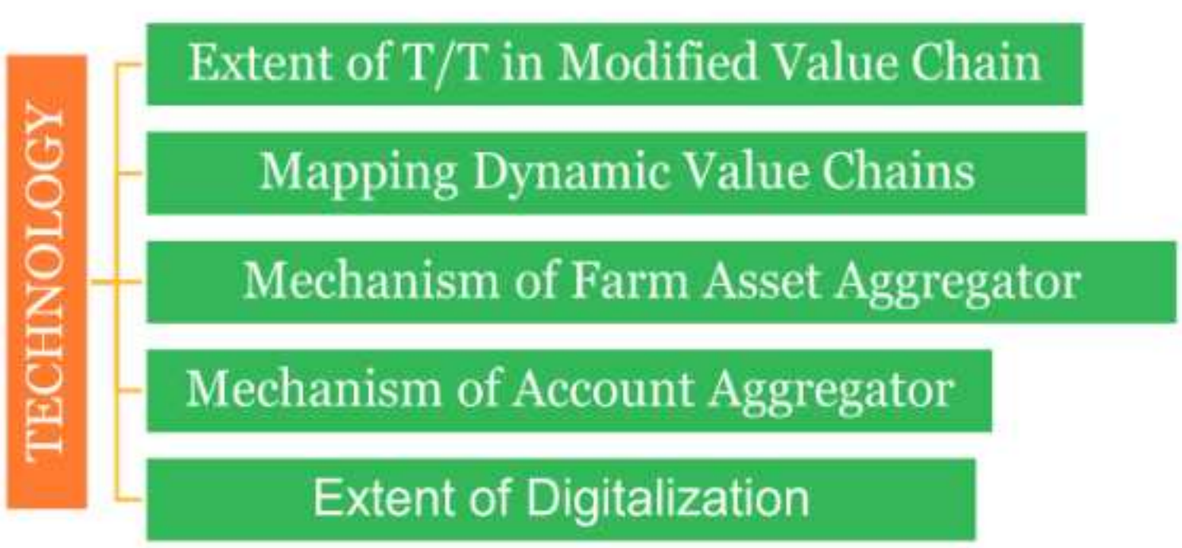
Digitalization of Agri and Allied Agri Value Chains

The Role of Technology in Transforming Agri and Allied Value Chains

Technological advancements play a pivotal role in driving societal and economic impact, particularly across agriculture and its allied value chains. Three key categories—emerging technology, enabling technology, and general-purpose technology—shape this transformation.

Enabling technology is instrumental in enhancing user capabilities by leveraging existing inventions and innovations, enabling more efficient adoption of other advanced technologies. In the agri-sector, such technologies drive productivity, sustainability, and supply chain resilience.

Information and Communication Technology (ICT) is a critical enabler that intersects all three technology categories. Major advancements in agri-value chains increasingly rely on ICT to optimize operations, enhance decision-making, and improve market connectivity. As digital solutions continue to evolve, they serve as the backbone of innovation, accelerating growth and efficiency across the sector.



Description of ICTs in agriculture as suggested by OECD

Enabling Digital Technology	Technology Application in AAAVC Digitalization
IOTs	Coordination and logistics, quality management and Smart Farming
Blockchain	Traceability of supply sources and transparency in food and food safety
AI	Intelligent Farm Machines, green house monitoring, drone based crop imaging, social media and modernization of supply chains, precision agriculture
Big Data	Decision making based on data and sustainable agriculture
Augmented reality	Digital Agriculture and precision farming
System Integration	Integrated agriculture farm management
Machine Learning	Digital Agriculture and precision farming, Crop Disease detection, yield prediction, weed deduction and water management and crop recognition
Edge Computing	Big data Processing and smart AI application in Agriculture
Cloud Computing	Increased efficiencies in AVC
Ubiquitous connectivity	Increased connectivity along AVC with use of different digital devices and platform to access and shared agriculture information

Source: Based on OECD (2018).

Digital platforms	Digital platforms collect data and provide broader access to information and services. These platforms enable commercial and non-commercial transactions in B2B, B2C, and C2C markets.
Sensors	Sensors allow us to transform the properties of physical world into data. The use of sensors allows for better soil and plant analysis and for gathering valuable data that will be used to predict yields (Basnet & Bang, 2018).
IoT	The IoT allows us to connect different digital and physical devices into a unique information network. Within the farm, IoT helps monitor the location of animals, humans, and production processes.
Robotics and drones	Robots are small-sized automatic machines that can substitute traditional agricultural machinery in different farm activities. Drones, also known as unmanned aerial vehicles (UAV), can support the application of precision agriculture techniques. UAV allows to obtain images of large agricultural areas and gather information about soil quality and plant diseases (Gašparovic´ et al., 2020; Zhang & Kovacs, 2012).
Big data	Big data is formed by large quantities of information collected from sensors, agricultural equipment, agricultural machinery and by monitoring dairy farming activities. It includes a wide range of information, such as the incidence of pests, crop management, production results, and information on agricultural commodities prices (Kamilaris et al., 2017). When analysed through data analytics, it supports the farmer's decision making process (Newton et al., 2020; Sarker et al., 2020)
Cloud computing	Cloud computing offers the capacity required for data storage and data integration. In this way, cloud computing supports big data analytics (OECD, 2018).
Artificial intelligence	Artificial intelligence is defined as the ability to acquire and apply knowledge and carry out the so-called "intelligent" behaviour (OECD, 2018).
Blockchain	Refers to the distributed database operated jointly by the users. In the agri-food sector, it serves to execute programs such as smart contracts (Mukherjee et al., 2021; Zhang, 2020).

Enhancing Agri-Value Chains Through Digital Platforms and Blockchain

Small-scale farmers often face greater challenges in achieving sustainable profit margins compared to large-scale producers. Key barriers include limited access to market information, weak connections with target consumers, and high transaction costs (Markelova et al., 2009). **Digital platforms** address these challenges by enabling direct farmer-to-consumer interactions, reducing dependency on intermediaries (Mukherjee et al., 2021; Zeng et al., 2017). Furthermore, these platforms facilitate connections with upstream value chain actors, enhancing overall efficiency (OECD, 2018).

Blockchain technology presents another transformative solution for agricultural value chains. As a decentralized, distributed ledger, blockchain enables secure and transparent transactions through **smart contracts** and digital currency, providing small-scale farmers with improved access to financial resources. The technology enhances **transaction authenticity and transparency**, driving significant cost reductions over traditional financial mechanisms (Manski, 2017; Mukherjee et al., 2021; Zhang, 2020). Moreover, blockchain strengthens **food traceability**, allowing consumers to verify product origins and quality, thereby increasing trust and value across the supply chain.

Type of Solutions wherein Digital Technology can be used in AAAVCs

- **Farm Management**
- **UAV**
- **Meterology and Irrigation**
- **IOT**
- **Precision Farming**
- **Telemetry and automation**
- **Scouting**
- **Financial Services**
- **Food Safety and traceability**
- **Distribution and management**
- **Sharing Economy**
- **Content and Education**
- **Restaurant Marketplace**
- **Image Diagnosis**
- **Industry 4.0**
- **Loyalty Program**

Benefits and advantages of using ICT in agri and allied agri value chains

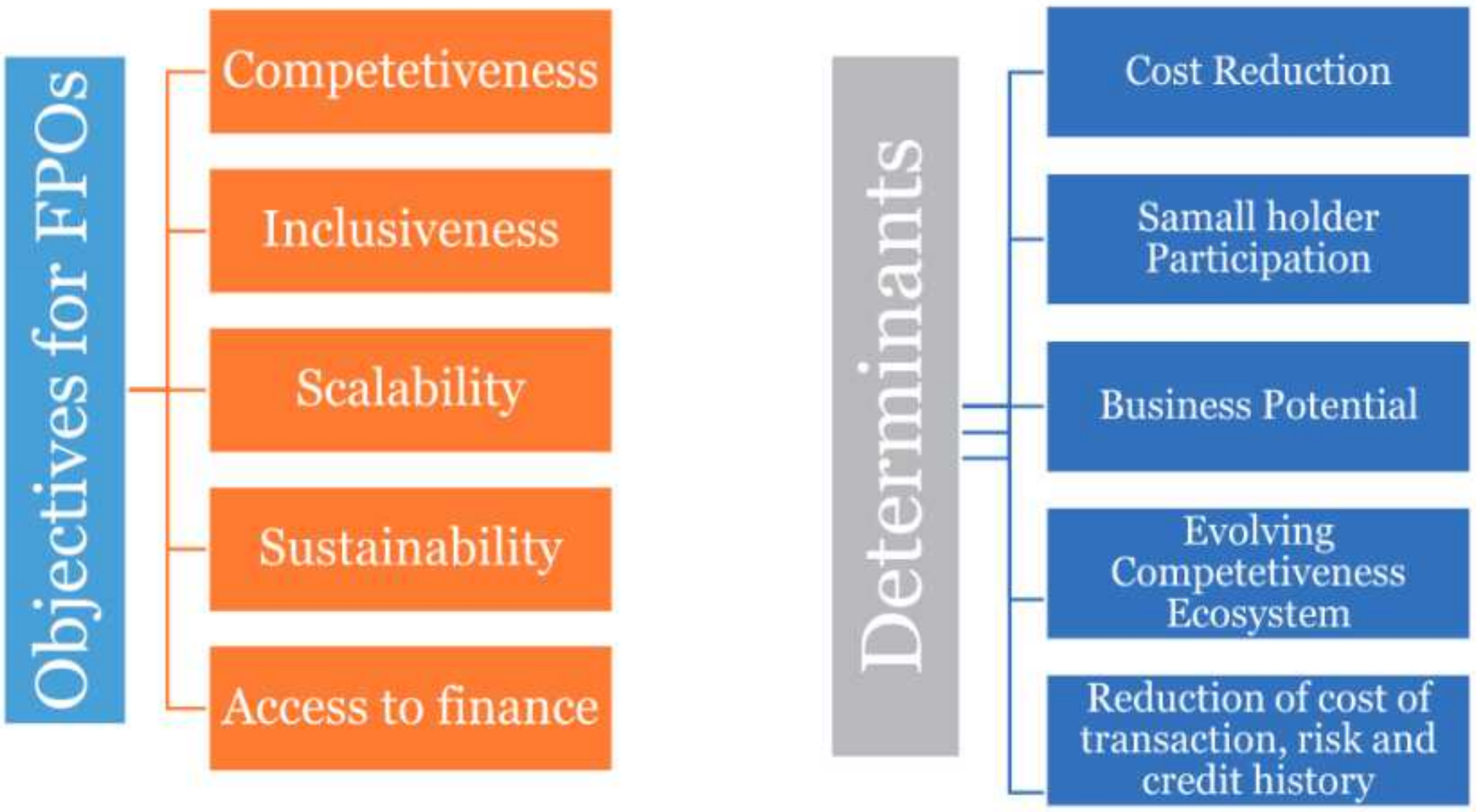
- Data analysis and decision making
- Cost reduction
- Information and data
- Planning and management
- Control and monitoring
- Quality Improvement
- Processes Optimization and time reduction
- Precision
- Productivity
- Speed and agility
- Security and safety

Factors / Determinants of using ICT in agri and allied agri value chains

1. Cost
2. Analysis and decision making
3. Speed and agility
4. System
5. Process improvement and time reduction
6. Productivity
7. Information and data
8. Management and monitoring
   - Precision
9. Quality improvement
   - Security and safty

Solving the technical and managerial issues of farm by improving interconnectivity and allowing lower resource consumption through intelligent use of equipment and machinery, Agri-Tech companies focus on farm management and transaction operation.

While developing rating tools for FPOs it is necessary to capture the drivers responsible for strengthening and making efficient modified AAAVCs for business participation of producers in modified AAAVCs through FPOs.



Criteria for Modelling an FPO Rating Matrix: Evaluating the Role of Technology in the FPO Ecosystem

A robust **Farmer Producer Organization (FPO) Rating Matrix** must assess the impact of technology across multiple dimensions of the FPO ecosystem. Key evaluation criteria include:

1. **Cost Efficiency & Value Chain Optimization**
   - **Direct Production Cost Reduction**: The extent to which technological tools assist in mapping, implementation, and cost reduction for producer members.
   - **Indirect Production Cost Reduction**: The role of technology in value chain analysis, implementation, and reducing indirect production costs.
   - **Supply Chain Optimization**: The impact of technology on inbound logistics, operations, outbound logistics, and marketing efficiency.

2. **Member Engagement & Trust Building**
   - **Enhancing Active Membership**: Technology's role in increasing member participation, ensuring inclusivity irrespective of gender.
   - **Building Stakeholder Trust**: The contribution of technology in improving transparency and fostering trust among stakeholders.

3. **Data-Driven Decision-Making**
   - **Production Ecosystem Decisions**: The extent to which technology enables informed decision-making at the production level.
   - **Governance & Management Decisions**: The role of digital tools in improving decision-making within FPO governance and management structures.

4. **Business Intelligence & Market Positioning**

   - **Real-Time Business Potential Forecasting**: The ability of technology to auto-map, analyze, estimate, and forecast business potential based on real-time quantitative and qualitative data.
   - **Market Access & Barrier Reduction**: The role of digital solutions in breaking market entry barriers and expanding market linkages.

5. **Quality Assurance & Brand Development**

   - **Traceability & Quality Control**: The impact of technology on ensuring product authenticity and quality assurance.
   - **Branding & Customer Outreach**: The effectiveness of digital tools in enhancing brand visibility and expanding customer reach.

6. **Financial Accessibility & Governance Strengthening**

   - **Agri-Value Chain Financing**: The role of technology in facilitating financial inclusion and access to agri-financing solutions.
   - **Governance & Management Efficiency**: The contribution of digital platforms in strengthening overall FPO governance and operational management.

This structured approach ensures a comprehensive evaluation of technology's role in enhancing FPO performance, sustainability, and long-term impact.

I) FPO R-TOOL MATRIX FOR TECHNOLOGY SEGMENT

S. No.	Particulars	Solution	Impact or Likely Impact	Max Mark	Actual Mark
1	Digitalization : Before the Farm Link				
2	Digitalization : Farm and Farmer Link				
3	Digitalization : After Farm Link				

(**C** : Competitiveness, **I** : Inclusiveness, **S** : Scalability, **S** : Sustainability, **F** : Financial Resource Management)

Example I: Technological Advancement in Foxnut (Makhana) Processing – Enhancing Competitiveness & Sustainability

In Bihar, foxnut (Makhana) processing has traditionally relied on manual techniques performed by local skilled labor. However, this method results in a high rejection rate of up to **70%** for export-quality produce. To address this challenge, **CIPHET, Ludhiana** developed an advanced **foxnut processing machine**, significantly improving product quality and ensuring uniformity in size. This technological intervention has led to:

- A substantial **reduction in export rejection rates** from **70% to just 10%**.
- An **increase in the selling price** to exporters from **₹650/kg to ₹750/kg**, representing a **15.38% price improvement**.
- **Enhanced competitiveness and sustainability** for processors within the value chain.

Moreover, the scalability of this technology-driven processing solution not only strengthens the foxnut value chain but also expands opportunities for **increased cultivation and export potential**, fostering long-term economic growth in the region.

Example II: Enhancing Transparency in Rice Milling Yields through Micro Processing Technology

Rice millers and FPOs engaged in **MSP procurement** face challenges in assessing milling yields due to bulk processing delays, while procurement agencies must ensure **payment within 72 hours**. To address this issue, **Purvanchal Poultry Producer Company Limited (PPPCL), Deoria** adopted a **prototype micro processing machine**, capable of processing **100 grams of paddy per minute**. Key benefits include:

- **Instant milling yield assessment** using random sampling from producer lots.
- **Real-time payment slips** issued based on actual milling yield, ensuring transparency.
- **Fair pricing opportunities** for producers, fostering trust and efficiency.

This innovation enhances **operational transparency and efficiency** in procurement, reducing delays and improving financial clarity for stakeholders.

Example III: Customized Accounting Software for FPOs in Allied Agriculture

Traditional **Tally accounting software** is well-suited for standardized products but lacks flexibility for **customized feed compositions** required in allied agriculture, where nutritional needs vary based on age, breed, and medical prescriptions. To bridge this gap, **PPPCL, Deoria**, developed a **customized accounting software** in **2016**, enabling:

- **Automated accounting** for tailored feed formulations.
- **Greater financial accuracy** in managing diverse product compositions.
- **Seamless inventory and cost tracking** for customized production.

This digital solution empowers FPOs to **streamline financial management**, reducing complexity in allied agriculture operations.

Example IV: Cost Reduction through Digital Accounting & GST Compliance Solutions

Most FPOs handle a **limited number of transactions daily or monthly** but bear significant fixed costs of **₹1.2 to ₹1.5 lakh per year** for a permanent accountant. Additionally, they incur **₹500 to ₹1,000 per month** for GST compliance.A cost-effective alternative is **outsourcing financial management to an "Account Aggregator" via digital networking**, which:

- **Reduces fixed accounting costs**, shifting to a more affordable pay-per-service model.
- **Enhances operational focus**, allowing FPOs to prioritize business expansion over administrative burdens.

This shift optimizes resource allocation, making FPOs financially agile.

Example V: Digital Value Chain Mapping for Strategic Business Planning

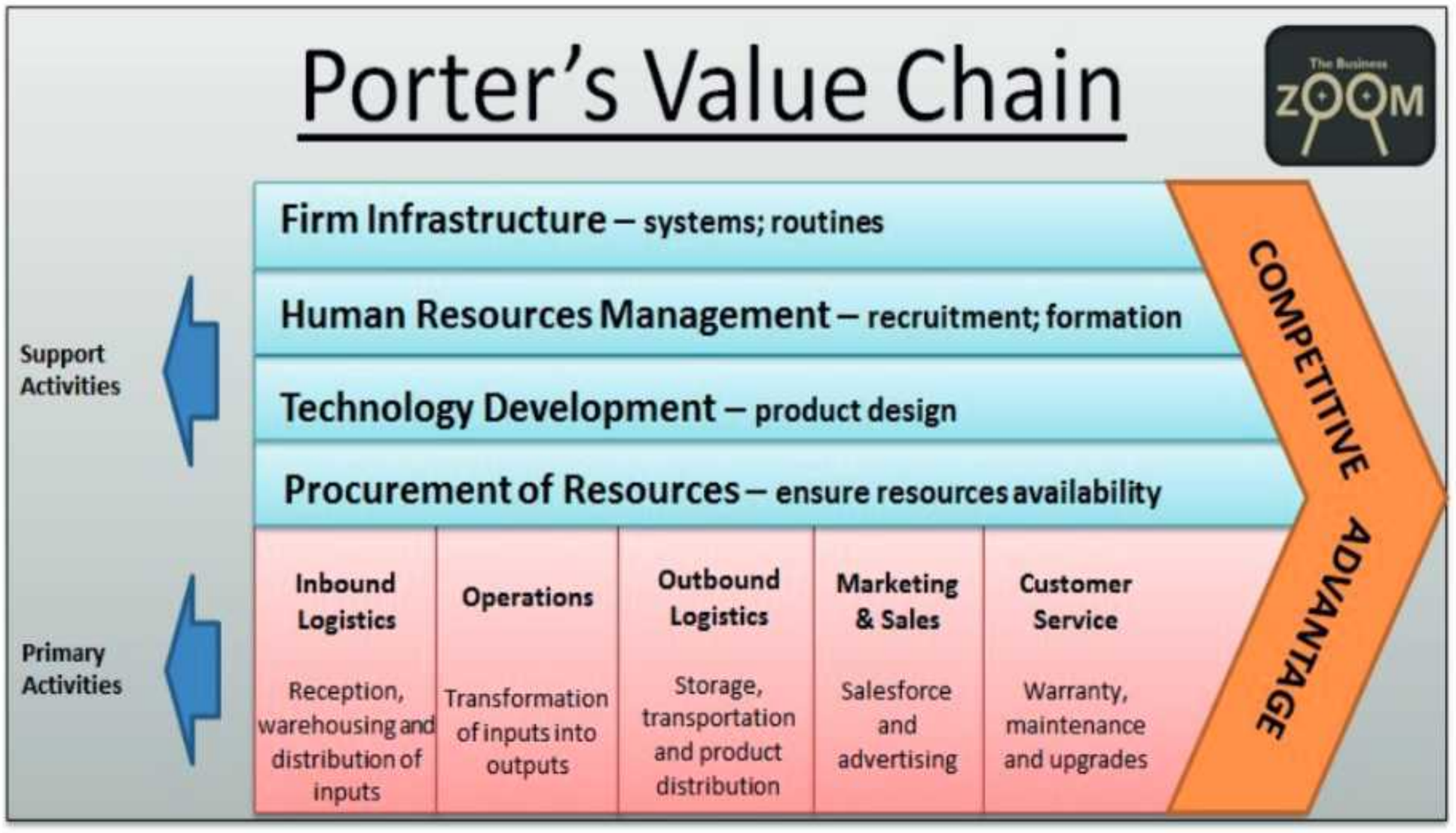
FPO competitiveness cannot be fully assessed without a **comprehensive business plan** and a comparative analysis of existing **agri and allied agri value chains (AAAVCs)**. However, **manual value chain mapping is costly and time-intensive**. **Digitalization of value chains** offers a scalable solution by:

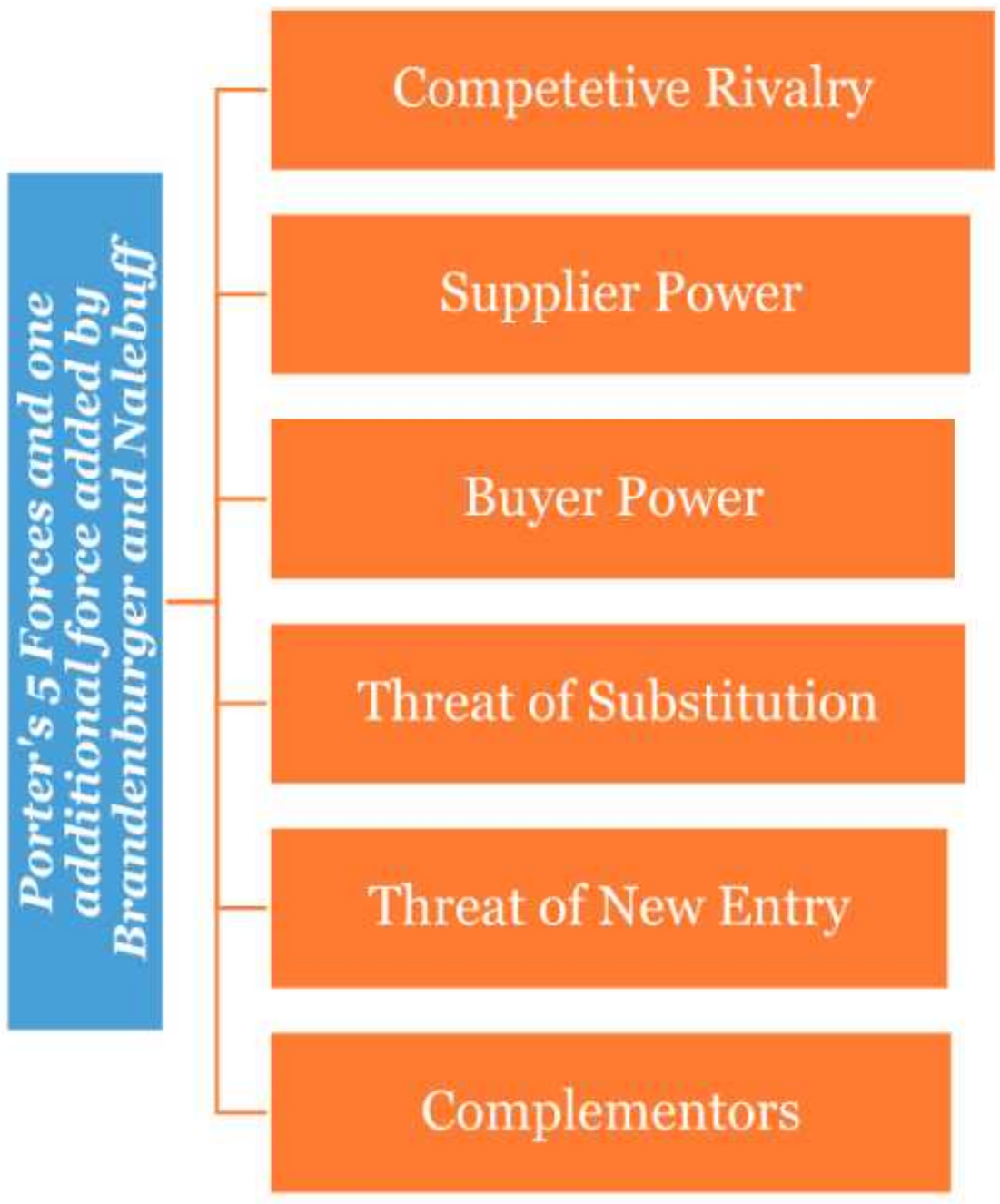
- **Automating value chain analysis**, reducing assessment costs.
- **Enabling real-time dynamic business planning** without additional investments.
- **Providing insights on internal and external market conditions**, strengthening decision-making.

This technological intervention allows FPOs to make **data-driven strategic decisions**, improving competitiveness within evolving market dynamics.

Institutional Capabilities

MICHAEL PORTER'S FIVE FORCES MODEL ALONG WITH ADDITION OF ONE ADDITIONAL FORCE (Cooperative Component) BY Brandenburger and Nalebuff (1996)





Porter's Five Forces Analysis for FPO Ecosystems

Understanding the competitive landscape is crucial for **Farmer Producer Organizations (FPOs)** to strengthen their market positioning and sustainability. Porter's Five Forces framework provides a structured approach to analyzing external challenges and opportunities within agri and allied value chains.

1. Competitive Rivalry

FPOs operate in a highly competitive environment where **existing value chain actors** (traders, processors, commission agents) attempt to retain market control by:

- **Price Undercutting & Marketing Dominance**: Competing by lowering prices and launching aggressive marketing campaigns, making it difficult for FPOs to attract customers.
- **Credit & Financial Influence**: Offering **input credit, supply credit, and production advances** to create dependencies among producers, preventing their active participation in FPO-led value chains.
- **Structural Barriers**: Using **monopolistic supply chains** and **muscle power** to restrict FPOs' market access.

⚠ **Threat Level:** High – Can significantly hinder FPOs' ability to operate independently and scale their businesses.

2. Supplier Power

Supplier influence manifests in two key ways:

- **Producer Dependency on Input Suppliers & Buyers**:
  - Long-standing relationships between producers and traditional input suppliers create challenges for FPOs attempting to **aggregate inputs and streamline procurement**.
  - Buyers with **procurement power** can dictate prices and disrupt FPO aggregation mechanisms.
- **Raw Material Dependency for Processing Units**:
  - Some FPOs rely on **external suppliers** for critical raw materials (e.g., DORB, MOC, DOC, admixtures in feed manufacturing).
  - **Price volatility and quality manipulation** by suppliers can weaken FPO profitability.
  - **Supplier monopolies** further increase dependency, making cost-effective alternatives difficult to access.

⚠ **Threat Level:** Medium to High – Can significantly impact cost structures and operational stability.

---

3. Buyer Power

Buyers gain power when:

- **Low buyer-to-supplier ratio**: If fewer buyers exist compared to the number of FPO suppliers, buyers can **negotiate lower prices** or **switch to cheaper alternatives**.
- **High buyer influence in early FPO stages**:
  - Initial buyers often **pressure FPOs to reduce selling prices**.
  - FPOs must counter this by optimizing **inbound logistics, operational efficiency, and marketing strategies** to remain competitive.

⚠ **Threat Level:** High – Especially during early-stage FPO operations.

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4. Threat of Substitution

Substitutes are a significant challenge in agriculture due to:

- **Easier availability of alternative products**.
- **Rapid market shifts** driven by new consumer trends.
- **Competing value chain actors introducing better substitutes**.

To mitigate substitution risks, FPOs must **differentiate their products** by focusing on:

- **Quality improvements (appearance, nutritional value, traceability)**.
- **Low chemical usage (insecticides, pesticides, herbicides)**.
- **Geographical Indication (GI) certification** and branding.

⚠ **Threat Level:** Medium – Product differentiation can reduce substitution risks.

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5. Threat of New Entrants

The rise of **corporate-driven FPOs (CSR-supported FPOs)** is reshaping competition, as **large agri-corporates and traders integrate FPOs** into their value chains to:

- **Secure assured procurement of commodities at lower prices**.
- **Cross-subsidize operations** for long-term control over value chains.
- **Leverage economies of scale** to outcompete smaller, independent FPOs.

To counter new entrants, FPOs must:

☑ Develop **strong supply chain integration** and **forward linkages**.
☑ Strengthen **market access strategies** through **direct-to-consumer models and branding**.
☑ **Leverage digital tools** for real-time business intelligence and efficiency.

⚠ **Threat Level:** High – Requires strategic positioning to sustain market presence.

Barriers to Entry That Can Strengthen FPOs:

- **Supply-side economies of scale** – Higher volumes lower per-unit costs.
- **Network effects** – Strong buyer-seller networks increase FPO credibility.
- **Switching costs** – Creating long-term relationships with buyers makes switching difficult.
- **Capital requirements** – Requires financial backing for scaling operations.
- **Unfair advantages** – Leveraging **GI tags, organic certification, or exclusive supplier contracts**.
- **Distribution challenges** – Ensuring **direct market access to bypass intermediaries**.
- **Government policies** – Navigating **subsidies and licensing requirements** strategically.

6. Complementors (Strategic Alliances & Collaboration)

Complementors are entities that **enhance the value of FPO operations**. Strategic collaborations can significantly **improve economies of scale and market reach**.

Examples of Complementors in the FPO Ecosystem:

- ✓ **Tripartite collaboration of FPO, PACS, and DCCB** in **paddy and maize value chains** under **MSP procurement**.
- ✓ **Clustering of multiple FPOs** to achieve:
  - Shared infrastructure utilization.
  - **Better price negotiation power** with suppliers and buyers.
  - **Joint marketing initiatives** for higher outreach.

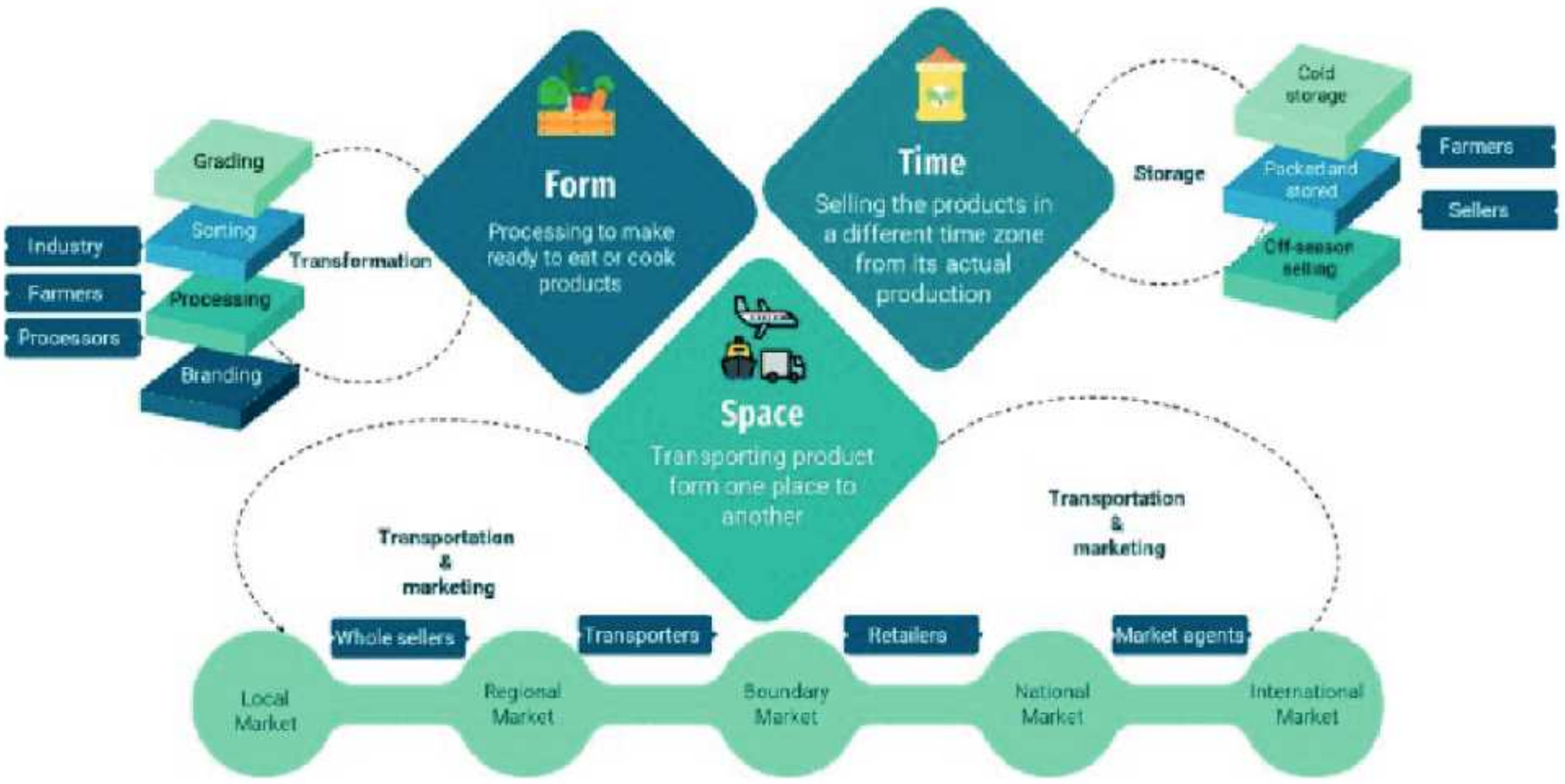
☑ **Strategic partnerships enhance FPO competitiveness, reduce operational costs, and increase market stability.**

Conclusion & Strategic Implications for FPOs

To sustain and thrive in competitive agri-value chains, FPOs must:

- ✓ **Differentiate their products** through **quality, traceability, and branding**.
- ✓ **Leverage digital tools** for **cost reduction and efficiency improvements**.
- ✓ **Strengthen supply chains** to **reduce input dependency and ensure fair pricing**.
- ✓ **Develop strategic alliances** to **increase market access and buyer confidence**.
- ✓ **Navigate regulatory frameworks** to **capitalize on government support mechanisms**.

By addressing these forces strategically, FPOs can **strengthen their market position, enhance sustainability, and create long-term value for producer members**.



Marketing Capabilities (Transactional Capabilities)

1. Availability of Marketable Surplus

- Every FPO incurs fixed costs ranging from **Rs. 6.00 lakh to Rs. 9.00 lakh**.
- Achieving **break-even points** requires a minimum **marketable surplus** depending on:
    - Commodity type
    - Value chain actor (trader, wholesaler, processor, etc.)
    - Gross margins available
- Different value chain actors require varying levels of marketable surplus:
    - **Processing** requires higher surplus than **trading**.
    - **Grain crops** need more surplus compared to **horticulture**.

2. Ability for Collective Procurement

- Influenced by:
    - Premium pricing for producer-members
    - Financial resources availability
    - Storage infrastructure for delayed marketing/processing
    - Supply credit ecosystem in value chains
    - Side-selling culture of producers

3. Ability for Collective Marketing

- Success depends on **business economics** favoring FPOs over traders, commission agents, or wholesalers.
- Competitive edge in:
    - Raw products and primary processing
    - Secondary and tertiary processing

4. Absorption Capacity in Local & Distant Markets

- Initial phases involve **lower economies of scale**.
- Identifying **market segments** within total demand:
    - Example: **Lucknow wheat flour market**: 80-85% dominated by national brands, but FPOs can compete in **15-20% local segment**.
- Sector demand: **Growing, stagnant, or diminishing?**

5. Availability of Differentiated Products

- Does the FPO offer **unique value propositions** such as:
    - **Quality differentiation**
    - **Nutritional benefits**
    - **Organic certification**
    - **Geographical Indication (GI) tags**
- Competitive advantage through differentiation.

6. Ability to Reduce Marketing Costs

- FPOs must leverage **value chain integration** to cut costs:
    - Fewer handling points (**loading/unloading**)
    - Transport cost optimization
    - Convergence of multiple value chains

7. Ability to Extend Premium Prices to Producer-Members

- FPOs aim to offer **better pricing** than distress sales.
- Key determinants:
  - Gross margins over fixed costs
  - Lower pricing barriers
  - Risk premium management
  - Future business scalability

8. Buffer Pricing for Initial Market Entry

- **Entry barriers** require price adjustments.
- FPOs need a **buffer price** strategy:
  - Offset lower initial pricing via **cost reductions**.
  - Sustain operations despite **competitive pressures**.

9. Networking with Stakeholders

- **Three key aspects:**
  1. **Stakeholder networking** (outsourcing for cost reduction)
  2. **Network marketing** (independent distributor-based sales models)
  3. **Federation of FPOs**:
     - Infrastructure & support through **cluster networking**
     - **Producer-driven, corporate-driven, or hybrid models** (e.g., Sahyadri Model)

10. Supply Chain Management (SCM) Efficiency

- Effective management of:
  - Product flow
  - Financial transactions
  - Information exchange
  - Knowledge transfer
- Ensuring **minimum expenditure** across the agricultural value chain.

11. Overcoming Statutory & Legal Barriers

- Compliance with **quality standards, lot sizes, financial requirements**.
- Example: Uttar Pradesh FPO Processing Requirements:
  - Rs. 50 lakh bank guarantee for MSP procurement
  - 4 MT/hr milling capacity (with Sortex) for rice processing
- **Export business** must comply with **APEDA regulations**.

12. Packaging & Branding Capability

- Essential for **market penetration & competitive advantage**.
- Investment in:
  - Packaging innovation
  - Brand positioning strategies

13. Multiple Value Chain Convergence

- FPOs often **fail to generate sufficient margins** from single-value chain replacements.
- **Multi-value chain approach** can:
  - Offset **high fixed costs**
  - Offer **cheaper inputs**
  - Facilitate **premium pricing**
  - Reduce **bargaining power** of market intermediaries
  - Ensure **financial sustainability**

14. Potential to Replace Multiple Value Chain Actors

- Replacing just one actor **may not be viable**.
- Moving from **upstream to downstream** increases:
  - Risk exposure
  - Capital requirements
- FPOs must assess **capacity to sustain expansion**.

15. Dependency on External Markets

- Two output segments:
  1. **Within the FPO cluster** (local demand)
  2. **External markets** (distant demand)
- **Agriculture-allied integration** (e.g., dairy, poultry, animal feed) reduces **external market dependency**.
- Lower dependency = **greater competitiveness & lower marketing risks**.

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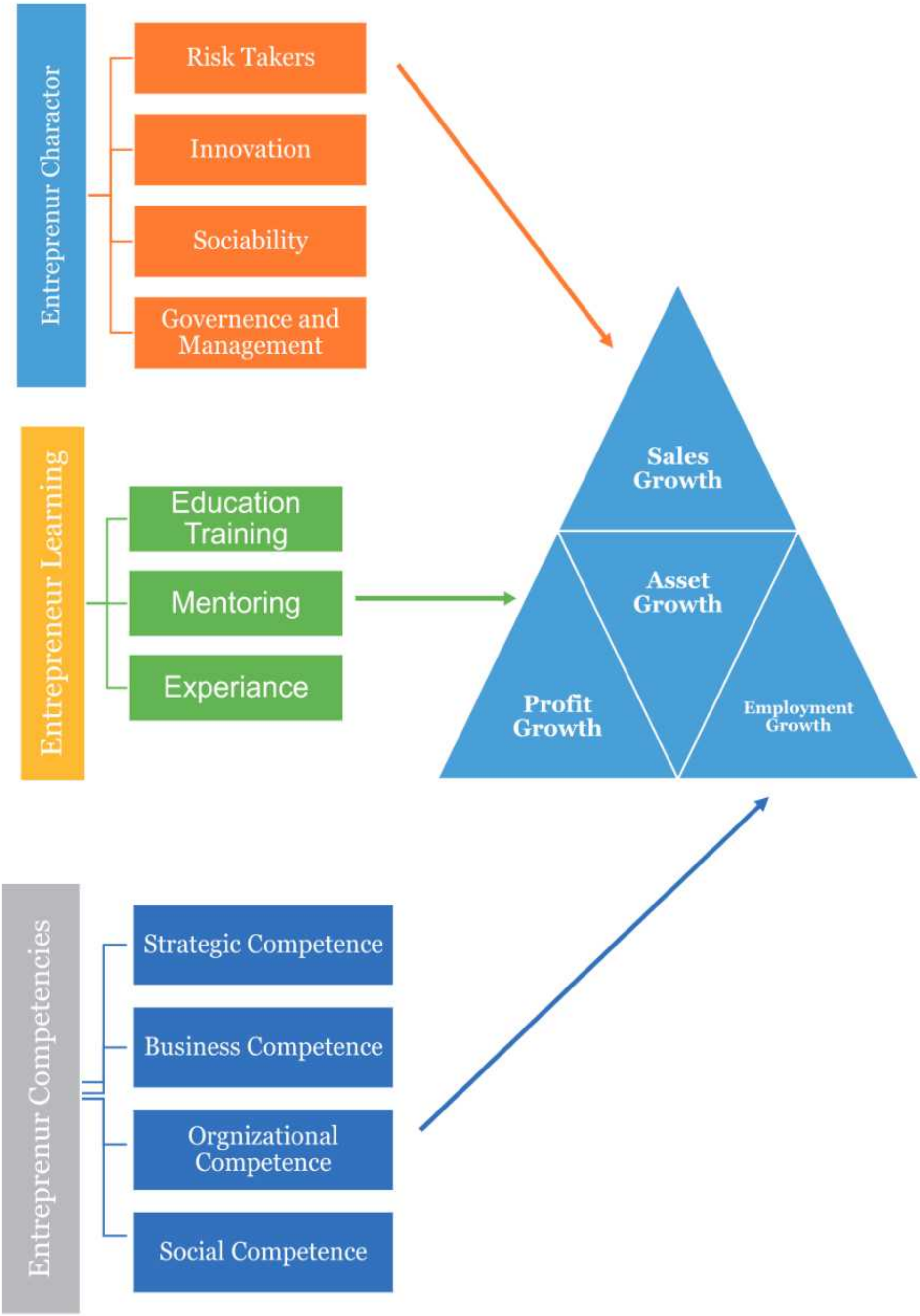
*For an FPO to establish itself successfully, it must build **strong market linkages**, manage **cost efficiency**, ensure **regulatory compliance**, and adopt **multi-value chain strategies**. Strategic **networking, differentiation, and market entry planning** are critical for sustained growth.*

Entrepreneurial Capabilities



1. Introduction

The concept of entrepreneurship was first introduced by Irish-French economist Richard Cantillon (1680-1734), derived from the French word "Entreprendre," meaning "to undertake." Entrepreneurs play a critical role in market development by introducing new goods and services, innovating production methods, exploring new markets, sourcing new inputs, and restructuring market dynamics.

2. Characteristics of Entrepreneurs

General Entrepreneurial Traits

- Introducing new products and services to the market
- Adopting innovative production methods
- Entering new and unexplored markets
- Identifying new sources of raw materials and inputs
- Restructuring industries through market disruption

Key Entrepreneurial Attributes by Scholars

- **Schermerhorn (1999)**: Internal locus of control, high energy levels, need for achievement, tolerance for ambiguity, confidence, and action-oriented mindset.
- **Zimmerer & Norman (2002)**: Responsibility, moderate risk preference, confidence in success, immediate return orientation, high energy levels, forward-thinking, and focus on achievement over profit.
- **Sandijoyo (2004)**: Internal locus of control, innovation, and social preference.
- **Rakib (2009)**: High discipline, commitment, honesty, risk-taking, pro-activeness, and strong social skills.
- **Nitjsu Sastro (2011)**: Self-confidence, risk-taking, hard work, responsibility, and innovation.
- **Entrepreneurial Competence**: Knowledge, cognitive ability, self-management, administration, human resource skills, decision-making, leadership, and opportunity recognition.

3. Entrepreneurial Factors in FPOs/PACS

Risk Awareness and Management

FPOs (Farmer Producer Organizations) and PACS (Primary Agricultural Credit Societies) must assess risk absorption capacities in:

- Production Risk
- Operational Risk
- Financial Risk
- Market Risk
- Credit/Institutional Risk

Decision-Making Based on Risk Assessment

- Formulating policies and resolutions based on calculative risk assessment.
- Ensuring informed and inclusive decision-making rather than ad-hoc decisions.

Innovation in Product & Process

- Continuously evolving competitive advantages to adapt to market changes.
- Enhancing resilience through adaptive capabilities.

Sociability and Social Entrepreneurship

- Identifying societal problems and solving them through entrepreneurial initiatives.
- Willingness to take risks for societal change.
- Ensuring solutions are user-friendly, scalable, and widely supported.

Self-Controlled Governance & Management

The **United Nations' Eight Principles of Good Governance** are essential for FPOs/PACS:

1. **Participation**: Inclusivity in decision-making.
2. **Rule of Law**: Impartial enforcement of legal frameworks.
3. **Consensus-Oriented Approach**: Balancing differing interests for the common good.
4. **Equity & Inclusiveness**: Providing opportunities for societal well-being.
5. **Effectiveness & Efficiency**: Achieving maximum output with available resources.
6. **Accountability**: Institutions must remain answerable to stakeholders.
7. **Transparency**: Easy access to relevant information and free media.
8. **Responsiveness**: Timely and efficient stakeholder engagement.

4. Entrepreneurial Learning

Entrepreneurial learning is significantly correlated with:

- Education & Training
- Mentorship & Guidance
- Experience & Practical Exposure

5. Entrepreneurship Competency Indicator

S. No.	Indicators	Indicators Sub-Indicators
I	**Committed competence**	• Being committed to giving full time for business development. • Being committed to providing owned resources for business development. • Fighting power not to let the business fail. • Being committed to building a long-term business
II	**Conceptual Competence**	• Applying ideas, issues & observations to business planning. • Integrating ideas, problems, and observations into business objectives • Being daring to take risks in running a business • Supervising business development to minimize risk. • Exploring creative and innovative business ideas and ideas • Observing problems as business opportunities

III	**Competence to Recognize Business Opportunities**	• Identifying goods or services according to customer desires • Understanding the use of tool/technology service methods to improve business performance • Being responsive to unmet consumer needs • Always looking for business opportunities that have promising prospects
IV	**Organizational Competence**	• Planning business operations • Managing resources in business • Coordinating various tasks within the business
V	**Relational competence**	• Establishing trust with other people/business partners • Negotiating with other people/business partners • Interacting with other people/business partners • Maintain relationships with business partners
V	**Strategic Competence**	• Awareness of industry changes and their impact on the company • Prioritizing work that is in line with business objectives • Aligning between actions taken with strategic goals • Always supervising business development in accordance with strategic goals • Evaluating business results against strategic goals
VI	**Economic Vulnerability**	• Being sensitive to the economic situation in the region

Source: Man, et al. (2008)

Competence cluster with description and underlaying competencies

S. No.	*Competence Cluster*	*Description*	*Underlying Competences*
1	**Opportunities Competences**	Competences related to recognising and developing market opportunities through various means	General awareness International orientation Market orientation
2	**Relationship competences**	Competences related to person-to-person or individual-to-group based interactions	Communication Negotiation Networking Persuasiveness Teamwork
3	**Conceptual competences**	Competences related to different conceptual abilities which are reflected in the behaviour of the entrepreneur	Conceptual thinking Problem analysis Vision and judgement

4	**Organising competences**	Competences related to the organisation of different internal, external, human, physical, financial and technological resources.	HRM/HRD Leadership Planning and organisation
5	**Strategic competences**	Competences related to setting, evaluating and implementing the strategies of the firm	Learning orientation Management control Result orientation Strategic orientation
6	**Commitment competences**	Competences that drive the entrepreneur to move ahead with the business.	Self-management Value clarification Vision

Organizational Capabilities	Questions	Assessment
Talent	Do your employees have the competencies and commitment required to deliver the business strategy in question ?	
Speed	Can we move quickly make important things happen fast?	
Shared mindset and coherent brand identity	Do we have culture or identity that reflects what we stand for and how we work "Is it shared by both customers and employee?	
Accountability	Does high performance matter to the extent that we can ensure execution of strategy?	
Collaboration	Hoe well do we collaborate to gain both efficiency and leverage?	
Learning	Are we good at generating new ideas with impact and generalizing those ideas across boundaries?	
Leadership	Do we have leadership brand that directs managers on which results to deliver and how deliver them ?	
Customer connectivity	Do we form enduring relationships of trust with targeted customers?	
Strategic Unit	Do our employee share an intellectual, behavioral, and procedural agenda for our strategy?	
Innovation	How well do we innovate in product, strategy, channel, service and administration?	

Organizational Capabilities	Questions	Assessment
Efficiency	Do we reduce cost by closely managing process, people, and projects?	

Entrepreneurship plays a vital role in economic growth by fostering innovation, managing risks effectively, and ensuring governance excellence in business entities like FPOs and PACS. Continuous learning and adaptation are key to sustaining entrepreneurial success.

4 Competitiveness: Analysis and discussions of determinants

Sources and evolvement of competitive advantages in FPO/PACS Ecosystem

Organizations today must embrace change and impermanence to remain competitive. Tom Peters (1987) highlights that "excellent organizations of tomorrow will cherish impermanence—and thrive on chaos." For FPOs, adopting continuous improvement and adaptability is crucial for long-term success. Key strategies to foster competitiveness and leverage FPOs' unique advantages could include -

4.1. Creating a Culture of Constant Improvement and Change

- **Adopt a Learning Mindset**: Encourage knowledge-sharing, training, and capacity building to enhance productivity and innovation.
- **Agile Decision-Making**: Implement decentralized decision-making to enable swift responses to market changes and environmental shifts.
- **Experimentation and Pilot Programs**: Launch small-scale pilots for new agricultural techniques, supply chain models, or strategic alliances before full-scale implementation.

4.2. Embedding Impermanence and Chaos as Competitive Advantages

- **Flexible Supply Chain Models**: Develop adaptable supply chains that respond dynamically to market demands and climate variations.
- **Strategic Alliances & Federations**: Strengthen collaboration among FPOs to achieve economies of scale and infrastructure sharing.
- **Diversified Value Chains**: Encourage multi-crop farming, agro-processing, and integration of by-products into secondary value chains (e.g., grain crops supporting animal feed industries).

4.3. Strategies to Exploit Opportunities in FPOs

4.3.1 Enhancing Supplier Bargaining Power

- Strengthen **producer ownership** within institutional frameworks to increase market control.
- Improve **traceability and quality control** through technology adoption.
- Aggregate small suppliers into medium-scale suppliers to **achieve economies of scale**, outperforming traditional value chain players.

4.3.2 Leveraging Strategic Alliances & Complementors

- Form FPO federations to **consolidate operations, infrastructure, and support services** (e.g., shared logistics, marketing, and financial services).
- Implement Brandenburger & Nalebuff's (1996) **complementor strategy**, fostering partnerships with stakeholders such as logistics providers and agro-tech firms.

4.3.3 Power of Value Chain Convergence

- Develop **multi-product clusters** based on agro-climatic zones, reducing dependency on external markets.
- Integrate by-products from one value chain into another (e.g., **grain crops supporting animal husbandry** through feed production).
- Optimize **supply chain efficiencies** by reducing procurement and transportation costs.

For FPOs to thrive in an unpredictable market, they must foster a culture of continuous improvement, adaptability, and strategic collaboration. By leveraging economies of scale, technology, and value chain convergence, FPOs can establish a resilient and competitive presence. Implementing these strategies will enable them to navigate market uncertainties and capitalize on emerging opportunities.

- ***Short-Term Focus:*** *Strengthen institutional frameworks, implement digital traceability, and pilot agile decision-making models.*
- ***Medium-Term Goals:*** *Develop federated FPO structures, establish strategic alliances, and enhance infrastructure aggregation.*
- ***Long-Term Vision:*** *Create multi-product clusters with optimized supply chains, ensuring a sustainable and competitive FPO ecosystem.*

5 Ten Steps Value Chain Approach

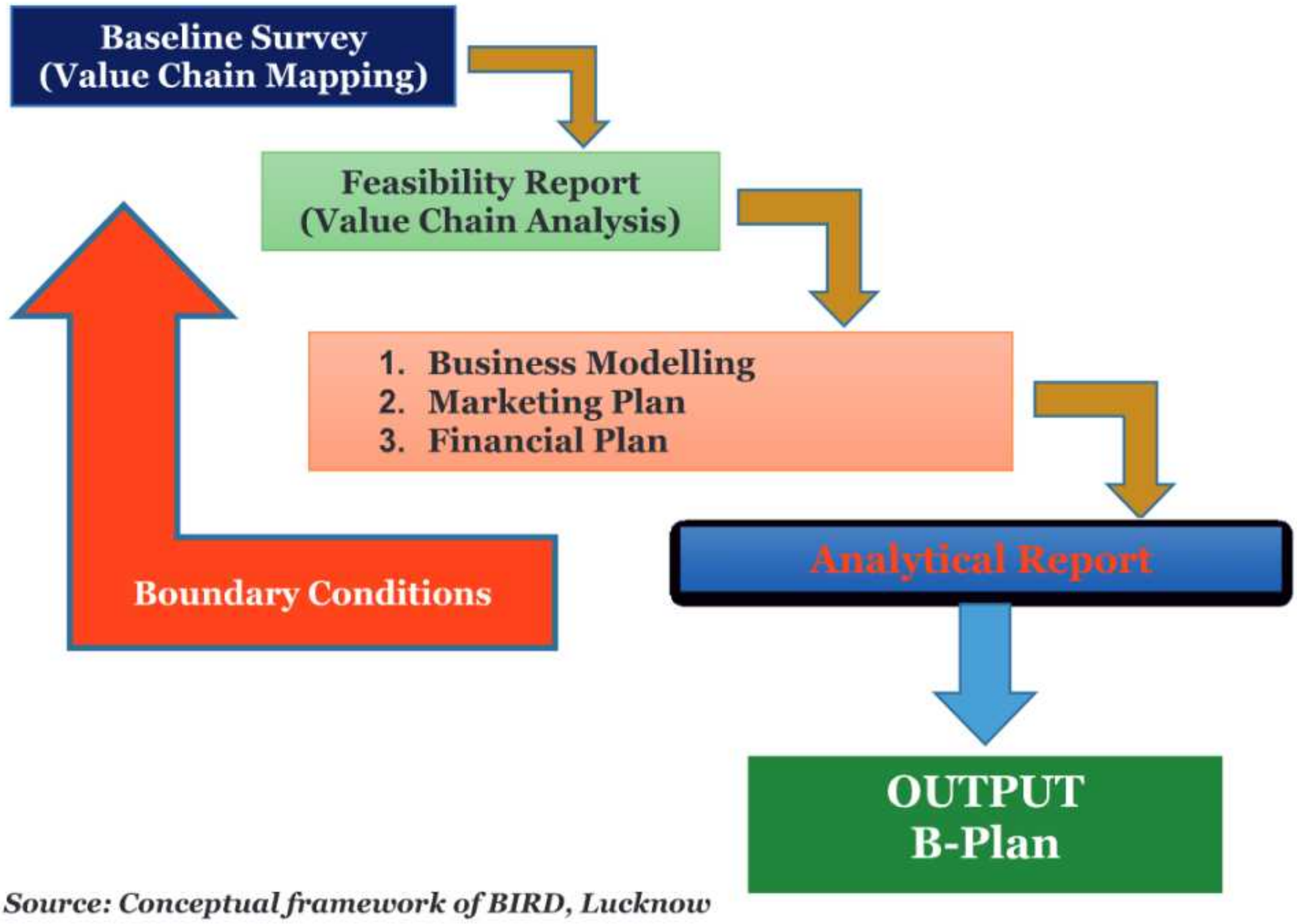
Ten steps value chain approach methodology has been adopted while formulation of business plan of FPO as given below:

1. Identification of Cluster
2. Identifications of Commodity
3. Baseline Survey - Value Chain Mapping (VCM)
4. Dignostic Study - Value Chain Analysis (VCA)
5. Identification of the Economic Activities
6. Techno-economic feasibility of identified Economic Activities
7. Assessment of the Boundary Conditions
8. Prioritization of the techno-economic feasible economic activities
9. Formulation of the modified / alternative value chains
10. Formulation of the Business Plan (B-Plan) of FPO

10.1	***Assessment of Business Potential***
10.2	***Formulation of Marketing Plan***
10.3	***Formulation of Financial Plan***
10.4	***Formulation of Risk Mitigation Plan***

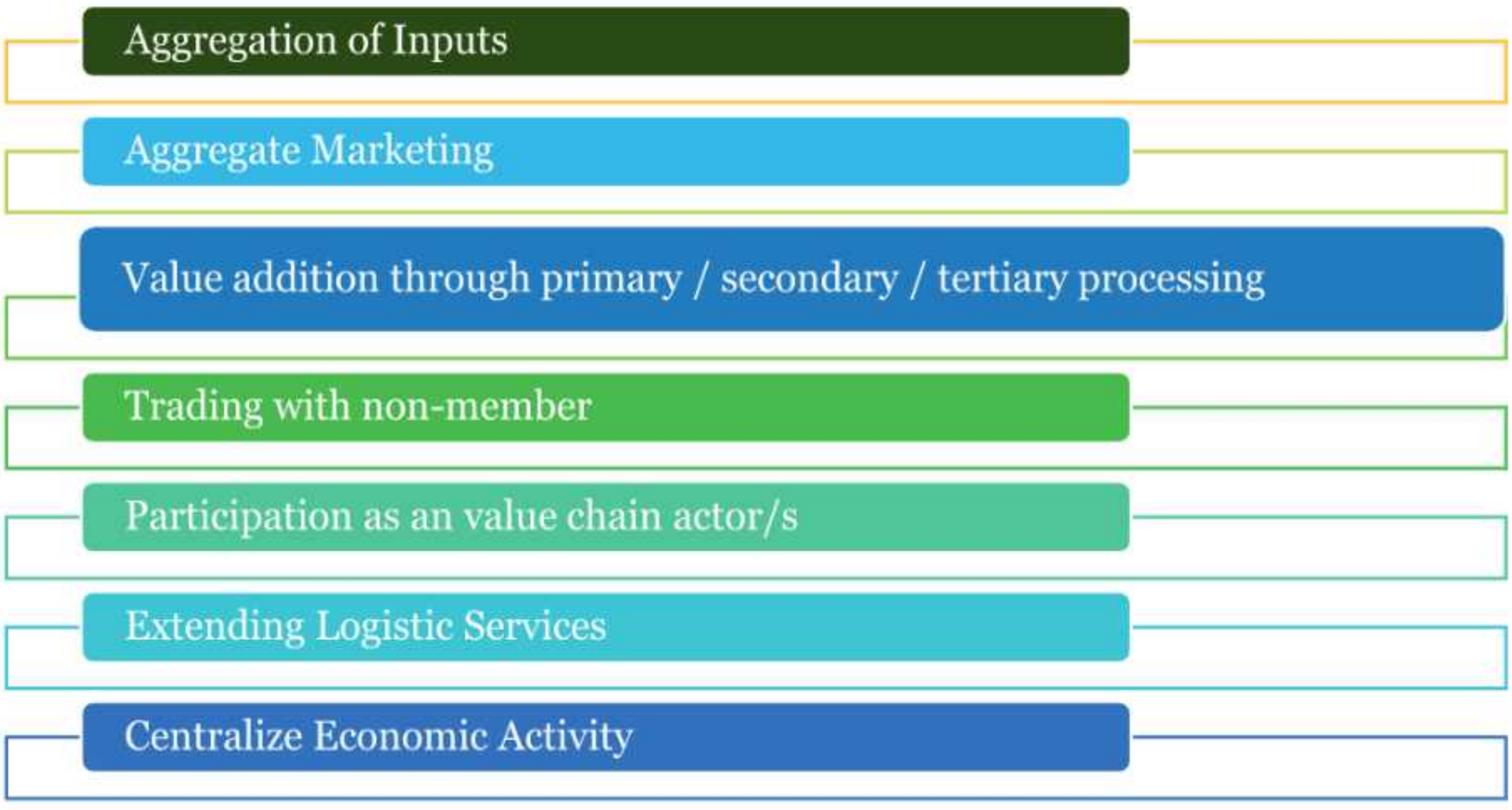
Source: Conceptual framework of BIRD, Lucknow

Flow Chart of the Business Planning



Source: Conceptual framework of BIRD, Lucknow

Mechanism adopted while making modified value chains and formulating business plan



Source: Conceptual framework of BIRD, Lucknow

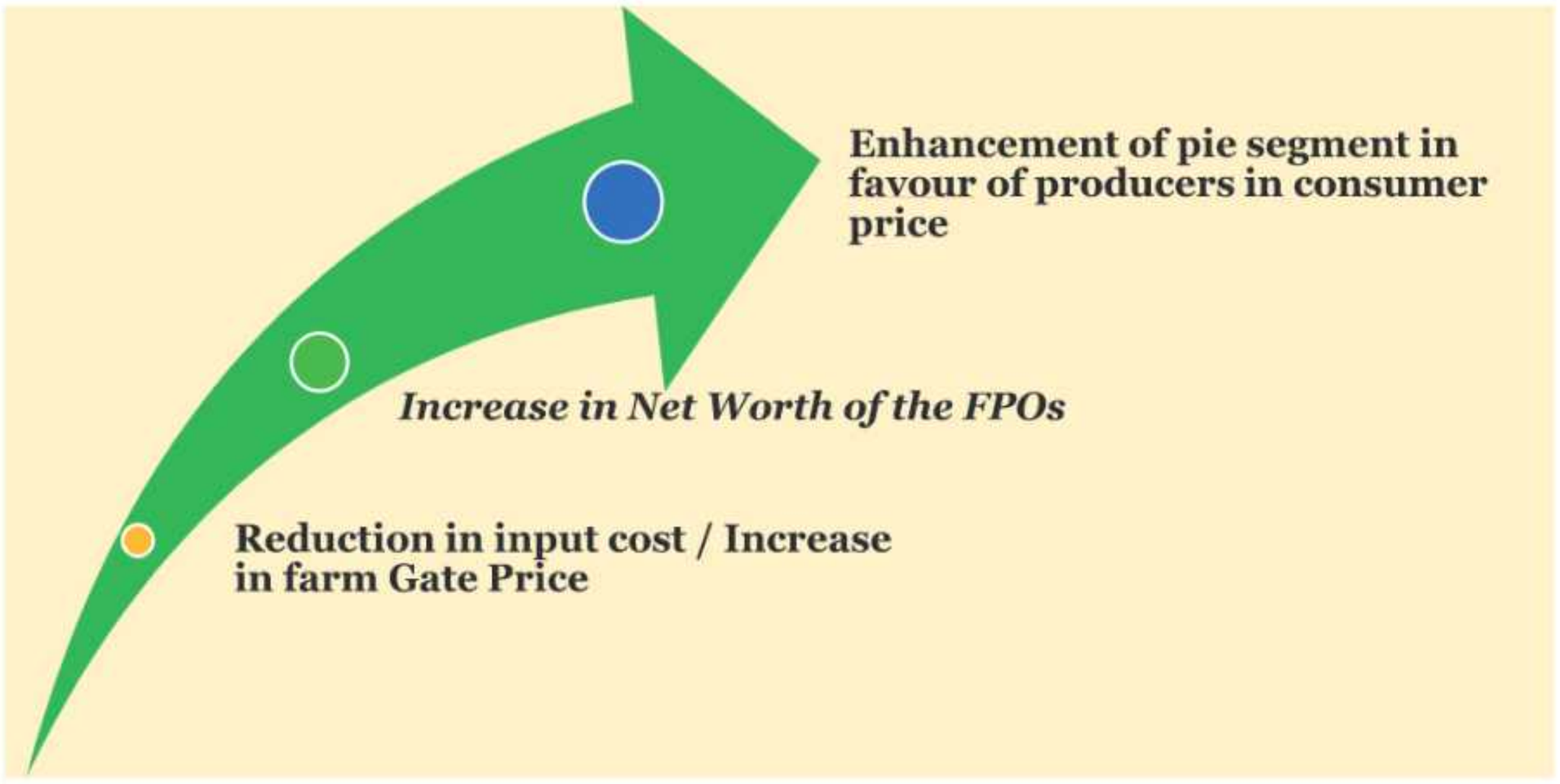
Applied Economic Rent Enhancer

- Identifications of demand based business opportunities in cluster area
- Retaining *Input Margins*
- Reduction of *Production Cost*: Technology Transfer
- Capturing *Market Margin* by business participation
- Retaining *Processing Margin*: Value Additions
- Reduction of *Marketing Cost* through strengthening of Value Chains
- Convergence of multiple value chains

Stepping of business participation of FPOs considering degree of risk at each stage of the value chain

1. Aggregation of Inputs (Input Business)
2. Collective Marketing (Procurement and Marketing on MSP)
3. Value Addition (Primary, Secondary and Tertiary Processing)
4. Collective Marketing (Open Market Operation)
5. Trading (Buying and Selling of agri-produce of non-producer member)

Outcome of the business planning



Source: Conceptual framework of BIRD, Lucknow

6 Digitalization of AAAVCs for FPO & PACS

GOAL

Enhancing producer's income through inclusive business participation of producers in agri and allied value chains

OBJECTIVES

To make agriculture profitable through entrepreneurship and institutional development of FPOs

OUTCOME

- ✓ Decrease in cost of means of production of agriculture and allied agriculture sectors
- ✓ Decrease in marketing cost of the agri and allied value chains
- ✓ Increase in gross margins of agri-business
- ✓ Enhanced competitive advantage of FPOs through increasing economies of scale
- ✓ Inclusive business participation of producers in downstream value chains

OUTPUT

- ❖ _____% decrease in cost of means of small holders (direct benefits) due to adequate, qualitative, timely and cheaper inputs supply.
- ❖ _____% retention of gross margins to producers through FPO (indirect benefits) due to the procurement and marketing of adequate, qualitative, timely and cheaper inputs.
- ❖ Reduction of the cost of vale additions due to higher economies of scale through aggregation of infrastructure and support services across the value chains
- ❖ Decentralized holding of storage of produce against the certain premium will reduce infrastructure and support services cost
- ❖ Breaking entry market barriers for producers in semi-Urban, Urban and metro Centers.
- ❖ Facilitate onboarding in e-market places
- ❖ Facilitate tapping B2B (F2F) business

I Background

Focal Problems and impact in different stages of traditional / fragmented agriculture and allied agriculture value chains in India

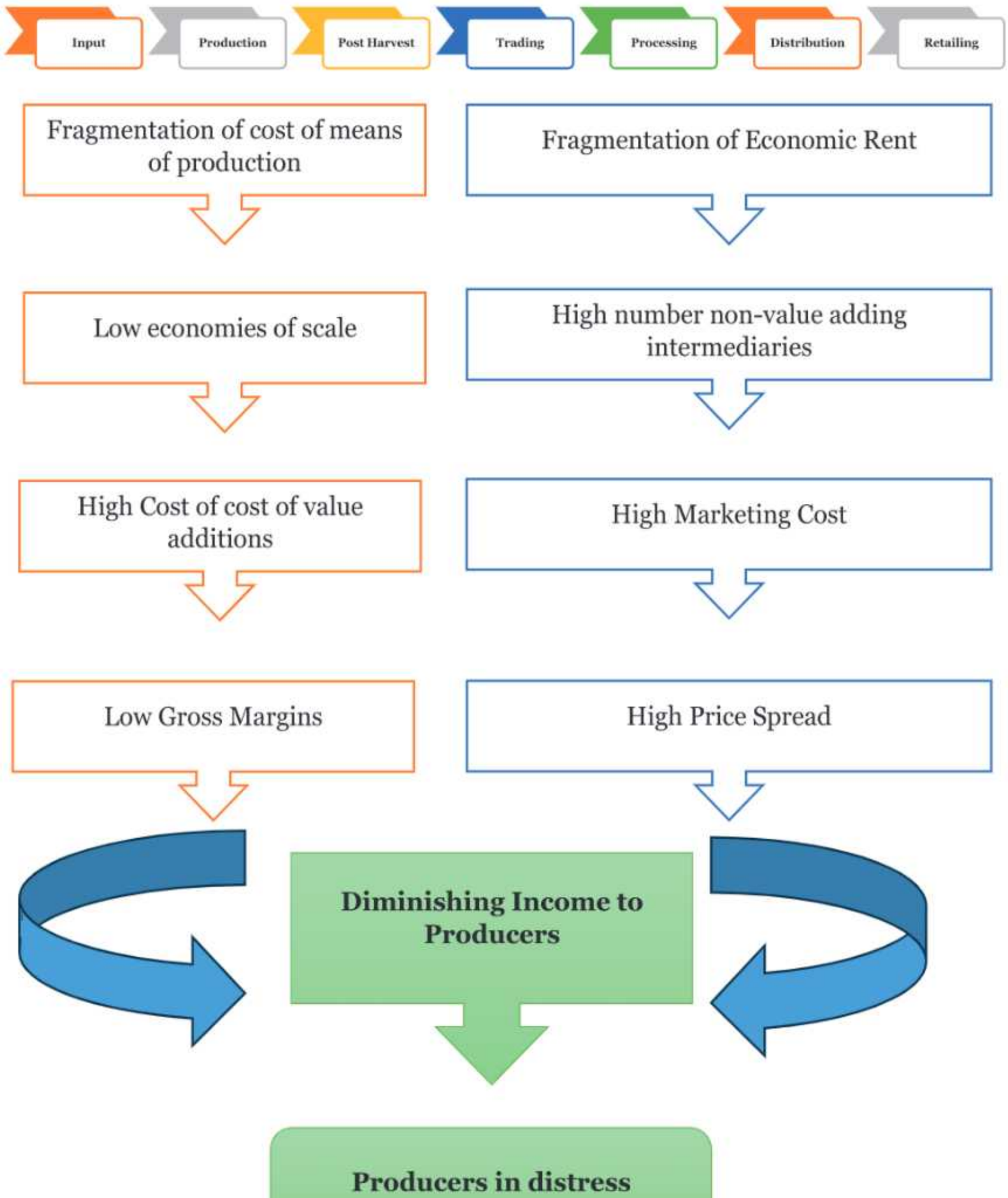
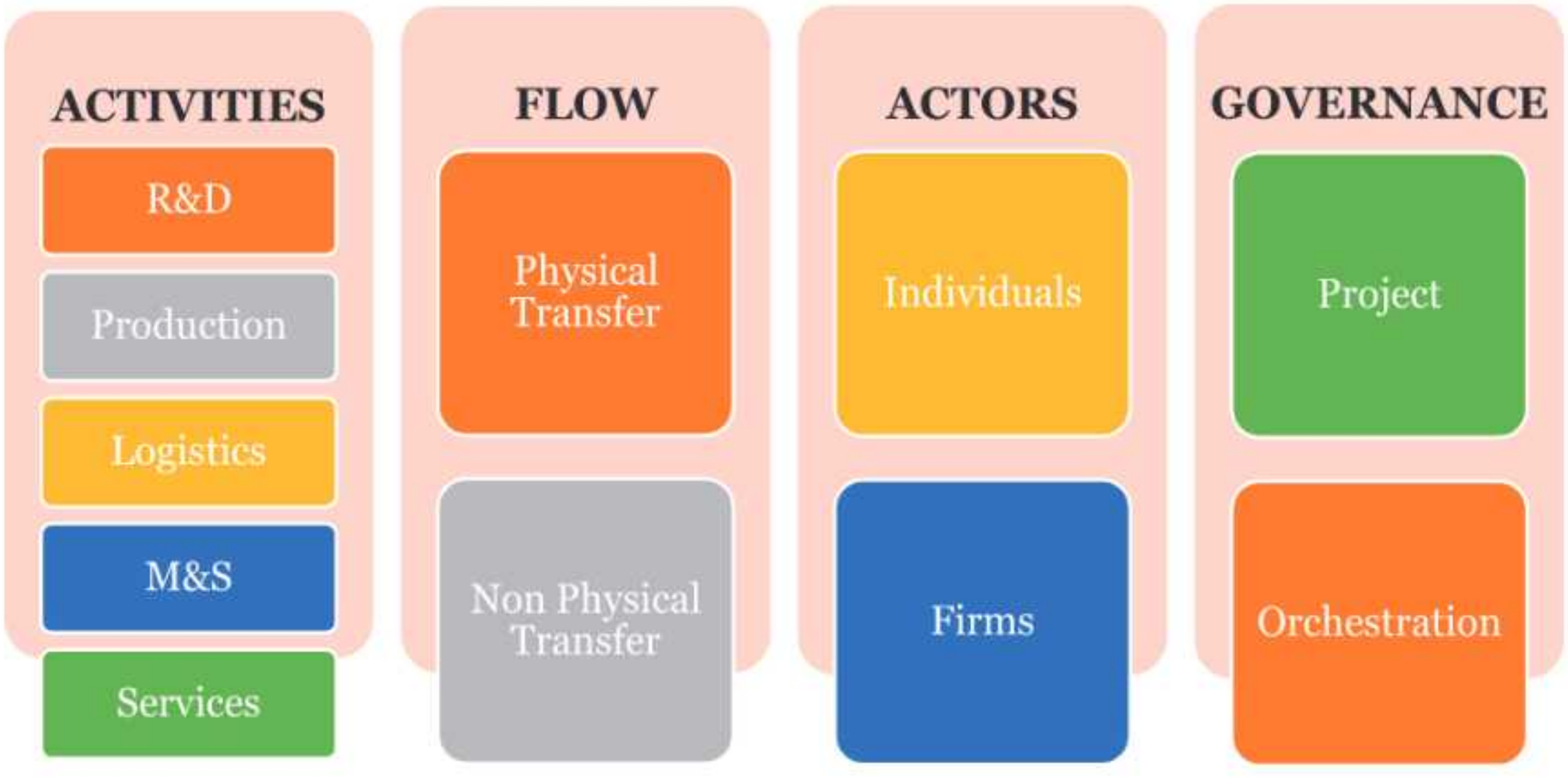
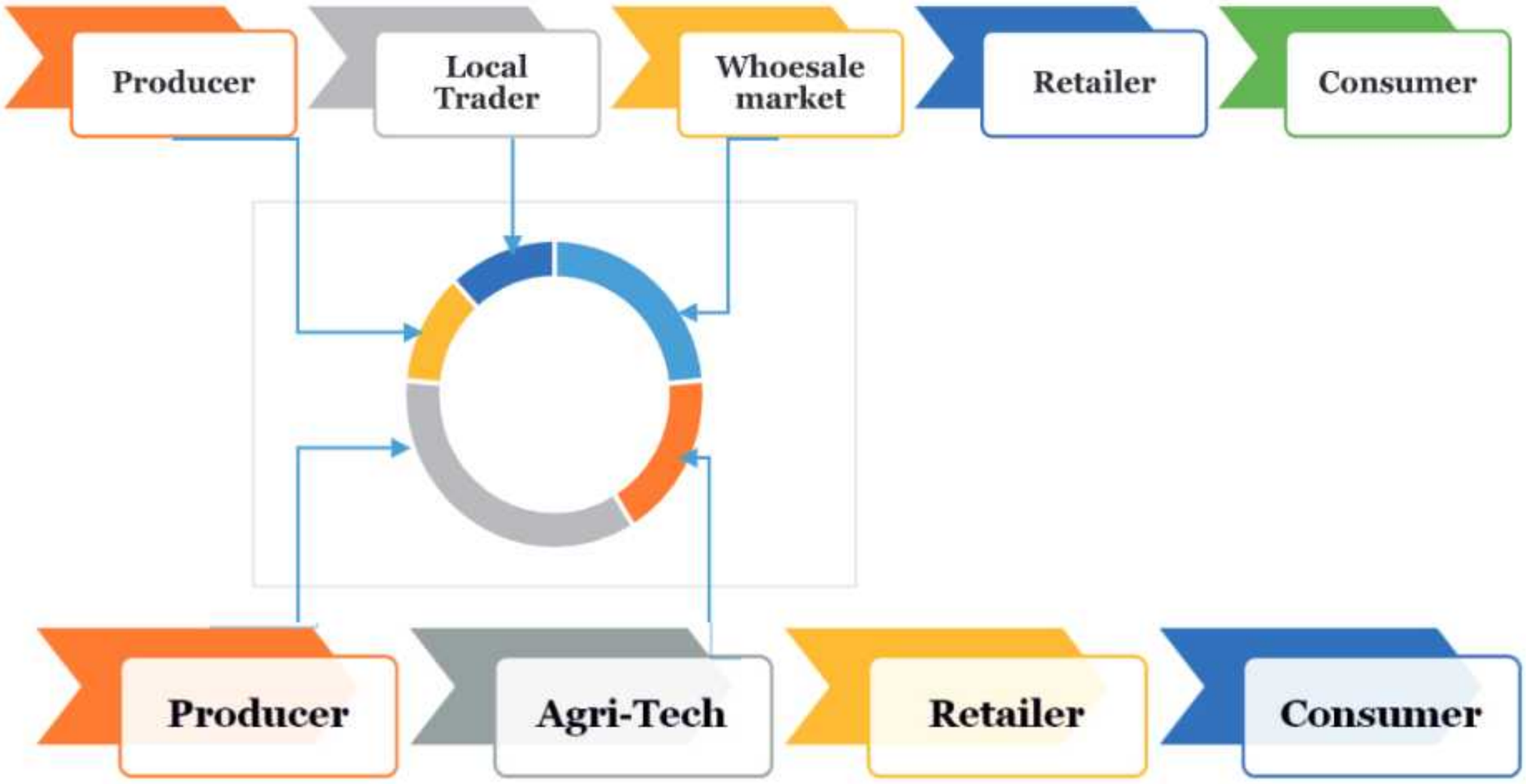


Fig : Cause and Effect Analysis Agriculture and Allied Agriculture Sector

VALUE CHAIN DIMENSIONS



Intermediary based Value Chains



Agri-e-Commerce

Potential opportunities from digital value chains

Delivery by shortening its journey to customer

Makes Market Price more transparent and visible to producer (digi Records)

Reduce price spread by reducing intermediaries in prevailing value chains

Improve producers' access to new market through a digital marketplace

Reduce Post Harvest losses by securing consistent demand for farm produce

II

Digital Mapping of Production Ecosystem

Identification of actors and factors for digitalization at producer / production ecosystem

Input Management

- Crop, sector and producer wise value chain mapping
- Input-wise quantitative data
- Input-wise Qualitative data
- Extent of market dependency and service

Marketing

- Area
- Production
- Maturity time
- Marketed surplus in time scale
- Quality and Grade of products
- With or without primary processing
- Nutritive value
- Differentiated product.
- Holding pattern
- Selling price / differential selling during marketing season
- Longitude and latitude of Farm
- Distance from FPOs and nearest market,
- Commitment charges
- Transportation charges up to market
- Any other parameter

Technology Transfer

- Crop production & Health
- Animal Production & Health
- Consultancy for plant protection and veterinary services
- Training Needs assessment for skill upgradation
- Digital Agriculture
- Precision Agriculture
- Vertical Farming

Production & Producer

Credit Outreach

- Level of input credit
- Level of Supply credit
- Quantum of informal credit
- Availability of formal credit
- Credit needs for production and or investment credit

Risk Management

- Insurance coverage
- Level of distress Selling
- Level of trader default
- Disputed marketing
- Rejections of produces.
- Illegal commissions / Chagres
- Climate Resilience

Infrastructure and Support Services

- Irrigation Infrastructure
- Mechanization infrastructure
- Storage Infrastructure
- Infrastructure for primary processing
- Digital Infrastructure

III

System Requirement for digitalization of actors and factors at producer and production interface

- ✓ **Digitalization of real time dynamic value chain mapping system** needs to be conceptualized for capturing of qualitative and quantitative characteristics of production ecosystem with traceability on devised formats and accessibility to producers for updating and validations by other stakeholders.
- ✓ All the five attributes must have **voluntary / optional linkages with following main and supporting value chain actors** with specific boundary conditions for value chain integrations for exchange of **products, money, information and knowledge -**

1. Input suppliers / FPOs for ***input management***
2. KVKs / Plant protection specialist / veterinarians / service providers for technology transfer / Medicine suppliers for ***technology transfer***
3. Credit extending agencies banks/NBFCs/SPBs / other agency for ***credit outreach***
4. FPOs / Federation / PACS / Commission agents / post-harvest contractors / trader / wholesaler / processor / distributor / retailers / exporter / individual / institutional customer for **marketing linkages**
5. Agencies like insurance companies, line department for convergence of various state and central government agencies, development agencies, corporate who are involved in ***risk mitigation measures***
6. Companies / corporate involved in creating physical and digital ***infrastructure and support services***

IV

Digital Mapping of FPO Ecosystem

Identification of actors and factors for digitalization of FPO ecosystem

Centralized Accounting Operations

Sharing of daily Cash Ledger
Centralized Bill Generation
Centralized Bookkeeping
Sharing of books of account
Centralized ledgers
Centralized account management
Centralized B/S & P&L A/Cs
Centralized Audit System

Business Operations

Projected Demand
Demand analysis within the cluster
Demand analysis outside the cluster
Projected Supply
Market Analysis
Supply of raw products
Supply of primary processed products
Supply of secondary processed products
Supply of tertiary processed products
Project differentiations
Segmentation
Pricing
Branding
Supply Channel Management
Networking
Procurement on MSP

Financial Resource Management

Equity Share
Inter FPOs investment
FPO Credit Cards (FCC)
KCCs Linking with FPOs
Tripartite agreements with FIs

Statuary and Legal Compliance

Centralized Statutory Returns
Centralized GST Returns
Centralized Income Tax Returns
Centralized Tax Audit
Centralized Other Returns

Planning and Consultancy

Digital Dynamic Value Chain mapping of AAAVCs
Business economics of other main value chain actor
Business economics of competitive main value chain actor
Capturing internal and external boundary conditions
Digital Dynamic Assessment of Yearly Business Potential (ABP)
Digital Dynamic Formulation of Marketing Plan (FMP)
Digital Dynamic Formulation of Financial Plan (FPP)
Digital Dynamic Formulation of Risk Management Plan (RMP)
Case Study
Consultancy services to newly graduated FPOs
Capacity Building of Stakeholders
Specific DPR formulation

e- Governance and Management

Management information System
Self-Rating of FPOs
Consultative mechanism for policy decisions
Notification for BODs meeting and sharing proceedings and actions point
Grievance Redressal Mechanism

System Requirement for digitalization of actors and factors at FPO/PACS Level

- ✓ **Digitalization of real time dynamic value chain mapping system** needs to be conceptualized for capturing of qualitative and quantitative characteristics of production ecosystem with traceability on devised formats and accessibility to producers for updating and validations by other stakeholders.
- ✓ **Digitalization of real time dynamic value chain mapping system** needs to be conceptualized for capturing of qualitative and quantitative characteristics of downstream value chain actors devised formats for evolving comparative analysis of business economics and evolving competitive advantages for FPOs
- ✓ **Digitalization of common accounting software** for networks of FPOs to reduce cost of accounting.
- ✓ **Digitalization of common statutory and legal compliance mechanism** for networks of FPOs to reduce cost of compliance and avoiding penalties.
- ✓ **Digitalization of planning process** of individual as well as for networks of FPOs to gain economies of scale.
- ✓ **Digitalization of market mapping** for evolving marketing strategy, branding, segmentation, pricing mechanism etc.
- ✓ **Digitalization of** producer driven, corporate and or mix driven **marketing network** through federation and onboarding to e-marketing
- ✓ All the above attributes must have **voluntary / optional linkages with following main and supporting value chain actors** with specific boundary conditions for value chain integrations for exchange of **products, money, information and knowledge-**

1. Linking interface for FPOs with Federation of FPOs for common accounting system
2. Linking interface for FPOs with Federation of FPOs for common legal and statutory compliances
3. Auto business planning for FPOs based on dynamic value chain mapping of agri and allied value chain actors and factor within sets of boundary conditions and business economics of existing value chain actors.
4. FPOs as an Anchor value chain actor for linking interface with KVKs / Plant protection specialist / veterinarians / service providers for technology transfer / Medicine suppliers for ***technology transfer***
5. FPOs as an anchor linking interface for producer, FPOs-Federation / PACS / Commission agents / post-harvest contractors / trader / wholesaler / processor / distributor / retailers / exporter / individual / institutional customer for **marketing linkages**

6. Digitalized business operations linkages with downstream value chain actors

7. Linking interface for FPOs to facilitate linkages with agencies like insurance companies, line department for convergence of various state and central government agencies, development agencies, corporate who are involved in ***risk mitigation measures***

8. Optional linking interface with financers and investors for financial resource management and FPO financing from financial institution.

Fig : Digital Interface and Segment of FPOs

VI

Digital Mapping of D/S Value Chain Actors

Digital Supply Information

Marketable Surplus

Grades

Segmentation of marketable surplus

Marketing Time

Price Quotation

Quality of marketable surplus

Logistic support

Continuity

Digital Demand Information

Identification of market

Identification of value chain actor/s

Demand

Quality

Grade

Differentiation

Types of logistic support

Price Offer

E-market Governance and contract

Supply Commitment

Demand Commitment

Buyer seller Agreement

Tripartite Agreement

Commitment charges

Acceptance of terms and conditions

Contract Farming

Forward Contract

Digital financial flow -AVCF

Input Credit

Supply Credit

Payment in Installments

Advance Payment

Post Payment

Third Party payment

Commitment charges

Penalty

Marketing: Flow of product

Demand Generation

Supply Initiation

Digital quality confirmation

Logistic Support

Movement Chart

Supply Confirmation

Feed Back

Rejection

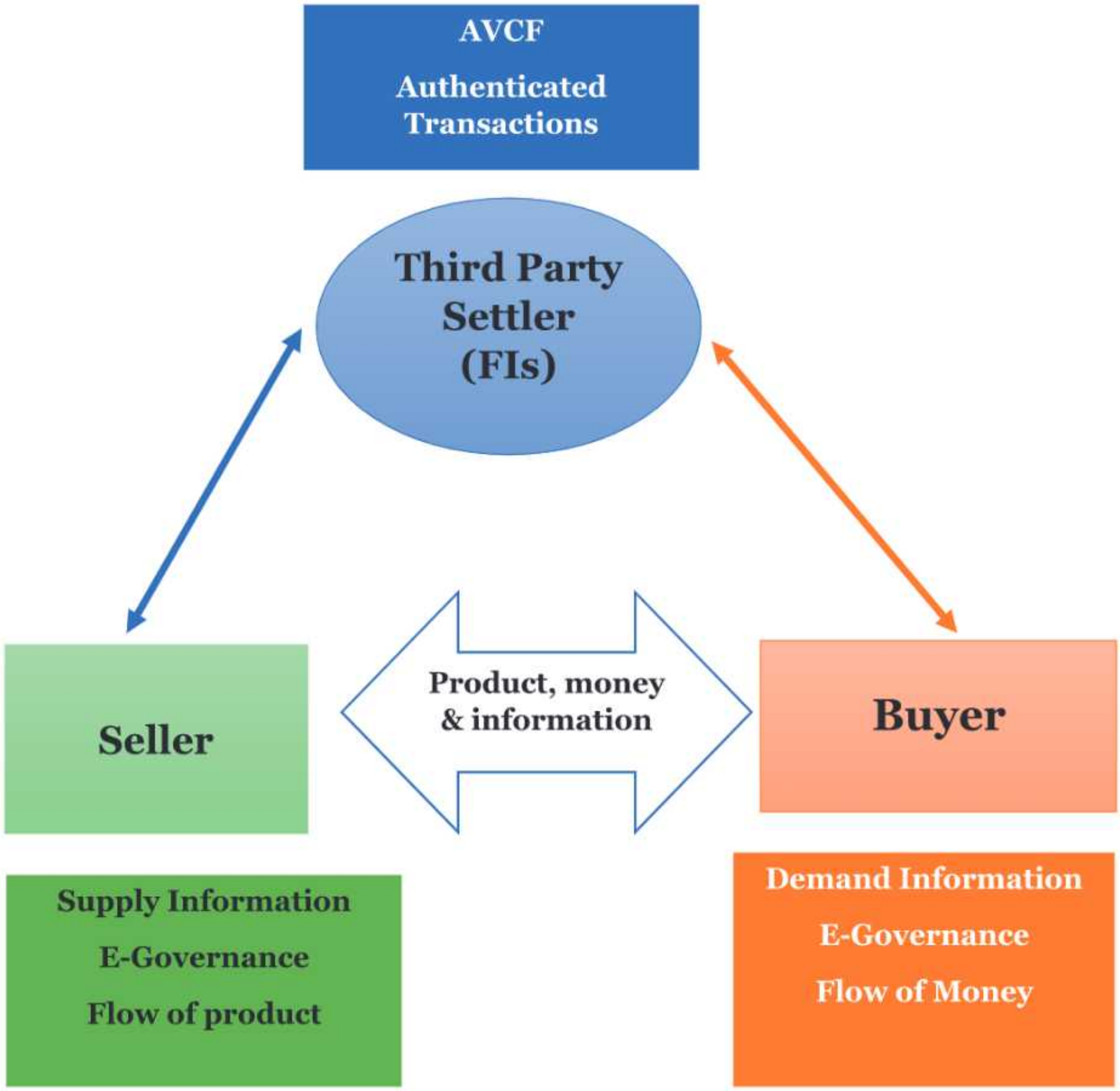
Third Party authentication

Transaction Clearance by third party

Authorization by buyer and seller

Third party settlement

Just like e-NAM Portal



Note:

1. **Seller**: FPOs
2. **Buyer** is the main value chain actor except direct customers.
3. In case of reverse trading then actor/s and flow of elements would also in opposite directions, but position of authenticator would remained same.
4. In case of FPO ecosystem, buyer may trader, wholesaler, CA, PHC, processor, retailer, exporter, institution and other FPOs also.
5. In case of FPO ecosystem, seller may trader, wholesaler, CA, PHC, processor, retailer, exporter, institution also depending upon the extent of business participation.
6. Voluntary Linking interface linkages need to be developed for digital flow of information, product and money through e-governance.
7. Linkage also required for onboarding e-market place.

Agricultural Social Network (ASN)

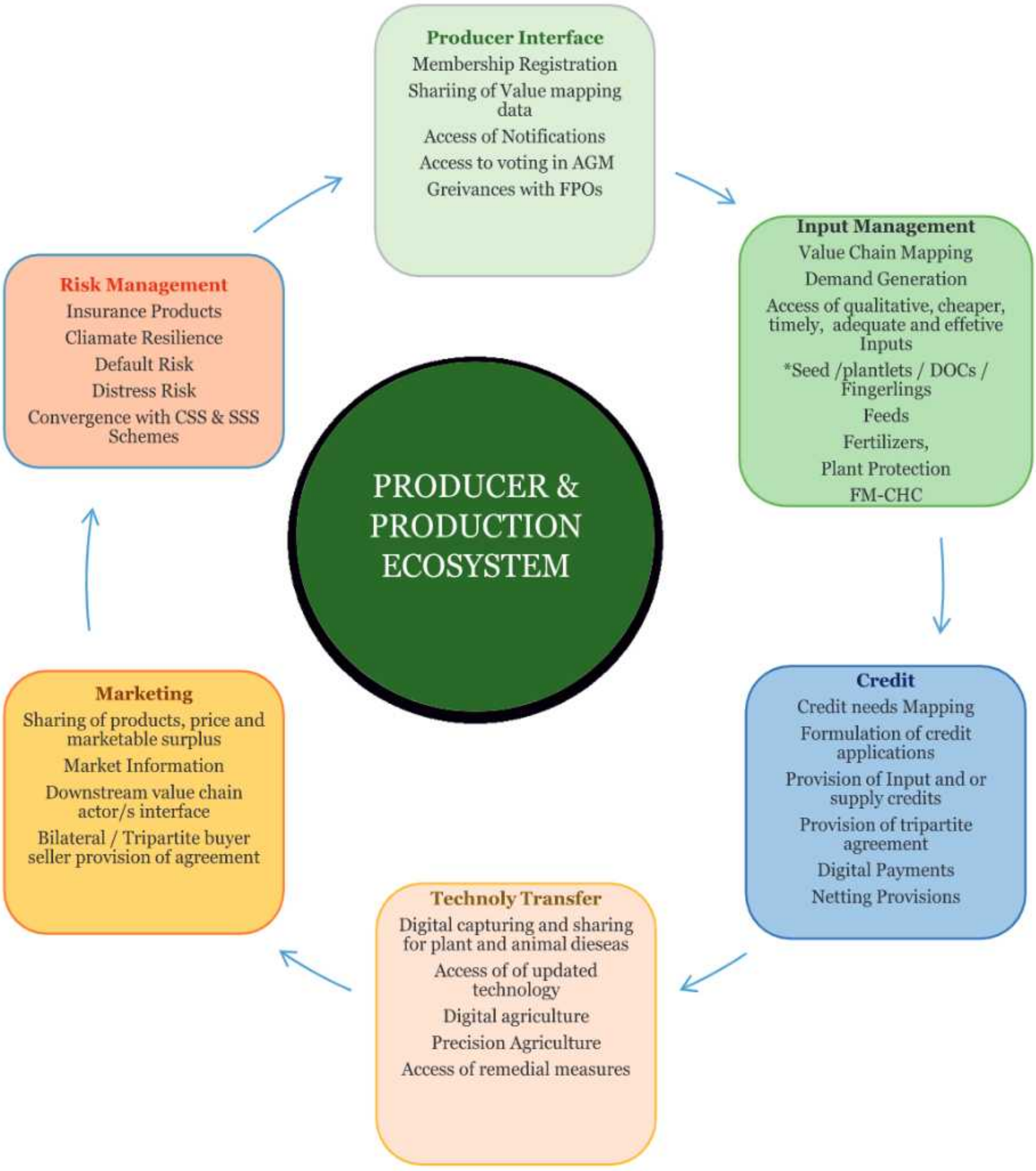
Application of ASN in AAAVCs

Information Sharing	Sharing of agricultural knowledge and information among the value chain actors
Networking and collaboration	Value chain actor from different locations – collaborate and share resources for innovations
Market Access	Producer's access to larger market
Access to extension services	Extension services to producers including weather alerts, crop management advice and marketing tips
Crowd Sourcing data	Social network is essential for collecting data on agricultural practices, weather patterns and market trends
Economic Empowerment	Digital Innovation for women's economic empowerment

Technologies enabling the digitalization of agri and allied agri value chain

Enabling Digital Technology	Technology Application in AAAVC Digitalization
Internet of Things (IOTs)	Coordination and logistics, quality management and Smart Farming
Blockchain	Traceability of supply sources and transparency in food and food safety
AI	Intelligent Farm Machines, green house monitoring, drone based crop imaging, social media and modernization of supply chains, precision agriculture
Big Data	Decision making based on data and sustainable agriculture
Augmented reality	Digital Agriculture and precision farming
System Integration	Integrated agriculture farm management
Machine Learning	Digital Agriculture and precision farming, Crop Disease detection, yield prediction, weed deduction and water management and crop recognition
Edge Computing	Big data Processing and smart AI application in Agriculture
Cloud Computing	Increased efficiencies in AVC
Ubiquitous connectivity	Increased connectivity along AVC with use of different digital devices and platform to access and shared agriculture information

Digitalization To
Overcome Fragmentation of Cost of Means of Production



DIGITALIZATION ECOSYSTEM OF PRODUCER & PRODUCTION INTERFACE

Quantitative and qualitative factors to be addressed

INPUT MANAGEMENT ISSUE

- High unit cost
- Availability on time
- Quality risk
- Effectivness
- Advisory Services

TECHNOLY TRANSFER

- Weak Extension
- Costly plant and animal health services
- Issue of timely and quality services
- Lack of early warning signals
- Distant Services
- Lack of diagnostic services
- Less Resources for TT

CREDIT ACCESS

- Lack of economic identity
- Lack of credit history
- Issue of credit assessment tool
- High transcation cost
- Issue of credit absorption capacity
- Issue of tailor made finanacial products
- Multiple credit for common benefits

Quantitative and Qualitative factors to be digitalized

DIGI INPUT MANAGEMENT

- Value Chain Mapping
- Realistic assessment of COC
- Gaps with SOP
- Quantification of NAIBP
- Assessment of potential reduction of cost of inputs at farm level
- Assessment of potential reduction of cost of inputs at Aggregator Level
- Creation of past history of qualty and effectivenes of inputs used

DIGI TECHNOLY TRANSFER

- Exchange of digital information platform
- Digital infrastructure support for EWS
- Central processing of plant and AH information
- Exchange of remedial mesures
- Real time demand & supply generation for PH & AH services
- Access of updated technology
- Digital platform for

DIGI CREDIT ACCESS

- Capturing economic identity
- Create Credit History by digtial transaction
- Digi INPUT & Digi TT will enable realistic assessment of credit needs
- Creating real time techno-economic parameters
- Dynamic assessment of projected benefits
- Generation of EWS through transcation history

OUTPUT OF DIGITALIZATION

DIGI INPUT MANAGEMENT

- Enable formulation of real time Input Business Plan (IBP)
- Assessment of scope direct and indirect reduction of COC
- Timely, qualitative, quantitative demand generation of iinputs
- Enable Input Gap Assessment (IGA) affecting production and productivity
- Information for financial resource Management
- Information for liquidity Management

DIGI TECHNOLY TRANSFER

- Capturing EWS of Plant and Animal Health
- Enable Central Processing of digtial pathology
- Drastic reductioin in consultancy & traveling cost of PH & AH infrastructure and support services
- Reduction of plant and animal mortatlity
- Reduction of cost of PH and AH at producer level
- Reduction in risk in agri and animal production
- Increase in efficiency and effectiveness of PH & AH services

DIGI CREDIT ACCESS

- Enable better borrower appraisal
- Reduction in Credit Risk
- Enable Digital Appraisal
- Realistic Assessment of credit needs and absorption capacity
- Reduction of Cost of Financining
- Early Warning Signal of asset quality
- Opportunities to FIs for Harnessing AVCF
- Reduction of multiple financing for same benefits.

DIGITALIZATION ECOSYSTEM OF PRODUCER & PRODUCTION INTERFACE

Quantitative and qualitative factors to be addressed

MARKET LINKAGES

- Lack of access to market
- High price spread
- Fragmented d/s value chains
- Distress selling
- Under-weighing
- Trader Default
- PH Losses

INFRASTRUCTURE & SUPPORT SERVICES

- Under-utlisation of farm assets due to low economis of scale
- High fixed cost of cultivation
- Uneven distribution of farm assests among different land holdings
- Gaps in required farm assests

RISK MITIGATION MEASURES

- Lack of weather forecast
- Lack of soil heatlh card
- Lack of instant advisory services
- Lack of insurnace product
- Lack climate resilence maesures
- Demand forecast
- Issues of convergence of various schemes
- Lack of methodology to assess credit risk for FIs

Quantitative and Qualitative factors to be digitalized

DIGI MARKET LINKAGES

- VCM of product, quality, time & price
- Information of marketed surplus in past and marketable surplus in future
- Price realised in past &
- opportunity price
- Composition of d/s VCAs
- Price spread
- Extent of distress selling
- Extent of trader default
- Extent of post harvest loss
- Time flow of product/s

DIGI INFRASTRUCTURE & SUPPORT SERVICES

- Status of Irrigation Infrastructure
- Status of Farm Mechanization Infrastructure
- Status of Storage Infrastructure
- Status of Animal Husbandry Infrastructure
- Status of Fishery Infrastructure
- Status of Primary Processing Infrastructure

DIGI RISK MITIGATION MEASURES

- Risk assessment tools for production ecosystem
- Generation of EWS through linking forecast applications
- Digi convergence with various sponsored schemes
- Digi advisory services
- Analysis of the extent of risk involved for FIs
- Assessment of glut position in future market and advisory for diversification of crops

OUTPUT OF DIGITALIZATION

DIGI MARKET LINKAGES

- Yield availability of product, quality, time, distress selling, underweighing, marketable surplus and competetive value chain actors in existing VCs
- Enable formulation of realistic net aggregatable output business potential (NAOBP)
- Assessment of economic cluster size for aggregations
- Assessment of BEP for replacement of d/s VCAs
- Assessment of enhancement of opportunity price
- Information for Financial Resource Management
- Information for liquidity Management

DIGI INFRASTRUCTURE & SUPPORT SERVICES

- Reduction cost of cultivation through low cost energy in irrigation
- Modeling of CHC models for reduction of FC and VC of mechanization
- Creation of decentralised storage ecosystem on CHC
- Creation of digital health infrastructure for Animal Husabndry
- Creation of digital health infrastructure for Fishery husabndry
- Creation of digtal health infrastructure for Poultry and Small Ruminants

DIGI RISK MITIGATION MEASURES

- Enable Early Warning Signal
- Enable producers for informed decisions
- Reduction in production Risk
- Access to various risk mitigation measures
- Enable risk assessment to FIs during credit appraisal
- Demand generation for risk mitigation products & services

DIGITALIZATION ECOSYSTEM OF FPO INTERFACE

Quantitative and qualitative factors to be addressed

BUSINESS PLANNING

- Lack of product, money, information, knowledge elements of producer value chain actors
- Real time inputs ecosystem
- Real time output ecosystem

COMMON ACCOUNTING & COMPLIANCES

- High cost of accounting with low transaction
- Delay in Statutory Compliance
- Delay in legal compliances
- Unable to undertake liquidity management
- Non-professional accountant in rural area or sought high salary

GOVERNENCE & MANAGEMENT

- Lack transparency
- Lack democratic deceision
- Lack of say for all members
- Lack of policy dissemination
- Lack of information sharing among real shareholders
- One man show
- Dummy representations
- Less chance of second line leadership

Quantitative and Qualitative factors to be digitalized

DIGI BUSINESS PLANNING

- Linking for real time value chain mapping with producers VCAs
- Centralised Value Chain analysis
- Assessment of aggregatable business potential
- Mapping of boundary conditions
- Real time auto formulation of marketing plan
- Real time auto formulation of financial plan
- Real time auto formulation of risk mitigation plan

DIGI COMMON ACCOUNTING & COMPLIANCES

- Cluster Linkages of FPOs for sharing daily books
- platform for FPO-wise centralised accounting
- Platform for FPO-wise centralised Statutory Compliances
- Platform for FPO-wise centralised Legal Compliances
- Platform for FPO-wise centralised returns
- Platform for FPO-wise centralised Audit
- Auto Share certificate generation
- Auto Bill Generations

DIGI Governence & Mangement

- Access through registry of ecah producer member
- Digi applications for membership
- Digi notifications
- Access to real time on board information to each member
- Digi voting mechanism
- Access to Policy decisions and status of implementation
- Grievance Redressal Mechanism
- Inclusiveness for all members

OUTPUT OF DIGITALIZATION

DIGI BUSINESS PLANNING

- Reduction of consultancy charges
- Realistic business planning in based on producer governed inputs
- Real time auto business planning and updation
- Dynamic techno-economic feasibility of economic activities
- Forecasting of output business
- More time for marketing strategey

DIGI COMMON ACCOUNTING & COMPLIANCES

- Real time updation of accounts
- Overcome delay in submission
- Drastic reduction in cost of accounting
- Drastic reduction in penalties
- FPOs get more time for business operations
- Forecasting of financial risk
- Authentication of transaction history by third party
- Better Rating mecahnism for financial health of FPOs

DIGI Governence & Mangement

- Transparency
- Democatization
- Informed deceisions
- Inclusiveness
- Performance Rating
- Members-monitoring
- Access to say
- Fast grievance redressal mechanism
- Better Chances of second line generation
- Information generation of active members
- Access to policy decisions

DIGITALIZATION ECOSYSTEM OF FPO INTERFACE

Quantitative and qualitative factors to be addressed

BUSINESS OPERATION

- Issues of procurement policy
- Issue of demand, availbility & gap
- Demand generation
- Supply notifications
- Manual inventory management
- Manual stock management
- Issue of SCM
- Records of losses
- Work Allocation

COLLABORATION

- Issues of how to converge resources and capabilities of FPOs
- Issue of Economies of scale at FPO level itself
- Issues of fragmented FPOs just like fragmented value chains
- High Fixed cost of FPOs
- Lack of networking, which is a barrier for onboarding on e-market platform
- Huge resources are required for multiple value chains

REVERSE TRADING BUSINEES

- Lack of information of the inflow of agro-products within the cluster
- Lack of demand generation mechanism
- Lack of institutional models for mix driven network

Quantitative and Qualitative factors to be digitalized

DIGI BUSINESS OPERATION

- Access to aggregation policy for producers
- Projected aggregation of marktable surplus based on past history and net area sown
- Comparative analysis of business economics for the current year
- Marketing tie up networking with d/s value chain
- Supply chain management

DIGI Networking

- Formation of voluntary digital networking of FPOs cluster
- Formation of digtial networking (III tier FPO GRID of FPOs converging FPOs cluster
- Digital Aggregation of decentralised infrastructure and support services of FPOs
- Digital flow of Product, Money, Information and Knowledge across the FPO-GRID

DIGI REVERSE TRADING PLATFORM

- Digital mapping of agro produces, which is /are not grown in FPO cluster but producers are purchasing from the market
- Digi Demand generation mechanism of agro-products dependent on market at primary FPOs
- III tier of FPOs will consolidate digi demand and can work as distributor

OUTPUT OF DIGITALIZATION

DIGI BUSINESS OPERATION

- Informed members about procurement policies
- Demand Forecasting
- Supply Forecasting
- Informed decision for supply chain management
- Enhanced time for buyers collaboration and marketing strategy
- Enable assessment of required infrastructure and support services
- Enable Future trading

DIGI Strategic Colloboration

- Increase in economies of scale through aggregation of infrastructure and support services
- Reduction of cost of value addition through cross cutting of digital common pool of resources, infrastructure and support services
- Digital Networking among the FPOs enable to maximum extent of use of e-marketplate form
- Up to tier III enhance economies of scale enable competitiveness of FPOs

REVERSE TRADING BUSINEES

- New business opportunities for FPOs
- III tier FPOs would be Distributor value chain actor
- II Tier FPO is wholesaler value chain actor
- I tier FPO would be trader value chain actor
- This would reduce distribution cost of e-market place as well as lower the cost for customer alomg with transfer of margins to FPOs

Summary of the required digitalization Segments of FPOs

- Input Management
- Technology Transfer
- Credit Outreach
- Marketing Linkages
- Infrastructure and Support Services
- Risk Management
- Business Planning
- Accounts and Statury / Legal Compliances
- Governance and Management
- Business Operations
- Collaboration / Networking / Federations
- Reverse Trading Operations

7 Institutional setup, role and responsibilities of Research, Trainings and Mentorship (RTM) Centre

Functional setup / structure of RTM (Research, Training and Mentorship) Centre for FPOs and PACS would have three pillars:

1. Research
2. Training
3. Mentorship

Role and Responsibility of the Officers and Staff

Supervisor / In charge

Overall operation, management, supervisions of mentorship program would be undertaken by Incharge of RTM Centre, who would be a Faculty Member of BIRD, Lucknow.

Research Officers

India has 24 agri-climatic zone and differentiated agri and allied value chains of vast numbers of cropping patterns, which are governed by differentiated value chain actors and qualitative and quantitative factors. The behavior of business economics, supply chain channels and boundary conditions vary in different agroclimatic zones. Hence, the duty of the Research Officers would be continuously engage in capturing quantitative, quantitative, adequate and reasonable value chain elements (Product, Money, Information and Knowledge) through data mining of differentiated agro-climatic zone and undertake business modelling, developing modified value chains suited to the business participation of the FPOs and PACS to evolve dynamic competitive advantages. They will use advanced data analytics, block chain, AI-ML for providing business solutions for FPOs and PACS both.

Dynamic research and business solutions will enabling mentoring and training verticals to disseminated with FPOs and PACS in mentoring program and capacity building programs. Consultancy of business planning, evaluation studies, development of resources materials, design of curricculam etc are also the functions of Research Officers.

Subject Matter Specialists (SMSs)

These would be members of the core team for imparting dynamic mentorship of accredited FPOs and PACS. Responsibility of the SMSs is to ***"formuate business pathlines of the FPOs and PACS"*** based on RCC (Resource, Cabability and Competitiveness) framework in convergence with 10 Steps value chain approach along with business soltuions provided by Research Officers.

They will ***"track business pathlines of the FPOs and PACS"*** with the help of devised MIS returns furnished by accredited FPOs and PACS. One the basis of data analytics and market analysis they will provide corrective measures and business solutions to FPOs and PACS.

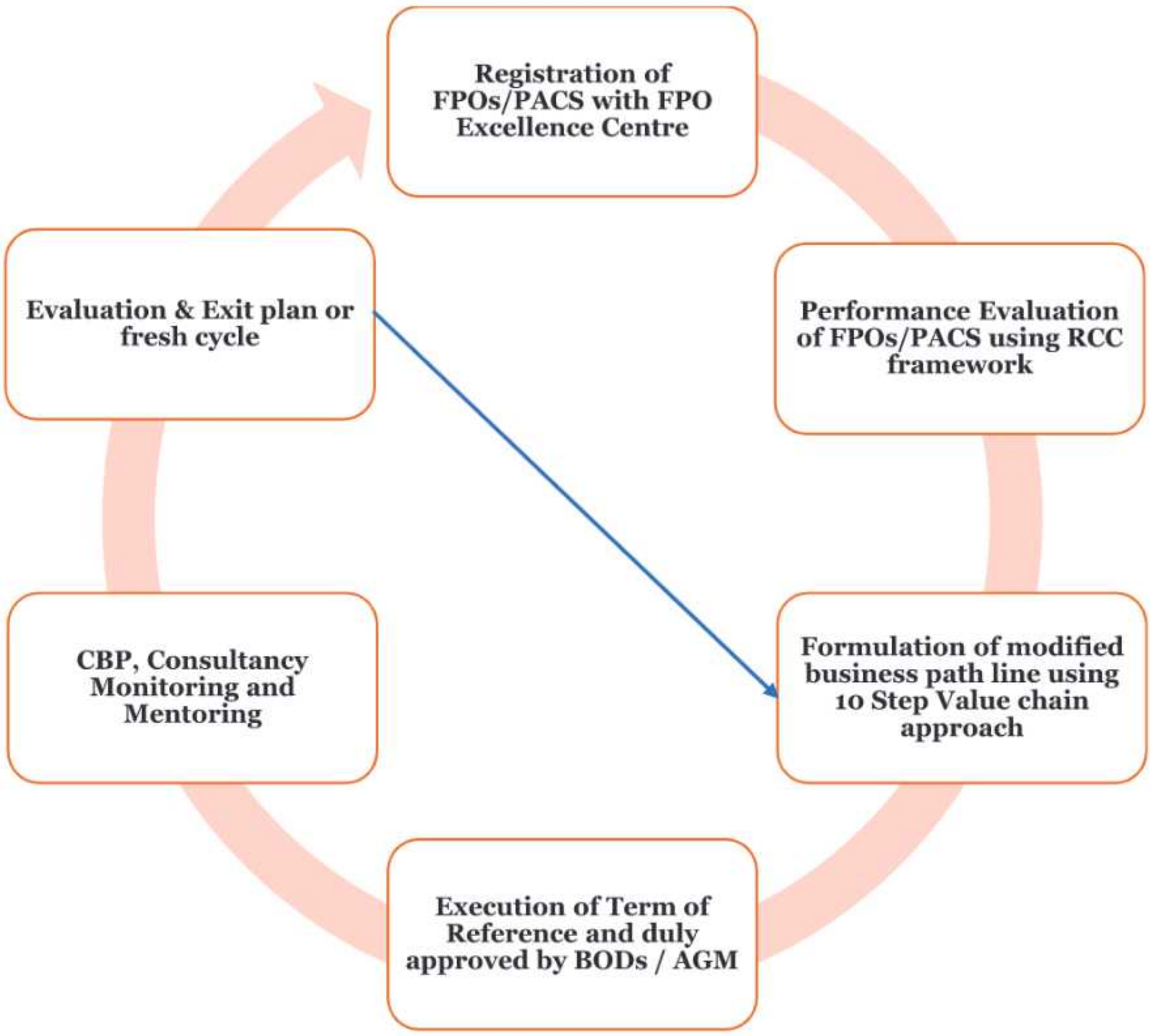
The scond major responsibility of SMSs is to **"conduct demand driven customised training / capacity building programs"**. This is a major core work of the SMSs for self sustaining mentorship program. Increasing demand for the customized programs would be the indicator / evaluation of the effectiveness of the mentorship program.

Supporting Staff

These staff will assist in respect of clerical works to Research officers and SMSs for discharging their duties.

8 Implementation path line of the RTM Centre

8.1 Mentoring Cycle of FPOs/PACS



8.2 Tools / Mechanism for executing mentorship cycle

- RCC (Resource, Capability & Competiveness) Framework
- 10 Steps Value Chain approach : Convergence of Multiple Value Chains
- Digitalization and digital solutions of business pathline
- Project Cycle based mentorship support

8.3 STEPPING SOP of mentorship cycle

Step 1: Registration

- Every FPO/PACS must register as an applicant by completing the prescribed application form.
- Applicants must agree to the terms and conditions stipulated by BIRD, Lucknow.
- A registration fee is applicable.

Step 2: Submission of Resources and Capabilities

- FPO/PACS must submit detailed qualitative and quantitative data regarding existing resources and capabilities.
- A comprehensive value chain mapping of major agricultural and allied sectors must be provided in the prescribed soft format.

Step 3: Value Chain and Performance Analysis

- Research Officers from the RTM Centre will conduct a detailed analysis of the existing value chain and performance metrics.
- Identification of gaps in resources, capabilities, and competitiveness.
- Development of implementable business path lines using the RCC framework.

Step 4: Formulation of Terms & References

- RTM Centre will prepare detailed Terms of Reference (ToR) and submit them to the FPO/PACS.
- The ToR must be presented in the AGM and approved via a resolution by the Board of Directors (BODs).
- Any necessary modifications or suggestions will be incorporated.

Step 5: Implementation Planning & Mentoring

- RTM Centre will devise a timeline plan to address identified gaps.
- The plan includes business strategy development, capacity building, and monitoring through:
    - Call centers
    - Video conferencing
    - Group discussions
    - Panel discussions with experts
    - Collaborative initiatives

Step 6: Evaluation and Exit Strategy

- Mid-term and final evaluations will be conducted by the RTM Centre within a stipulated timeframe.
- If objectives are met, an exit plan will be executed.

If gaps persist, the project cycle will restart from Step 3.

8.4 Types of mentoring Support

1. Peer Mentoring: Building the Foundation

Target Audience: FPOs/PACS in the early stages of business participation in agri-allied value chains.

Scope of Support:

- Identification of economic clusters and major value chains
- Value chain mapping and analysis
- Techno-economic feasibility assessment
- Understanding boundary conditions and prioritizing economic activities
- Business model selection and development
- Enhancing operational, managerial, and transactional capabilities through capacity-building programs
- Strengthening competitiveness via pricing, quality, innovation, and branding strategies

2. Career Mentoring: Scaling Up the Business

Target Audience: FPOs/PACS facing challenges in scaling up their business.

Scope of Support:

- Performance evaluation
- Business model refinement
- Identification and resolution of bottlenecks
- Breaking existing boundary conditions to enable growth

3. Life Mentoring: Long-Term Growth & Sustainability

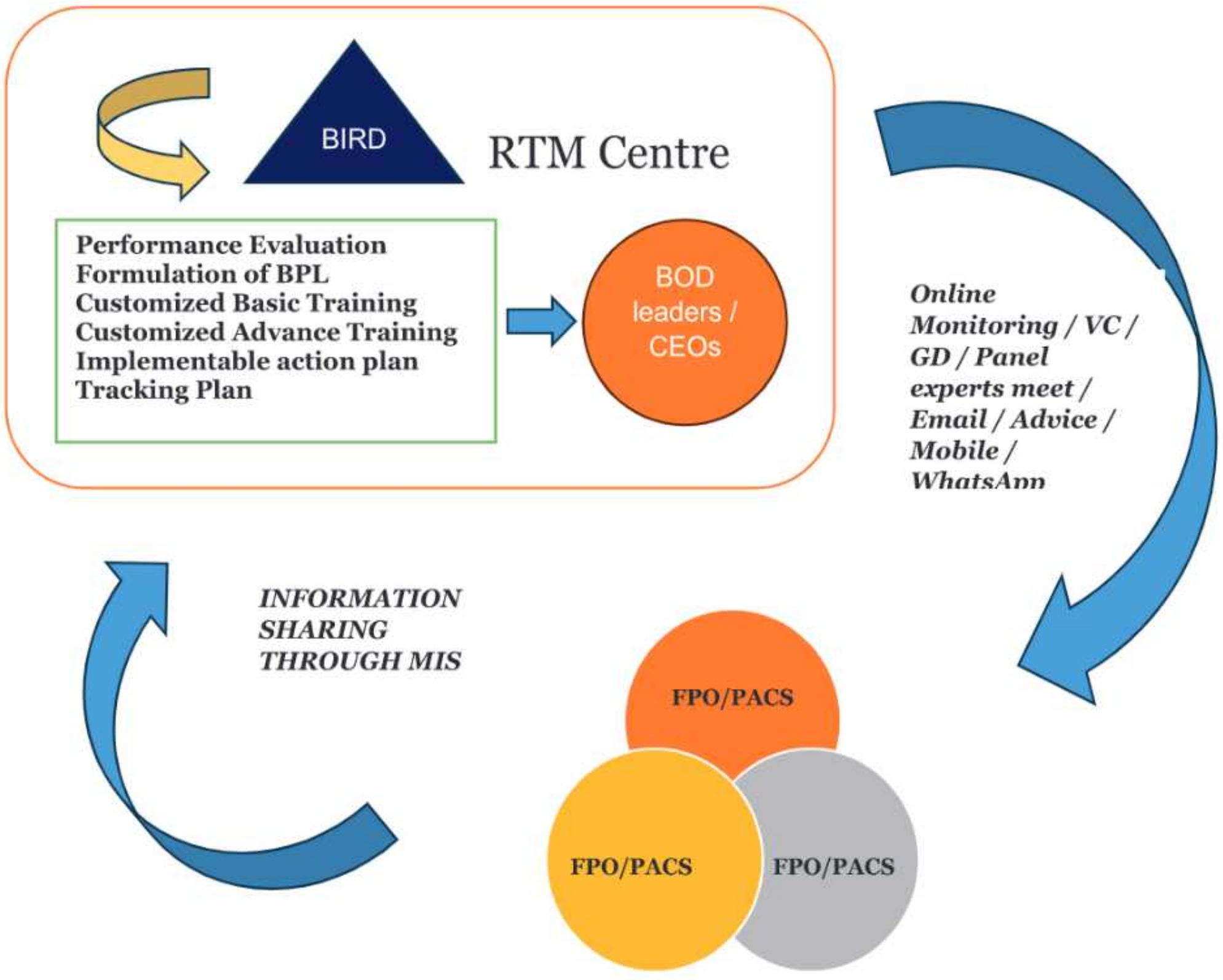
Target Audience: FPOs/PACS requiring multi-cyclic mentorship support for sustained growth.

Scope of Support:

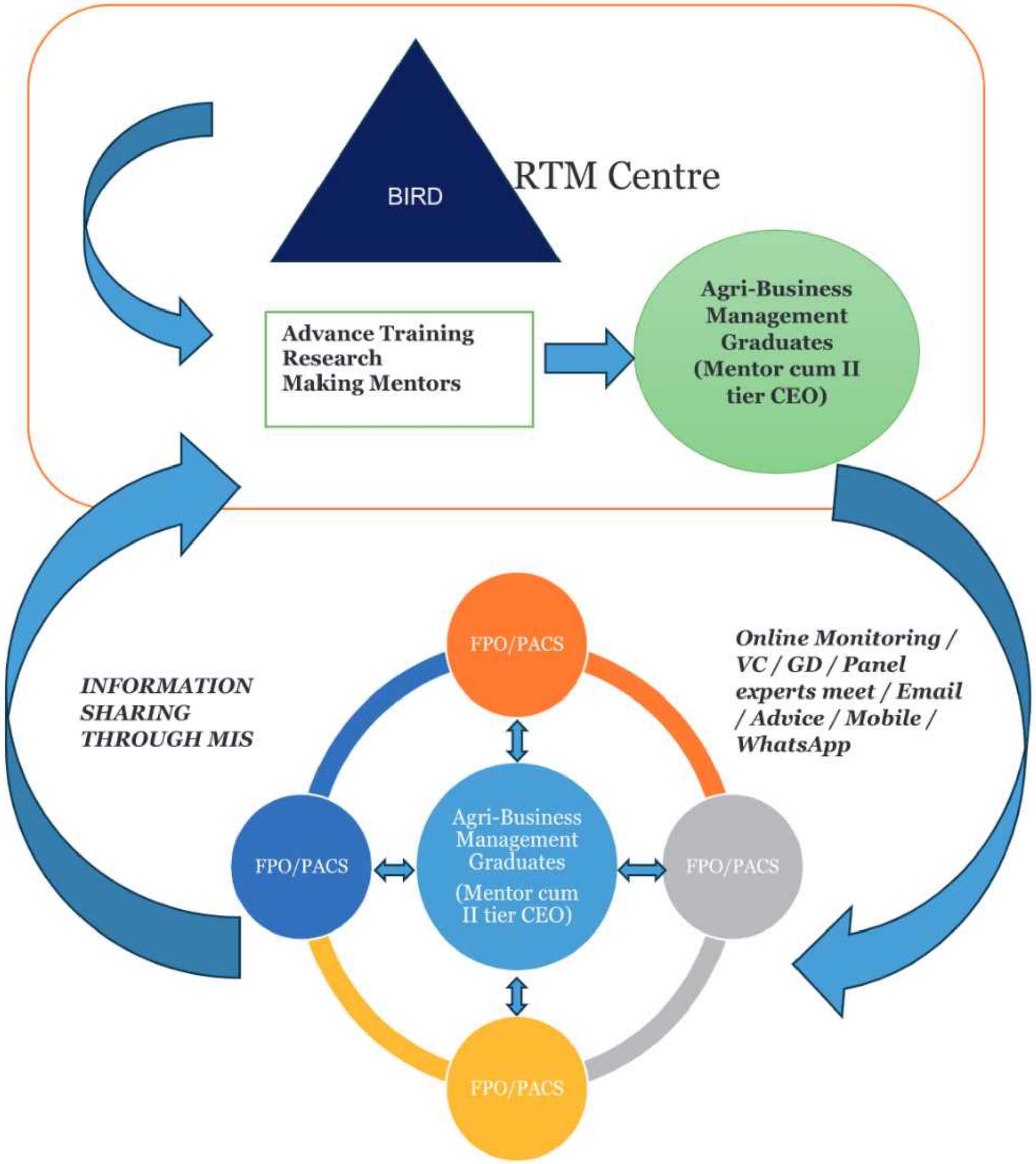
- Continuous evaluation and iteration of business cycles
- Providing mentorship support across multiple project cycles
- Ensuring long-term sustainability and self-reliance
- Implementing structured exit plans post-achievement of business goals

8.5 Mentorship Models

8.5.1 Institutional Mentorship Model (Unitary Framework)



8.5.2 Internship Mentorship Model (Decentralised framework)



9 Impact Assessment of the RTM Centre

In order to effectively evaluate the competitive position of FPOs, a strategic management tool categorizing business units or products based on their market share and growth rate, providing insights into resource allocation and strategic planning is proposed to be adopted, using the following strategic components -

a. Defining Market Segments:

FPOs would first be defined based on their specific market segments, such as types of crops, geographical areas, or specific agricultural services. This helps in accurately assessing their competitive landscape.

b. Assessing Market Share:

Calculating the relative market share of the FPOs by comparing their sales or output with that of the largest competitor in the same segment. This will position them on the horizontal axis of the evaluation matrix.

c. Evaluating Market Growth Rate:

Determine the growth rate of the market segment by analyzing trends in demand for agricultural products or services. This information will position the FPOs on the vertical axis of the evaluation matrix.

d. Categorization into Performance Quadrants

Based on the calculated relative market share and growth rate as also viability of business operations, upscalability and risk absorption capability, the FPOs would be classified into one of following four quadrants:

i. **Stars:** High market share in a high-growth market. These are promising segments that require investment to maintain their position.
ii. **Cash Cows:** High market share in a low-growth market. These segments generate steady revenue with minimal investment.
iii. **Question Marks:** Low market share in a high-growth market. These require careful analysis to decide whether to invest for growth or divest.
iv. **Dogs:** Low market share in a low-growth market. These may need to be divested or restructured as they do not contribute significantly to profitability.

a. Monitoring and Re-evaluation

The position of the FPOs within the performance matrix would be regularly re-assessed as market conditions change. This dynamic approach allows for timely adjustments to strategies based on evolving agricultural trends and competitive pressures.

b. Strategic Decision-Making

Insights from the performance matrix would then be utilised to make informed decisions regarding resource allocation:

i. **Invest in Stars:** Focus on expanding capabilities and production.
ii. **Maintain Cash Cows:** Optimize operations to maximize cash flow while minimizing investment.
iii. **Evaluate Question Marks:** Analyze potential for growth; invest selectively if feasible.
iv. **Divest Dogs:** Consider phasing out operations that are not yielding adequate returns.

Benefits and Limitations of the proposed impact assessment approach

Benefits

i. **Clear Visualization:** The performance matrix provides a straightforward visual representation of competitive positions, aiding strategic discussions.
ii. **Resource Allocation:** It helps prioritize investments based on potential returns and market dynamics.
iii. **Focus on Growth Opportunities:** Identifying high-growth areas allows FPOs to target resources effectively.

Limitations

i. **Oversimplification:** The binary nature of the matrix may overlook complex factors influencing success, such as operational efficiencies or external economic conditions.
ii. **Market Definition Challenges:** Accurately defining markets is crucial; mis-classification can lead to poor strategic decisions.

Application of the performance matrix would facilitate strategic analysis of the competitive positions, optimal resource allocation, and enhance the overall effectiveness of FPOs in the agricultural sector.

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