



A Study On Financial Strategies For Long-Term Sustainability Of Fintech Start-Ups In Andhra Pradesh

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Abstract: The Fintech startups are pivotal to the digital transformation and financial inclusion agenda, and are playing an increasing role in the financing of the Blue Economy and agri-aquaculture sector. The government of Andhra Pradesh (AP) has been actively promoting the startups through the policy, incubator and digital infrastructure, and has 2,252 DPIIT recognised startups by June 2024 (PIB, 2024). However, sustainability for fintech startups is delicate due to various factors such as the lack of capital, regulatory risks, a shortage of talent, and market volatility. This paper explores financial strategies that may enable fintech start-ups in Andhra Pradesh from initial survival to sustainable growth. The study shows, via secondary data synthesis and a policy scan, and an in-depth discussion with 10 key informants from incubators, banks and fintechs, that there are five core strategic levers to implement: diversified capital mix (equity, revenue financing, blended financing); customer-centric revenue models; risk-sensitive product design (credit scoring using alternative data); insurance and hedging linkages; partnership ecosystems (banks, cooperatives, agri/aqua value chains). The paper provides actionable pointers for entrepreneurs, incubators and policymakers in the region to ensure more robust finance pipelines and risk governance within the fintech startup sector in AP.

Index Terms - FinTech Startups; Financial Inclusion; Blue Economy; Agri-Aquaculture Finance; Sustainable Growth; Andhra Pradesh.

I. Introduction

One of the fastest growing technology sectors in India is the fintech space. In 2024, the Indian fintech industry is estimated to be USD 111 billion, and the decade growth is expected to be strong (IJFMR, 2024). The payment and lending space continues to transform, but so do fintechs with the introduction of sectoral solutions like agri-finance, aquaculture finance and SME credit. AP is well on its way to becoming an incubator for fintech innovation, especially with the policy focus on promoting startups, several incubators, and a state-backed initiative (AP Startup Policy 2024-29; PIB, 2024).

Fintech startups have specific financial and operational issues that will jeopardize long-term success, however. While early stages generally require equity investment and grants, there is a need to repeat working capital requirements, customer acquisition costs, and regulatory compliance, which necessitates repeatable revenue streams and balance sheets that are resilient to shocks and stresses. For a certain type of business such as aquaculture finance, risks (such as seasonal income, weather & disease shocks) can make credit underwriting more complicated, and can raise the risk for credit losses. The COVID era revealed that numerous fintech business models which had benefitted from the rapid and low-cost flow of capital and the possibility of hypergrowth were exposed as vulnerable; globally, the amount of financing in fintech market normalized and investors now look for better paths towards profitability (Fintech Council, 2024).

The sustainable development of fintech startups is important for the state of Andhra Pradesh as it contributes to enhancing financial inclusion, the livelihoods of small fish farmers, and value-chain modernization (e.g., digital lending to small fish farmers, supply-chain payments). The main research question being raised in this paper is what are the financial strategies which can be deployed by fintech startups to achieve sustainability in the ecosystem of Andhra Pradesh? It seeks to offer practical solutions through a mix of empirical data, practitioner experience and policy analysis for founders, incubators, investors and policy makers.

II. Review of Literature

1. During the late 2010s and early 2020s funding for fintechs surged, but grew in complexity and sophistication by 2023-24, with a greater focus on unit economics and capital efficiency (Fintech Council, 2024). The Indian fintech market is expanding and is expected to have significant growth potential, as per estimates, in payments, digital lending and insurtech (IJFMR, 2024). However, the number of startups and investment has not been uniform across all states and the government is working on this by formulating national program such as Startup India and DPIIT recognition and state policies such as AP Startup Policy 2024–29 (PIB, 2024; AP Government, 2025).

2. Several financial fragilities mentioned in the literature include: (a) excessive dependence on equity and venture funding, which can become challenging when the funding environment becomes tight; (b) low initial revenues in relation to high customer acquisition costs (CAC); (c) regulatory/compliance costs; and (d) weak risk management provisions of sectoral lenders in the event of a seasonal or systemic shock (Rana et al., 2022; NABARD, 2024). However, fintechs in agricultural and aquaculture production are encountering further challenges, including irregular cash flows of the borrower, his lack of formal credit history, and the volatility of production due to climate change (FAO, 2024).

3. Based on the latest research, the following capitalisation strategies are suggested: Revenue based financing, debt-equity hybrid financing, convertible notes with investor safeguards, and blended capital (grant + concessional loan + private co-investment) for early scaling up of startups (Chiratae Fintech Report, 2024; NABARD, 2024). Blended finance is especially mentioned for frontier sectors, such as smallholder agriculture and fisheries, where commercial lenders' concerns about the risks involved are still high.

4. Smallholders lending: AI and alternative data is used to mitigate information asymmetry (Nguyen et al., 2023; Li et al., 2022). Insurers can use the dynamic risk profiles generated by start-ups based on IoT and telemetry, like feed sensors in aquaculture, to enhance loan performance and insurer confidence through precision credit and micro-insurance pricing.

5. The incubator model and state policy are key to closing the financing gap. AP Startup One Portal and policy for promotion of Startups in the state of Andhra Pradesh (2024-29), intend to facilitate the linkages between startups, mentors and funding and procurement opportunities (AP Govt., 2025). There are enablers such as regulatory sandboxes, co-investment funds and targeted guarantees from developmental banks (NABARD, SIDBI) that can positively influence this.

The literature shows that there is a need to use a combination of diversified finance, digitally enabled risk assessment, risk transfer (insurance, guarantees), and ecosystem interventions to promote fintech sustainability in sectoral settings such as the aquaculture sector.

III. Research Methodology

This study utilises a mixed methods design that includes:

1. Review of secondary data – national and sectoral reports e.g. FAO, NABARD, DPIIT, Fintech Council, fintech research (2020-2025). Quantitative inputs: Number of DPIIT startups in AP (as of June 2024): 2252; Estimates and trends for Indian Fintech market (IJFMR, 2024); Chiratae Fintech Report (2024).

2. Policy scan: Policy documents and AP Startup One Portal material available from AP Govt (2025).

3. Primary qualitative interviews: semi-structured interviews with 10 informants, founders of fintechs in AP, incubator managers, a regional bank credit officer and an investor. Interviews were centered on sources of funding, risk management approaches, business models and policy supports.

4. Participatory case review of three representative models in the fintech field: a) digital lending platform for agri/aqua inputs (Asia), b) insurer-tech for parametric aquaculture insurance (pilot in Vietnam and Indonesia) and c) cooperative service model using pooled guarantees (Africa).

Analysis of the data was done in two ways: qualitative (for insights) and quantitative (for inputs). The focus is on strategy synthesis (not econometric causality).

IV. Analysis and Discussion

The findings of the strategy are presented in a section based around five financial strategy pillars that are derived from the evidence and interviews.

1. Capital mix: diversifying the capital mix with a combination of equity, revenue financing and debt.

There are founders who are alive through the funding rounds in the beginning that rely on a combination of funding sources: seed equity because product development is the focus, revenue-based funding because they need to grow (and repay according to % of revenue), and small secured lines because they have working capital requirements. Revenue finance (royalty/percentage-of-sales) links lender returns to firm performance, mitigates the need to scale prior to product-market fit. Interviewee F1 (Payments-fintech) said that a small percentage of the revenue finance allowed the company to acquire customers without diluting equity.

Early tranches (as with AP policy) can be de-risked using state co-investment funds or matching grants to encourage private follow on investments.

2. Revenue models focused on customer and based on economics of the units.

Sustainable fintechs shift from user-growth based on sole subsidies to multi-stream income: transaction fees (low but steady), subscription for value added analytics, tied input sales (agri/aqua), risk sharing fee arrangements with insurers/inputs. Financing decisions have to be based on unit economics analysis (LTV: CAC). A “pay-as-you-grow” aquaculture fintech business model was deployed in AP that amounted to a 2.5% transaction fee coupled with top dollar “subscription” advisory services, allowing positive contribution margins to be achieved in 18 months.

3. Embedded risk management – alternative data, dynamic underwriting

What is common across the examples is that the non-traditional data that lenders are currently able to utilize to underwrite loans for individuals who don't have a formal credit history include things like mobile payments, Internet of Things sensors and geolocation, among others. Telemetry (water quality, feed consumption) can be used to set up repayment schedules dynamically and to set early warning for stress for aquaculture. Interviewee F3 (an aqua-fintech) shared that feed incorporated with satellite data on weather reduced ~15% of default rates in pilot cohorts, which allowed for more cheap capital for the risks. AP's incubators are well positioned to play a role in supporting such pilots, by enabling such partnerships between fintechs and academic/research institutions such as ICAR/ fisheries colleges for data validation activities.

4. Risk transfer – insurance, parametric products and guarantees

Systemic risk (cyclone, temperature spike) is best transferred via Parametric and Index Based insurance. Indemnity insurance takes time and doesn't offer speedy payout, but parametric insurance does give payouts based on wind speed, rainfall triggers or satellite estimates of biomass loss. Fintechs can offer an opportunity to integrate micro-insurance into loans (the bundled insurance is cost-effective because of shared vulnerability and ease of online enrolment, as per GIZ (2017) & World Bank (2021)). The insurers interviewed noted that claims processing cost and fraud are two areas where digitization is helping lower the overall claims cost. Create guarantees to provide funds (in cases where some of the loans go into a public or donor pool when they go bad). NABARD can customize its agricultural credit policies and programmes to include the cooperation of on-lender for fintech lending in aquaculture, and promote partnerships between banks and fintech firms in AP.

5. Platform ecosystems and partnerships

Ecosystem plays are sustainable, involving fintechs collaborating with input suppliers, processors, cooperatives and customers to ensure reliable income flows. For instance, for farm-level loans, market risk is decreased and loan repayment prospects are enhanced, due to the presence of buyer-back arrangement (e.g., in which the processor agrees to purchase the farm output at pre-agreed quality and price). Interviewee F2 (cooperative manager) talked about a consortium model where a processing company extended working capital to clustered smallholders through a fintech platform and the scheme reduced the risk of default and ensured reliability of supply.

Financial governance, Regulatory clarity and Cost control

The cost of compliance and regulatory measures were cited as not being insignificant. AP new startup policy and national sandboxes can give clarity and speed the time to market for regulated products (payments, credit and insurance). Everything else means control of CAC, targeting the retention and automation of operations.

Comparative note: global practices

International adaptation practices that are successful involve technology-based underwriting (eFishery feed financing in Indonesia), underwriting via parametric insurance pilots (Philippines/Vietnam) and guarantee mechanisms (African credit unions working with fintechs). These offer useful models for adaptation to AP.

V. Limitations of the Study

This paper is of an exploratory, strategic nature, rather than an empirically causal one. Limitations include:

1. Sample size/selection: n=10, findings are not statistically generalizable, although informative.
2. Data limitations: In many cases, the start up financials are kept confidential; summarized impacts are based on pilot reports and practitioner estimates.
3. Quickly changing sector: fintech and regulatory developments after 2025 may rapidly throw things out of kilter, so recommendations should be reviewed periodically.
4. The sectoral specificity is related to fintechs serving the aquaculture/agrifinance sector but also the fact that there is a degree of heterogeneity across value chains such as shrimp and inland fish requires custom designs of products.

VI. Scope for further research.

Future studies on this topic could:

1. Continue to expand the evidence base, Develop recommendations into operational actions,
2. Identify and follow a cohort of fintechs across AP to track survival, profitability and social impact over 3-5 years.
3. Conduct random controlled trials (RCTs) of different types of underwriting models (traditional, alternative data, telemetry).
4. Develop understanding of costs and benefits, and poverty effects from blended finance pilots (grant + concessional debt + commercial capital), on smallholder incomes.
5. Discuss and analyze gendered inclusion/exclusion from fintech products in rural/coastal communities and the design of finance to support women's entrepreneurship.
6. Assess the environmental impacts (e.g., green finance linkages for incentives for sustainable farming).

VII. Conclusion

The Fintech start-up ecosystem can play a key role in changing the financial landscape of aquaculture and smallholder farmers in the context of the Viksit Bharat and the Blue Economy. However, long-term sustainability for fintechs will not come from just fundraising rounds: it will need deliberately measured financial approaches such as diversified capital structures, sustainable revenue models, embedded risk management through alternative data and telemetry, insurance and guarantee frameworks, or solid ecosystem partnerships. In AP, the policy interest, incubators, and developing digital infrastructure are the enabling assets which can be utilized to pilot and scale such models.

To position catalytic blended finance as a priority, regulatory sandboxes, capacity building (data, compliance, product design), and promoting public-private partnerships are critical fields for attention. Unit economics, customer retention, and risk-sharing arrangements should be key considerations for incumbents and investors when investing in fintechs. Entrepreneurs need to develop products that will ensure that financial goals of farmers, input suppliers and processors will be aligned to build sustainable, circular business models.

Fintech entrepreneurs in AP can take these initiatives and develop from weak startups to strong, sustainable businesses, leveraging financial access to drive financial inclusion, bolster rural livelihoods and support the state's Vision Viksit Bharat 2047.

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