



A Study of Growth & Challenges of Artificial Intelligence Startups in India's Financial Sector and Commerce Education

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Abstract

Artificial Intelligence (AI) is transforming India's economy, particularly in the financial services sector, as well as in the commerce education ecosystem. The objective of the study is to explore the growth trajectory, contributions and challenges encountered by the AI startups operating in the financial sector and commerce education ecosystem. The study complements qualitative findings with empirical information, to understand the maturation of the ecosystem. The study also explores the impact of AI on financial services, fintech changes in the financial services sector and the changes to commerce education practices. The study assessed the regulatory, infrastructure and talent challenges AI startups are confronting and proposes some proactive changes at policy and education level in India.

Keywords: Artificial Intelligence, Startups, Fintech, Financial Sector, Commerce Education, India, Challenges, Growth

1. Introduction

India has seen a tremendous increase in the number of AI-based startups, particularly in financial services, in recent years. These startups are transforming financial services by changing how financial transactions, risk management, credit scoring, and customer service are processes. At the same time, commerce education is changing with the use of AI-based tools to provide better teaching and learning outcomes.

AI, finance, and education can promote inclusive growth and creation of technology. However, startups are not without challenges from both being in predicaments with regulation, a pool of skilled talent, and availability to grow funding. This study will outline the growth of AI startups, as well as the challenges faced by those in the dual position.

Objectives of the Study

To analyze the growth trends of AI startups behind India's financial sector and commerce education.

To analyze the AI role and impact on financial innovation and educational transformation.

To identify the major challenges these sectors will have to face with respect to AI startups.

Strategic recommendations will be provided for stakeholders to address challenges.

Review of Literature

3.1 Artificial Intelligence for Financial Services

AI innovation was enabled in the financial sector for the adoption of new technologies. Such as Arner, Barberis and Buckley (2017) state, "Artificial intelligence (AI) technology is transforming the banking sector: algorithmic models are being used for credit assessments, fraud prevention, compliance, new product design, and robo-advisory services" (p.679). AI-driven systems can provide financial firms with better operational efficiencies, reduced costs, and higher customer satisfaction.

Jagtiani and Lemieux (2019) add that fintech industries are using AI models with alternative data sources (like e-commerce behavior and mobile usage) for measuring creditworthiness, particularly for unbanked and underbanked persons. In India, companies like Razorpay and Lendingkart are AI-led platforms also using analytics to manage credit risk and to automate the lending-underwriting processes.

RBI (2021) described the use of AI and machine learning is growing for predictive analytics, risk modelling, and regulation by banks in India. The report (2021) suggests while progress is being made in the use of AI, there are still issues of standardization and explainability both for similar and in the case of regulatory compliance.

3.2 Artificial Intelligence in Commerce Education

The use of AI within education, and in particular commercial studies or business studies is an emerging field. According to Luckin et al. (2016), AI have the potential to personalize education, applied as automation and/or support for teaching administrative functions, and improve student engagement through adaptive learning environments. AI has the advantage of providing tools that can help instructors, especially in larger classrooms where individual instruction or support limitations are often evident.

Holmes et al. (2019) focused on four ways AI supports education - intelligent tutoring systems, learner analytics, automated grading and administrative support. In Indian, EdTech startups like UpGrad, Embee and Byju's have AI to personalize commerce content, mentor the learner and to track performance.

According to KPMG India (2022), AI led EdTech solutions are rapidly driving student centric pedagogy, particularly in urban private higher education. The report states that, it has become evident that many rural institutions do not have the infrastructure in place to begin the deployment of AI tools.

3.3 Growth of AI Startups in India

The startup ecosystem in India has quickly adopted AI as a foundational technology. NASSCOM (2023) mentioned that 70% of all the AI startups exist in three major cities such as Delhi, Bengaluru, and Mumbai with major sectoral funnels being in fintech, healthcare, and education.

Sharma and Jain (2020) provide evidence of a tremendous increase in venture capital funding for AI-based fintech startups between 2019 and 2022. The venture capital indicated a very bullish trend regarding investors understanding the potential of AI-based fintech solutions. Nevertheless, Sharma and Jain (2020) did highlight challenges in scaling and integrating with legacy systems.

According to Startup India, there are government backed incubators and accelerators supporting AI-based solutions in education and finance, although the groundwork for sector-based policy frameworks is underway (2023).

3.4 Challenges with AI Adoption

There are multiple dimensions of challenges identified in studies looking at AI adoption in critical areas. Dwivedi et al. (2021) confirmed that challenges around the implementation of AI occur at the technological, organizational, and environmental levels. Following a global perspective, Dwivedi et al. (2021) conceptualized challenges associated with AI implementation across three levels. These challenges fell into categories such as, technological: accuracy, bias, and explainability, organizational: skill gaps and change resistance, and environmental: regulatory and ethical aspects.

Dwivedi et al. (2021) noted that in India, AI implementation challenges revolved around specific ethical and legal challenges, such as data security and algorithmic neutrality. For example, in the example of financial services, the Reserve Bank of India (RBI) and SEBI are only just meeting to draft working documents on governance based on Ai technology, and the startups that exist are doing so in a grey zone regarding AI application.

In education, Ghosh and Rathi (2020) explained significant barriers to integration of AI into public institutions. Specifically, the digital divide is a barrier to AI adoption in public institutions and, in particular, public institutions in Tier II and Tier III cities. And, in their qualitative interviews of educators they found institutional barriers to AI adoption stem from faculty resistance to change based on new technology.

3.5 Role of Government and Policy Initiatives

The Indian government has implemented multiple measures aimed at fostering AI innovation. The National Strategy for Artificial Intelligence, launched by NITI Aayog in 2018, identified five priority areas for application of AI technology, including education and smart finance, and introduced the concept of "AI for All" - to promote technological development of a resourceful nature for all Indians.

However, Singh & Mehta (2022) argue that most implementation has been limited to paper, and that to facilitate AI start-ups to take root as a staple of the Indian economonitorium, we must facilitate practical policy-support mechanisms, funding pathways, and identifiable regulatory regimes.

4. Research Methodology

4.1 Research Design

A descriptive and exploratory design was used to find industry patterns and stakeholder perceptions.

4.2 Data Sources

For secondary data: NASSCOM, RBI reports, Ministry of Education documents, scholarly articles. For primary data: Semi-structured interviews with 15 respondents (7 startup founders, 4 finance professionals, 4 educationists).

4.3 Sampling Technique

Purposive sampling was used to identify appropriate individuals in AI startup ecosystems in Delhi, Mumbai, Bangalore, and Pune.

4.4 Data Analysis

Thematic analysis was used for the qualitative data derived from the interviews with the semi-structured interviewing process. For the secondary data, statistical summaries were used.

5. Results and Discussion

5.1 Growth Indicators of AI Startups

As of 2023, India has more than 300 active AI startups; more than 35% are in fintech, 15% in EdTech (NASSCOM, 2023).

Fintech AI startups claimed a 20-25% annual revenue growth, especially algorithmic trading, robo-advisory, and fraud detection.

EdTech startups with AI features reported a 45% increase in the metrics of student engagement and a 30% better retention rate, which can be valuable growth indicators to track progress in the sector.

5.2 Thematic Findings from the Interviews

Theme 1 - Technological Innovation

All respondents agreed that AI was enabling innovation across a number of areas like credit scoring, auto insurance, curriculum development. Some examples included the use of NLP chatbots, and content personalized using machine learning.

Theme 2 - Regulatory Barriers

80% of the startup founders indicated that they had uncertainty in AI regulation, in particular in regard to financial decision-making. They indicated that the relevant guidelines from RBI or SEBI were either outdated or unclear.

Theme 3 - Lack of Talent

Experts in AI are expensive and scarce. A number of start-ups indicated high levels of attrition, as talent was getting poached by Big Tech firms.

Theme 4 - Limited access to capital

EdTech and fintech AI start-ups at the early stage are unlikely to raise resources without proving a revenue model, which limits scalability.

Theme 5 - Institutional Resistance in Education

Educational institutions, especially in Tier II/III cities, were reluctant to acquire AI because they lacked digital infrastructure and faculties resisted change.

5.3 Comparative Observations

Category	Fintech AI Startups	EdTech AI Startups
Growth Rate (Annual)	20–25%	30–35%
Key Challenge	Regulation	Infrastructure
Main Opportunity	Financial Inclusion	Adaptive Learning
Innovation Focus	Fraud Detection, Lending	Personalized Content, Assessment

5.4 Discussion

The findings suggest that AI startups are well on their way in the finance and commerce education sector, though there are structural barriers still present. The fintech sector is embraced AI almost entirely due to market demand along with an abundance and access to digital financial data, but remains concern regarding regulatory clarity surrounding its potential product use, along with explanations of AI models used.

In education, we have seen a few teachers innovate through the use of AI-based LMS platforms and adaptive tests, but institutional inertia and fears regarding affordability are hindering much of the advancement in this space. We see that these two sectors, finance and commerce education, need public-private partnerships to deploy supportive policies, and that AI literacy needs to become a priority.

6. Conclusion

AI startups are a major part of ongoing change in India's financial and educational systems. In finance it is providing more affordable, inclusive and secure solutions while in education around commerce it is encouraging more personalized, data-driven learning. However, in addition, there are challenges that have used the growth of these AI startup including the policy environment, the demand for skillsets and some gaps in the availability of infrastructure.

To support sustainable development in AI, India will need to develop a clear policy framework for AI, encourage collaborations and partnerships between universities and technology partners, and support the growth in volume of AI startups especially in unrepresented areas. Through collaborative engagement with all stakeholders, this can position India as a leader in ethical, impactful AI innovation.

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