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# A Review of India's Technology-Based Start-up Ecosystem, with Particular Reference to Chennai, Tamil Nadu

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**Abstract**: The purpose of this study is to examine the nation's startup ecosystem in its various regions and how it contributes to the growth of entrepreneurship there. The Indian startup ecosystem values knowledge and resource availability while also advancing digital technology and caring for people, the environment, and financial gain. The startup atmosphere in India is one of optimism. Despite danger and uncertainty, entrepreneurs grow their digital start-ups by tenaciously overcoming numerous roadblocks in order to prevent failure. Given their multi-stage creation, the study reaffirms how quickly digital start-ups fail and the factors that accelerate failure. Particularly in India's emerging economy, where a start-up ecosystem is striving to thrive, these concerns remain unanswered. Log-rank statistics of survival probability show that life expectancy varies with emergence, stability, and growth. The study looks at literary works related to the nation's startups.

Keywords: Digital economy, unicorns, MSME, startup ecosystem, Standup India, angel investors, and initial public offerings (IPOs).

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#### INTRODUCTION

India ranks 19th globally and top in South Asia for its startup ecosystem. The Indian startup scene has risen three spots from 2020 to lead the way in innovation. India is the startup capital of South Asia. India boasts thriving IT businesses in the fields of food, transportation, and education. The most well-liked industries in India, per Startup Blink Map, are food tech, transportation, and education. 32 cities in India have 1,000 or less residents. Goa and Patna climbed 272 and 218 spots, respectively, to rank 500th and 522nd in India. Based on the data, 37 Indian cities are ranked sixth in the world in 2022 for ecosystems per capita. India's unofficial economy will open up thanks to startups, making the government a powerhouse. When it comes to start-up economy development and strategy, the public sector needs to pick the best. India's potential to keep expanding and take up more space in the world's startup environment. The analysis highlighted how enormous India's potential is, considering its youthful, educated, English-speaking population.

#### A. Growth of Indian Startups

In the first quarter of 2022, Indian business owners raised \$11.8 billion through 506 investment deals, an increase of 186% year over year and 64% from the same period in 2021. Funding increases were 329 and 653% year over year in Hyderabad and Pune, and 473% in Chennai. Up-and-coming cities include Kolkata, Jaipur, Patna, and Ahmedabad. After the Covid-19 pandemic in 2021, the startup industry raised \$42 billion and created 42 unicorns. The graduating exam for the startup ecosystem occurs in 2022. In the first quarter of 2022, Indian entrepreneurs raised \$11.8 billion through 506 deals, according to Inc42. Funding increased by over 186% in the first three months of 2022, while deal counts increased by 64%. Throughout the quarter, Bengaluru, Delhi NCR, and Mumbai's dominance was disrupted by smaller startup centres. In 2022, Mumbai, Bengaluru, and Delhi NCR took in over 90% of the total revenue; in 2022, however, only 78% (\$9.1 billion) was received. In contrast, 163 deals totaling \$5.7 billion were raised in Bengaluru, India's Silicon Valley. companies in Mumbai raised \$1.4 billion through 77 deals, whereas companies in Delhi NCR raised \$1.9 billion through 123 agreements. Hyderabad and Pune surprised the ecosystem by increasing finance and transaction volume by 653% and 329%, respectively. Businesses in Pune raised \$788.7 million in six rounds of funding, up from \$90 million in ten deals in the first quarter of 2021. \$300M was funded by both ElasticRun and Xpressbees. Now that the pair has surpassed the \$1 billion valuation threshold, San Francisco now has six unicorns. The leaders of Xpressbees' Series F funding round were TPG Growth, ChrysCapital, Investcorp, and Norwest Venture Partners. SoftBank Vision Fund 2, Goldman Sachs Asset Management, Chimaera, Innoven, and Prosus Ventures led ElasticRun's \$300 million Series E investment. Pune will soon hold its first business initial public offering (IPO), despite having only six investment rounds—a 40% decrease from the year before. In April 2022, Pune-based FirstCry is scheduled to submit its preliminary prospectus. RocketAI's first round of funding was \$1.2 million, whereas the average ticket size for businesses in Pune was \$98.6 million.

Chennai is nearly one of the top 100 startup ecosystems in the world. It rose 31 spots to 102nd in the Global Startup Ecosystem Index 2022. Industry insiders claim that the city's thriving environment has contributed to its status as a major global hub for startups. Pune finished in 90th place, Hyderabad in 97th, for a total of five. Hyderabad moved up nine ranks, and Pune up fourteen. Mumbai was ranked seventeenth, Bengaluru ninth, and New Delhi thirteenth by Israeli-based StartupBlink, a start-up ecosystem map and research company. According to the assessment, India's secondary ecosystems are flourishing. Both Chennai (102nd) and Brisbane (101st) are nearly in the top 100.

**B. Reasons for Growth:** A better quality score, which evaluates the high-impact unicorns and exits in the ecosystem, is associated with Chennai's improvement. According to the poll, Chennai would surpass Pune and Hyderabad if growth keeps up. Arun Natarajan, the creator of Venture Intelligence, claims that Chennai is the "software as a service capital of India." One of the best

incubators for deep tech companies is the IIT-Madras Incubation Centre. Uniphore, Ather Energy, Stellapps, Detect, and Agnikul are just a few of the deep tech start-ups from IIT Madras that are having an impact both domestically and internationally. The stable coexistence of established companies and startups contributes to the ecosystem. This is because of the large-scale ecosystem at work, which includes local PE funding from TVS Capital, government support through emerging sector seed funds, entrepreneurship promotion organisations like TiE and The Chennai Angels, enabling policies with built-in funding mechanisms like the fintech policy, and innovation labs and research parks established by educational institutions.

C. Chennai, the capital of Tamil Nadu, is home to a thriving startup scene. The government of Tamil Nadu encourages startup growth. Chennai is now the fourth busiest startup hub in India as a result. Different commercial constraints apply to Special Economic Zones (SEZ). There are 55 such zones in Tamil Nadu, with 18 located in Chennai.

The low cost of living in the city attracts new businesses. Pricing and rental rates in Chennai are 54% lower than in Mumbai, while those in Delhi and Bengaluru are 18% and 13% higher, respectively. The city has a business-friendly culture, but its infrastructure is falling apart. New research rooms and upscale facilities have been added in recent years. Chennai has become a centre for SaaS (Software as a Service) businesses in recent years, home to numerous prosperous startups including Zoho, Chargebee, Kissflow, and others. Though undervalued because of a dearth of capable investors and businesspeople, the city has gained notoriety recently for creating internet companies such as Freshdesk and Indix. Finance is no longer a barrier to innovative ideas because there are many wealthy angel investors who are willing to make investments. The lack of startup rules in Tamil Nadu seems to have been resolved with the government's recent declaration that investments totaling Rs 45,000 crore are in the works. In addition to SaaS, Chennai is home to numerous consumer tech, FinTech, EdTech, and deep tech companies. The goal of Tamil Nadu's Startup & Innovation Policy 2018–2023 is to minimise financial and regulatory barriers for entrepreneurs while establishing at least 5,000 technology companies.

#### II. A SURVEY OF THE JOURNALS

Thilagaraj, Davis K. & A. (2021) investigated the effect of COVID-19 on entrepreneurship. The research suggested a comprehensive and well-organized relief programme to facilitate financial access and a suitable management technique to ascertain fund use. Startups foster innovation among business owners and generate employment prospects. The future of our country's start-up bionetwork depends on regulatory agencies acting swiftly and consistently, given the enormous potential of start-ups. In India, startups are driving changes in the food value chain and technological advancements.

based on what Nuthalapati et al. According to the report, open innovation in Indian agriculture has resulted from the growth of startups and has various positive effects. This is crucial because Indian agriculture is moving towards a greater level of technology, resulting in faster and better links in the food chain. Businesses can only consider their own marketing strategies and inventions, ignoring smallholders. This creates more challenges. In order to integrate open innovation into agricultural development objectives and maintain growth and equity, the government must adopt a legislative framework that fosters the startup ecosystem.

MH Bala Subrahmanya and Ganesaraman Kalyanasundaram (2021): Do life cycle stages affect the failure of IT startups in India? According to the study, the stage of a startup's lifecycle has an impact on how its founders set priorities and allocate resources for optimal profitability. Revenue, product-market fit, product plan, market marketing, investor disagreement, execution confidence, startup focus, and entrepreneur experience are additional statistically significant causal factors.

Megha Jacob (2017): Opportunities for Tourism, Startups, and Entrepreneurships. The report indicates that there is no environment for business incubation in the travel and tourism sector. Government support is necessary for travel and tourism technology company incubators to generate and nurture innovative business concepts and obtain funding. Financing and access to a startup

ecosystem can help entrepreneurs and students make money and generate jobs. According to the study's findings, India's National Rural Livelihood Mission launched the Start-Up Village Entrepreneurship Programme (SVEP) in 2016 as a sub-scheme (Government of India, 2016). With the support of this flagship programme, rural businesses can obtain startup capital and thrive in the travel and tourism industry. Financing and access to a startup ecosystem can help entrepreneurs and students make money and generate jobs.

L Jalaja (2022) looked at Indian startup capital. Big cities have been the focus of startup development, following the lead from startup India. States and cities in Tier 1 have enormous financial resources in IT-enabled sectors including banking, transportation, and e-commerce. Small businesses outside of major cities are unaware of the tax breaks and government incentives available to business owners. Despite this, a lot of businesses still face difficulties because of the disorganised and fragmented market, a lack of support from the government, and inadequate infrastructure. Indian entrepreneurs may benefit from improved knowledge of government initiatives and incentives, loan distribution to important businesses, increased outreach and network advantages, easier funding and tax savings, and more. The government has to actively support startups in India and prioritise developing top-tier technical talent and global business competencies in order to counteract the effects of reverse brain-drain.

Establishing a network and link between businesses, universities, startups, and the government is also essential. India is a worldwide innovator that punches above its weight, but there is always room for improvement in terms of infrastructure for professional courses, intellectual property rights, and human resource development. Entrepreneurs and innovators who are focused on creating their own goods and services but lack the skills and capacity to grow through improved bookkeeping, marketing, and sales will require assistance from startups in India. Outreach is being used by the government to publicise its initiatives, but innovation outside of Tier 1 cities needs to continue. Venture capital and modern technology place a premium on "unicorns" that expand and disrupt according to consumer demand. Seeking alternative funding, they prioritise shareholder profit over shared wealth and quick exits over long-term development. To go beyond e-commerce, Fin-Tech, edutech, and mobility into the "third sector," which includes media, education, healthcare, governance, sanitation, and clean and alternative energy, first-time entrepreneurs need more support.

Researchers Syed Zakir Hussain and N.H. Mullick (2019) looked into how disruptions in cloud computing affected tech-based business models, or startups. The foundation of India's tech-based startup scene is made up of creative organisations that welcome creative concepts and businesses. The use of cutting-edge technologies such as cloud computing, artificial intelligence, and the Internet of things (IoT) by the government, at all levels, is essential in providing substantial assistance to establish an ecosystem for startups. Freshworks, Zoho. An increasing number of countries worldwide are launching programmes to advance the Cloud ecosystem, such as government-run Clouds to promote innovation, financial incentives for establishing data centres, and "Cloud first" policies. "Establish India as a global hub for Cloud computing" is the Government of India's 2018 NDCP aspiration. To this end, the government has taken several steps to foster the growth of the cloud, such as the "Cloud first" policy (MeghRaj) and NIC's Cloud services. The IT industry is being revolutionised by cloud computing. Additionally, it widens the corporate skyline and shakes up BI. According to my research, cloud computing is expected to grow in the coming days, therefore entrepreneurs should prepare accordingly. We noted in this essay that while cloud computing has many advantages, there are drawbacks as well, like high operating costs for both public and private clouds. In my study, we suggested that before implementing data localization, the GoI should evaluate its effects on industry, economy, privacy, and security.

In 2014, Apoorv Ranjan Sharma and colleagues questioned whether accelerators have an impact on India's startup scene. Accelerators are helpful to startups for funding raising, faster growth, and strategic support. PE and VC investors can find exceptional start-ups with the help of accelerators.

Startup mortality decreases overall. Accelerators can increase revenue, value proposition, and fundraising. Start-ups are assisted by accelerators. They improve the growth/fundraising opportunities and mortality rate of start-up firms. Value proposition, team development, and revenue strategy have all increased in accelerated start-ups. Start-ups will succeed more if they receive more mentoring. decreased death rate. In terms of facilitating start-up exits, accelerators appear more successful than business incubators.

looked into the role angel investors play in the Indian startup scene. Lohith Kumar and V. Ramana Rao (2016). The study's findings indicate that India's startup ecosystem is seeing positive trends, such as domestic market expansion and robust investor engagement. Money is like rocket fuel in the early stages of a business venture. It is one of the most important elements. Even if it's not required, it makes the trip more comfortable. Since venture capitalists, private equity firms, angel investors, and angel networks assist entrepreneurs during their startup phase, their active participation is essential. There is a noticeable presence of angel investors. Indian Angel Network actively supports around sixteen different industries in the Indian environment. Out of all areas, information technology attracted 42% of angel investors, with services, financial services, and the internet following closely after. The active involvement of Indian business magnates such as Ratan Tata, Azim Premji, Narayanmurthy, and others as angel investors has increased the faith of angel investors in startups.

Neeraj K. Pandey assessed the Indian urban startup environment in 2018. The analysis found that while seed money and private equity remain the primary sources of funding for startups, another factor that has been added as an independent variable and has a significant impact on funding is also present. Among Mumbai, New Delhi, and Bangalore, Chennai has the startup ecosystem with the least influence on funding from the founders' educational background, based on the dataset used in this study. According to the study's statistical analysis, a startup's early financing was least influenced by the founder's gender, place of employment, and educational attainment.

In 2015, Neeta Baporikar investigated the framework for social transformation in startups in India. In the modern world, a nation's capacity to discover novel science, transform it into unique technologies, and grow them into valuable, sustainable businesses that generate income, high-caliber employment, and support growth is essential. Startups work well. A startup is a short-lived business looking for a viable, repeatable, and scalable business model. A small business founded by two or three people might try tens of different business concepts. The paper claims that India is evolving. It is necessary to serve online customers. The business community is moving away from a static services model, leaving a gap that is being filled by the startup ecosystem. Outside factors are also important. Global recessions, government regulations, and discussions about cutting-edge technologies all have an impact on new businesses. Although it's not as advanced as it was a few years ago, the environment is still nicer. It's still rather young. Establishing a business is a further step in taking control of the Indian market. Those who are successful now may continue to flourish in the future. This is a tiny portion of the hundreds of emerging Indian businesses. It offers perspective, and each of them offers something unique and fascinatingly Indian.

Digital technology as a platform supporting the entrepreneurial ecosystem and fostering a sustainable venture in technological space was studied by Saikat Banik and Parul Sinha in 2021. Internet penetration, the adoption of deep-tech or advanced technologies (AI/ML, Big Data and analytics, robotics, 3D printing, AR/VR), the availability of financing, transaction flow, the link between MNCs and startups, the development of pre-existing business relationships, and the workforce's skill set development were all investigated. Data is essential to the survival, expansion, and sustainability of a firm. Global data volumes are exploding due to emerging technology. The foundation of developing technologies for managing businesses, startups, organisations, industries, and people on digital platforms is telecommunication. Internet and telecom infrastructure may be very helpful in giving startups and small businesses the digital environment they need to succeed

in terms of efficiency, agility, sustainability, and business expansion. Digital technology will be essential to the development, survival, and success of start-ups.

According to the study, the most crucial factors for any start-up or new venture are internet penetration, the development of digital technology (AI/ML, Big Data, Robotics, Analytics, Blockchain, 3D printing, AR/VR), funding availability, deal flow, pre-existing business relationships, and the improvement of manpower skill sets. Traditional infrastructure-related factors rank lowest in importance. By using digital technologies across digital platforms, new businesses or entrepreneurs can find business opportunities in established marketplaces and create disruptive business model solutions. While social media, businesses, and individuals can all benefit from digital technology, there are issues with data security and privacy. The reputations of companies and social media partners among users and customers are harmed by these issues. Entrepreneurs need to be aware of their market and competitive. Although digital transformation is used by entrepreneurs to integrate digital technology in operations, processes, strategies, employee involvement, marketing, sales, stakeholder management, products, services, and operations, it might be ineffective for start-ups or small businesses if they are unable to locate any employees.

#### **III.CHENNAI'S STARTUPS**

These are Chennai's most inventive startups for 2022.

#### 1. Findbhk.com

Findbhk.com is a Chennai-based service that allows renters and purchasers of real estate to get in touch with builders and owners directly. Findbhk features more than a thousand active properties on its platform. Sellers can post their properties for free, and buyers can contact as many sellers as they like without any limits on their inquiries.

Findbhk operates on a unique site visit strategy with builders, differentiating itself from other portals in the market by offering full pre-sales support from lead generation to site visit. Despite the name ending in BHK, findbhk is seeing an increase in searches for Chennai plots, then Velachery, Perungudi, and Thoraipakkam houses for sale.

#### 2. Vivitri Capital

Doing business as Vivitri Capital Pvt. Ltd.

Sector: Marketplace and Financial Technology

Financial Services is a product and service category.

The first tech-enabled platform in India, Vivriti Capital is situated in Chennai and links capital market investors with individuals, institutions, and small enterprises. This platform can be used by corporations, SMEs, and individuals to obtain debt financing. Customers can choose from a variety of financial solutions, including loans, structured debt, working capital, receivables finance, and capital market instruments. In addition, the startup provides blogs, seminars, and professional support to aid in loan selection. Vivriti Capital was established with the goal of creating a valuable financial services platform that would cater to the needs of small businesses, financial institutions, corporations, and individuals who did not have easy access to financial services. The startup uses data analytics to assess the needs of the client and create a solution that works, which is then delivered right to the client's door. An intelligent system matches the right deal to the right investor, builds an extensive repository of highly relevant public and private data for the investor, and supports post-deal credit, compliance, and accounting requirements. This system serves debt investors, which include asset managers, banks, NBFCs, insurance companies, pension funds, and private wealth. The firm has filed with the RBI as a regulated non-banking, non-deposit-taking financial corporation. The founding team of the startups is committed about innovation and the use of technology to advance financial services in India. They have over fifty years of combined experience in lending, investment banking, structured finance, and asset management. The group has previously investigated more than 500 domestic and international retail lending companies, developed underwriting guidelines for different types of retail lending in India, and leveraged capital markets to promote financial inclusion in the nation.

The startup provides small and medium-sized enterprises (SMEs) with proper access to financial services through its platform. The company's clientele includes small businesses, financial institutions, and corporations. Vivriti leverages data analytics to ascertain consumer needs and then creates products that meet those needs. Because it provides them with an intelligent system that targets investors, banks, insurance companies, NBFCs, pension funds, and other debt investors use Vivriti Capital. It serves as a one-stop shop for all debt requirements for its intended market.

3. Zepto

Kiranakart Technologies Pvt. is the legal name. Ltd.

**Consumer Services** 

Services & Goods: GroceryDelivery

Aadit Palicha and Kaivalya Vohra were the founders.

Start Date: 2021

India is the geographic range

In June 2021, two 19-year-olds founded Zepto in Chennai. With an efficient network of "dark stores" or micro-warehouses, Zepto claims to continuously deliver food and essentials in 10 minutes by combining technical and operational perfection. The founders of these firms think that global consumer shopping habits are likely to change due to the rapid growth of e-commerce. Zepto has become the market leader in India thanks to its rapid expansion and best-in-class execution. The firm offers on-demand grocery delivery using an app-based platform. Through the app, users may order groceries, drinks, meals, beauty and health products, as well as necessities for their homes and households. Devices running iOS and Android can download the software. After an order is placed, the company promises to deliver within ten minutes. Among the cities it serves are Bengaluru, Mumbai, Chennai, Hyderabad, Pune, Gurugram, Noida, and Delhi. Aadit Palicha and Kaivalya Vohra founded Zepto, a company that promises to deliver groceries in ten minutes. It processed more than one million orders in 2021 by collaborating with 86 dark store operators across 13 locations. Zepto leverages its network of "cloud shops," or micro-warehouses, which it controls, to promptly fulfil orders. It projects that 100 dark firms will be operational by the end of 2022, catering to roughly 100 pin codes.

Zepto is one of the fastest-growing startups in India. In just six months since its creation, it has raised \$160 million from prominent Silicon Valley and Indian investors. Co-founders of the company Aadit Palicha and Kaivalya Vohra left Stanford University to start Zepto in India. They have been joined by senior executives from Uber, Flipkart, Dream11, Pepperfry, and Pharmeasy, forming an extraordinarily potent team.

Zepto is unique since the startups can consistently deliver 2,500+ items in less than 10 minutes. The startup's whole operation is centred on its dedication to its customers, which explains how quickly it has grown while keeping customer satisfaction at such high levels. Zepto wants to establish 10-minute delivery as the new norm.

#### 4. Disposition

Heuristic Digital Technologies LLC is the legal name.

**Education Technology Sector** 

Products and Services: Online Education Services

Deepa Kaval, Subramaniam Vishwanathan, Krishnamurthy Vijayan, and Kuljit Chadha were the founders.

Commencement Date: 2015

Range in Geography:

Bilingual software called Disprz offers a full-featured learning management system. It provides cloud-hosted learning management and engagement tools. The service is an AI-based skill & career acceleration solution that includes workplace interactions, employee engagement, behavioural

skills, employee analytics, employee progress monitoring, and other features. Among the industries the company serves are manufacturing, logistics, construction, financial services, and others.

A company called Disprz, situated in Chennai, assists businesses with worker engagement and onboarding, increases productivity, and maintains online staff learning. It is effective everywhere, starting on the first day of work for a new hire. The company has received investments from Xseed Partners, InnoVen Capital, Infrastructure Leasing & Financial Services Ltd., and Kae Capital. The startup is an appropriate skilling suite driven by AI that enables company-wide skilling, helping enterprises to reach their full potential.

It makes use of mobile, cloud, and artificial intelligence to assist organisations construct effective learning pathways to close skill gaps, analyse and assess themselves against industry-wide trending capabilities, and promote learning adoption to help organisations develop competence. The ultimate objective of the startups is to provide CXOs with the necessary tools to drive the right capabilities and positively affect the company, whether that be through increased sales, better customer service, leadership, or digital transformation.

More than 120 major companies, including Amazon, Airtel, Bajaj Allianz, Chaayos, Mahindra Rise, and Tata Motors, use the startups' capability-building platform. Frontline personnel and knowledge workers use its platform for skill and productivity enhancement; over 750K learners from India, Southeast Asia, and the Middle East use it. Disprz has been named a minicorn by Tracxn on their list of "Top Corporate Learning: Emerging Startups 2021." In the Prime Minister's eLearning Category's Radio Address for the Aatmanirbhar Bharat Innovation Challenge 2020, Disprz was also selected the Best eLearning App.

#### 5. Hippo Film

Lyceum Technologies, Inc. is the legal name. Sector: SaaS and Software Development Items & Services: Video Interaction Instrument

Nilamchand Jain, Srinivasan Krishnan, and Karthi S. were the founders.

Start Date: 2016

Global Geographic Range Stage of the Company: Series A Four investors are involved.

Important investors include Alpha Wave Global, Kae Capital, Surge, and Fundamental.

Seven Funding Rounds

The entire amount funded is \$1.02 million.

Estimated value: \$4.5 million

An online tool for creating customer assistance videos is called Hippo Video. The company's capabilities include video editing, exporting, sharing & embedding, analytics, video ticketing, user administration, and integration with external customer support platforms. There are other connectors for Zendesk and Freshdesk. Schools, customer success teams, and customer service teams are the target audiences for this training.

Hippo Videos is a video engagement platform based in Chennai that improves the efficiency of your support, marketing, and sales operations while also assisting you in interacting with prospects. Personalised sales pages, video email, and video personalisation are just a few of its features. The

firm offers a variety of solutions, including video recorder API for developers, video for teachers & trainers, video for marketing, video for sales, and video for customer support.

Hippo Video is the best video engagement tool for B2B sales teams. In order to understand your prospects' problems and assist them in solving them, it is your job as a salesperson to build relationships with them. However, these prospects are already inundated with boring messaging in today's era of text saturation. This is the reason people ignore your sales outreach. Use Hippo Video to create a video that you can send to potential customers to demonstrate your seriousness about conducting business. This will help you stand out from the competition, get their attention, and foster relationships.

You can at least double response rates by using videos to humanise your sales pitch. With this company's capabilities, sales people can now easily record, send, and track videos to better engage prospects and complete deals more quickly. With the increasing usage of video in social media and communication, the company hopes to leverage it as a key decision influencer and builder of trust. Hippo Video promotes sales, marketing, and a positive customer experience with its REAL platform. Using personalised videos can increase sales teams' productivity by up to three times.

Developed in 2016 by former Zoho workers, Hippo Video offers solutions for the creation, distribution, and evaluation of metrics for personalised films. Among the technological innovations of the firms are rich online pro-editing, on-the-fly in-video customisation at scale, video landing sites, smart webcams and screen recorders, comprehensive reporting and analytics, and enterprise-grade security. Customers have reported high returns on investment, the company claims.

# 6. Magzter

Magzter Digital Pvt. is the legal name. Ltd.

**Industry: Online Books** 

Products & Services: Newsstand and Digital Magazine

The three founders were Gautam Ramdas, Girish Ramdas, and Vijayakumar Radhakrishnan.

Beginning Date: 2011

Global Geographic Range

Series B Company Stage

Four investors are involved.

Key backers Kalaari Capital and Singapore Press Holdings

Three Financing Rounds

Amount of Funding Total: \$10 Million

Assessment: \$13 million

Any publisher in the world can register with Magzter, a digital newsstand and magazine store, and disseminate their publications to a worldwide readership. The magazine is published on the platform almost instantaneously, and a revenue share is negotiated between Magzter and the publisher. There is a 50/50 stake in the income split arrangement. Apple gets thirty percent of the revenue, and web payment gateways and Android get about ten percent. Whatever is left over is therefore divided equally between the author and the publisher. Most publications lose money on circulation and in-person sales due to increased printing and shipping costs. Normally, publishers get paid for their adverts, but with Magzter, they get paid for the first copy that is sold. Magzter, a Chennai-based company, currently works in New York and has a Chennai, India-based subsidiary. The sales force is dispersed throughout the world, from Singapore to London to New York. In addition, sales are carried out in Germany and the Netherlands.

Also, KitchenMate makes preparing fresh meals at work simple.

You can currently read more than 600 publications on Magzter, and their market is worldwide. Two of the most popular categories are news (like India Today) and entertainment (like Filmfare). With publishers from India, Singapore, Malaysia, Hong Kong, the Philippines, the United States, and the United Kingdom, the startup boasts 1.5 million Asian users. Additionally, Magzter is becoming into a multilingual platform. One way to obtain magazines and newspapers is by using an online digital newsstand. The website offers magazines on a variety of subjects, such as business, entertainment, lifestyle, fashion, and more. The portal also offers newspapers from a wide range of locations and nations. The app is available for download by owners of iOS and Android handsets. Additionally, the startup offers social media sharing links on magazine pages. The Magzter team is depending on discoverability and users to market the product. It goes without saying that they utilise digital media extensively. Additionally, publishers are now promoting their publications' availability on Magzter, which increases their visibility and discoverability.

# 7. Technologies Detected

Detect Technologies Pvt. is the legal name. Ltd.

Industry: Manufacturing, Machine Learning, and Hardware

Industrial Asset Monitoring Solutions: Products and Services

The founders were Harikrishnan S., Daniel David, Krishnan Balasubramaniam, and Karthik Rajasekaran.

Start Date: 2016

Global Geographic Range

Series B Company Stage

There are thirty investors.

Elevation, T-Hub, Accell, and CIIE.Co are important investors.

Five Funding Rounds

Amount of Total Funding: \$16 Million

\$37.1 million is the valuation.

Detect Technologies is an innovative and productive industrial asset monitoring and inspection company, founded at IIT Madras. It offers cutting-edge technologies for pipeline integrity monitoring and inspection. The company sells tools for maintaining and finding leaks in gas and oil pipelines. It is a fully automated continuous condition monitoring system designed for high-temperature-resistant pipes. Additionally, it is developing a semi-autonomous drone that is capable of inspecting gas and oil components, including boilers. The company is a part of Axilor Ventures' accelerator programme. Their group is creating low-cost, intelligent technology that aims to improve safety and productivity in various industries. Since its 2016 launch, Detect has achieved 80% market penetration in India's oil and gas sector. It is also present in other significant industries including steel, power, chemicals, and fertilisers. The company is a well-known Industrial AI startup that creates innovative solutions and state-of-the-art technologies for the industrial setting. Its primary goal is to expedite the shift to Industry 4.0 by re-engineering and automating industrial processes in order to achieve maximum and sustained industrial productivity. Detect Technologies has been trusted by some of the top companies in the world, such as Adani Group, Reliance Industries, Vedanta, Aditya Birla Group, GAIL, and Hindustan Petroleum.

The startups have conducted in-house research and developed a wide range of unique technology and artificial intelligence (AI) solutions with the user in mind. It combines information, personnel, tools, and processes to solve industrial problems that were previously unsolvable. In order to create cutting-edge technology and usher in a new era of industrial technology, the company employs a group of driven individuals that collaborate to make industries safer and more effective. Detect Technologies was established in 2016 with the goal of providing solutions for asset-intensive industries like as petrochemicals, oil and gas, power, fertilisers, metals, renewable energy, and more. The company upholds the strictest industry safety and compliance standards. It uses patented technology and industrial AI—machine vision, sensors, robots, and machine learning—to achieve complete industrial automation. It serves clients in six areas and has successfully implemented solutions over 100 sites worldwide. It possesses over 25 intellectual properties and trademarks.

Detect solutions is an Indian company that specialises in pipeline integrity and management solutions. It is based in Chennai. The company produces equipment that makes leak detection and oil and gas pipeline repair easier. The company's flagship product, GUMPS, is a fully automated continuous condition monitoring system designed to monitor pipelines operating in extremely high temperatures. Additionally, it created the semi-autonomous Noctua drone, which is used to inspect boilers and other O&G components.

# 8. Newworks

Title in Court: Freshworks Inc.

Industry: SaaS; Business Technology

Products and Services: Customer support services and marketing automation

The founders are Kiran Darisi, Vijay Shankar, Shan Krishnasamy, and Girish Mathrubootham.

Beginning Date: 2010

Global Geographic Range

Public Stage for the Company

Ten investors are involved.

Principal Backers: Sequoia Capital, Accel, Capital G, and True Wind Capital

Nine Funding Rounds

Amount of Funding Total: \$484 Million

Estimated value: \$3.5 billion

This Chennai-based firm provides cloud-based business management and communication solutions. The Freshdesk product portfolio includes Freshdesk for customer support, FreshService for online IT service management, Freshchat for enterprise chat, FreshSales for sales CRM, Freshrelease for project management, Freshteam for hiring, Freshconnect for enterprise collaboration, and more. It also provides solutions for employee and customer engagement. In 2017, Freshworks was rebranded as Freshdesk, as the company's offerings grew to include CRM and ITSM sectors in addition to helpdesk software. Over the last five years, Freshworks has been included in the Forbes Cloud 100 list, steadily moving up the ranks from 95th in 2017 to 10th in 2021. With more than 50,000 clients globally, Freshworks was valued at \$13 billion when it went public on the Nasdaq in September 2021.

The firm was founded in 2010 by Shan Krishnasamy and Girish Mathrubootham. Cloud-based customer support software was the only service Freshdesk offered when it first started. In 2014, Freshservice was established to offer modern ITSM solutions. Launched in 2016, Freshsales provides 360\* CRM solutions.

The firm is a SaaS company that is upending traditional CRM, ITSM, Customer Support, and Marketing Automation with their comprehensive customer interaction suite, Freshworks360. When the company's recurrent yearly sales hit \$100 million in 2018, it joined the exclusive unicorn club. Products from the company include Freshdesk, Freshservice, Freshsales, Freshcaller, Freshteam, Freshchat, Freshmarketer, and Freshrelease. Founded in October 2010, Accel, Tiger Global Management, CapitalG, and Sequoia Capital India are the investors in Freshworks Inc. With operations in Germany, Australia, the UK, India, and San Mateo, California, Freshworks is a California-based company. The cloud-based suite is used by over 150,000 companies worldwide, including the NHS, Honda, Rightmove, Hugo Boss, Citizens Advice, Toshiba, and Cisco.

#### 9. Fipola

Fipola Retail India, Pvt. is the legal name. Ltd.

Sector: Retail Meat, E-commerce

Products and Services: Delivery Services for Meat and Seafood

K. Ramana, Aishwarya Rai, Sushil Kanagolu, and KV were the founders. Ramana

Start Date: 2016

India is the geographic range

Stage of the Company: Series A

There are eight investors.

A.R. Foundation, Beanstalk, and Vijaya Ramamurthy are the main investors.

Four Funding Rounds

The entire amount funded is \$12.8 million.

\$43.5 million is the valuation.

In December 2016, Fipola Retail India was established as a D2C (Direct to Consumer) omnichannel retailer of meat and seafood in South India. Fipola's goal has always been to transform the nation's meat retail industry by providing exceptional products, top-notch customer support, and a hygienic and welcoming store space. Fipola plans to open 101 stores in Tamil Nadu, Bengaluru, and Hyderabad by the middle of April 2022.

This Chennai-based company processes and sells meat products. Fipola provides the following: marinades, cold cuts, eggs, dry fish, hog, lamb, goat, and free-range chicken, meat, and seafood. The company says it gets its supplies straight from farmers. Orders for the products can be placed via the company's retail network locations, smartphone apps, or online for home delivery.

Fipola offers a variety of cuts, flavours, and meats (fish, poultry, lamb, and goat). On the menu are a variety of exotic shellfish along with chicken and goat. Retail outlets serve as hubs for deliveries and prepare and package meat fresh upon customer order. With 48 locations in Tamil Nadu, Telangana, and Karnataka—ten of which are in Bengaluru—Fipola is a retailer with headquarters in Chennai. More than half of Fipola's revenue comes from its online presence, which includes its website, app, and merchant platforms like Swiggy and Dunzo.

#### **IV: FINAL SUMMARY**

Chennai is the city in India's startup ecosystem with the highest concentration of competent and talented individuals. Though it is considered the underdog in India's startup scene, this city has produced some amazing companies like Freshdesk and Indix, which are in high demand abroad.

Although Chennai is known as the birthplace of the auto industry, in recent years it has emerged as a centre for SAAS (Software as a Service), attracting bright, young entrepreneurs from all walks of life. Chennai is becoming one of the most popular markets for people looking to start their own business in a cutthroat but hassle-free environment because of this. We've covered Chennai's rise to prominence in India's startup scene and why it's the best city to start a business in the sections that follow.

Chennai: A Centre for New Ventures

With almost 5 million residents, Chennai ranks as the fourth most populous city in India. It is also known as the country's second-largest hub for IT development, behind Bangalore, which makes it an ideal place for establishing fresh, cutting-edge start-ups.

With the addition of several accelerators and incubators, such as Start Tank and PayPal's incubators, Chennai is quickly becoming a hub for start-ups. Not to mention the increasing likelihood of receiving money from TVS Capital Funds Limited and Chennai Angels. Chennai is an excellent place not only to launch a business but also to grow one thanks to these growing opportunities.

## Launching a Company in Chennai

The first requirement for starting a business, not just in Chennai but globally as well, is having a scalable concept that can provide value to people's lives. Second, take note of your surroundings. A business owner ought to be aware of the current developments in their industry.

### Current Patterns in the Chennai Startup Landscape

Chennai has an ecology and atmosphere that present a variety of opportunities in the sector. Cloud-based applications are one of the main trends in its sector. A start-up from Chennai, ZOHO is a leading cloud-based programme that provides online business, network, and IT infrastructure management solutions. It is posing a significant threat to Salesforce.

Chennai, being a major hub for auto production, provides a plethora of opportunities for hardware start-ups operating in the rapidly expanding cloud application industry.

These, then, are the explanations behind Chennai's rise to prominence in India's startup scene. Many start-ups with the goal of changing the world have been established in Chennai in the last few years. Here are a few of the start-ups that are transforming the business landscape in Chennai. Tamil Nadu is the nation's second-largest economy and ranks third for startups. The state's startup economy is being driven by both established industries and emerging sectors. To further enhance the startup environment and promote inclusive mass entrepreneurship in the state, TANSIM is proposing to collaborate with sector-specific initiatives and regulations. The proposed plan will include a welcoming and encouraging government that fosters an atmosphere of equal opportunity for new businesses in the state. According to the MSME secretary, there are several ways that the government may improve the startup ecosystem: by offering financial support, making it easier for people to obtain financing, creating a market for business owners, supplying human resources, and improving infrastructure. The Tamil Nadu government, according to Roy, is working in each of these areas.

According to Roy, the state has established the Tamil Nadu Emergent Sector Seed Fund, a SEBIregistered alternative investment fund, to make investments in emerging industries such as electronics, precision engineering, aerospace, and food processing.

#### References

- 1. P.S. and AL.CHIDAMBARAM. NAGARAJAN. (2019). A MILESTONE TO THE INDIAN ECONOMY: TECH-STARTUPS. JETIR, 170-174.
- 2. Tiwari, Anish et al. (2021). The Positive, Negative, and Ugly of "Startup India" Weekly politics and economics, 45-50.
- 3. Sharma, Apoorv Ranjan, and others (2014). Is Using Accelerators a Choice? The effect of accelerators on the startup ecosystem in India. SIU Management Journal, pages 61–82.

- 4. Mungila Hillemane Bala Subrahmanya. (2016). What factors influence the R&D contributions of India's technology business incubators to the country's economy? Emerald IJIS, 1–24.
- 5. Ramanjaneyulu Mogili, Sita Vanka, and Bharat Chillakuri. (2020). A conceptual framework connecting India's startup environment to sustainable development. Int. J. Globalisation and Business, 139–153.
- 6. Nuthalapati Chandra S.R. and associates (2020). Open Innovation Startups: Streamlining Food Value Chain Flows and Technological Change in India. 415–436 in Indian Journal of Agricultural Economics.
- 7. Sharma, Dinesh C. (2022). Space 2.0: Technology Clusters as Engines of Power. 33-41 in New Space.
- 8. Raju, G Satheesh et al. (2020). A case study of technology-based startups that are making a shift towards sustainability. 1–9, IOP Publishing.
- 9. MH Bala Subrahmanya and Ganesaraman Kalyanasundaram. (2021). Do Lifecycle Stages Matter in India's Tech Startup Failures? 532–546: International Conference on Operations Management and Industrial Engineering.
- ABHISHEK MOHANTY and GITIKA SAKSENA. (2020). An analysis of the growing resistance to the entrepreneurial rite
  of passage known as "unidimensional scaling up" in India's startup capital. Conference on Ethnographic Praxis in Industry,
  27–45.
- 11. Davis K. Jacob and Thilagaraj. (2020). influence of COVID-19 on India's startup ecosystem and entrepreneurship. Journal of Research in Wesliyan, 114–120.
- 12. Joshi Kshitija. 2018). High-Tech Start-up Cluster Emergence and Persistence: An Empirical Analysis of Six Indian Clusters. 1-28; National Institute of Advancements in Sciences.
- 13. Hugo Kantis and Manuel Gonzalo. (2021). An international Southern background for the rise, development, and boom of Indian venture capital. development and shift, 1–19.
- Megha Jacob. (2017). Travel and tourism opportunities: Entrepreneurships and Startup Programmes. J Tour Stud, Atna, 51–65.
- 15. Pandey, Neeraj K. 2018). An Examination of the Indian Metropolitan City's Startup Ecosystem. Engineering and Management Research International, 237–244.
- 16. Baporikar Neeta. (2015). Framework for Social Change through Startups in India. International Journal of Social Change and Civic Engagement, 31–42.
- 17. S. Kalaiselvi . (2021). The Indian start up Ecosystem: Drivers, challenges and pillars of support. GEDRAG & ORGANISATIE REVIEW, 386-402.
- S. V. Ramana Rao & Lohith Kumar. (2016). Role of Angel Investor in Indian Startup Ecosystem. FIIB Business Review, 1-
- 19. Saikat Banik and Parul sinha. (2021). The Digital Technology as Platform Enabling the Entrepreneurial Ecosystem and Nurturing a Sustainable Venture in Technological Space. Turkish Online Journal of Qualitative Inquiry (TOJQI), 225-245.
- 20. Shaili Vadera. (2020). A Study on the Growth of Millennial Entrepreneurs in India . conference paper, 831-837.
- 21. Shawn Mathew, Yves-Marie Rault-Chodankar. (2016). An imbalanced ecosystem: start-ups in India. Weekly politics and economics, 45–50.
- 22. Syed Zakir Hussain and N.H.Mullick. (2019). Technological Disruptions Of Cloud Computing And Their Transformational Impact On Technology Based Innovative Business models. THINK INDIA (Quarterly Journal), 9257-9276.
- 23. Takao Fujiwara and M H Bala Subrahmanya. 2018). Editorial: Entrepreneurial Ecosystems for Tech Start-Ups in India and Japan II. Asian Journal of Innovation and Policy, 457-460.
- 24. TN has "miles to go" in developing start-up ecosystem, says official. (2022, december 22). Retrieved from Business standard: https://www.thehindubusinessline.com/news/tn-has-miles-to-go-in-developing-start-up-ecosystem-says-official/article66292166.ece
- 25. Venkata Sai Srinivasa Rao Muramalla & Ateeq Mesfer Al-Hazza. (2019). Entrepreneurial Strategies and Factors Stimulate the Business of Tech Startups. International Journal of Financial Research, 360-370.

- 26. Dr. B. Mahammad Rafee, Dr. Amzad Basha Kolar, Prof. Vijayalaxmi Ramesh, Dr.S. Jaber Asan, R. Sadique Ahamed, Ahamed Jakith, (2023). Problems of Non-Covid Patients and Health Care Services during Pandemic Period: A Micro level Study with reference to Chennai City, Tamilnadu. *European Chemical Bulletin*, 12(Spl.6), 7052–7074.
- Dr. B. Mahammad Rafee , Prof. Vijayalaxmi Ramesh, Dr. S. Jaber Asan , Dr. Amzad Basha Kolar,Mr. S. Mohammed Zaheed . (2022). A Survey on Implications of Cashless Payments on the Spending Patterns of Urbanites in the Era of Digital India. *International Journal of Early Childhood Special Education (INT-JECS)*, 14(7), 2040–2048. <a href="https://doi.org/10.48047/INTJECSE/V14I7.289">https://doi.org/10.48047/INTJECSE/V14I7.289</a>
- 28. Dr.B.Mahammad Rafee , Dr. Amzad Basha K ,Dr. S.Kareemulla Basha , Dr.C.B. Mohamed Faizal. (2021). Impact of Covid-19 on Agricultural Operations in India: An Overview. *Turkish Online Journal of Qualitative Inquiry (TOJQI)*, 12(3), 785–797.
- 29. Dr.B.Mahammad Rafee, Dr. Amzad Basha K, Dr. S.Kareemulla Basha, Prof. RY Naidu. (2021). Village Volunteer System amidst corrupt practices in Indian states with special reference to State of Andhra Pradesh. *Parishodh Journal*, 10(6), 38–51.
- 30. Hidhayathulla, D., & Rafee.B, M. (2014). Relationship between Crude oil price and Rupee, Dollar Exchange Rate: An Analysis of Preliminary Evidence. *IOSR Journal of Economics and Finance*, 3(2), 01–04. <a href="https://doi.org/10.9790/5933-03220104">https://doi.org/10.9790/5933-03220104</a>
- 31. M Basha, AP Singh, M Rafi, MI Rani, NM Sharma. (2020). Cointegration and Causal relationship between Pharmaceutical sector and Nifty—An empirical Study. *PalArch's Journal of Archaeology of Egypt/Egyptology*, *17*(6), 8835–8842.
- 32. B Mahammad Rafee, A Hidhayathulla. (2015). Relationship between International Crude Oil Price And The Inflation Rate (Cpi) In India From 2011 To 2014. *International Journal of Advance Researach*, *3*(5), 242–250. <a href="http://www.journalijar.com/uploads/864">http://www.journalijar.com/uploads/864</a> IJAR-5659.pdf
- 33. B Mahammad Rafee, S Mohammed Zaheed, R Mohammed Ali, S Jaber Asan, A Abdul Raheem, R Sadique Ahmed. (2022). A Moral Obligation of Health Care Service for Non-Covid Patients: A Reviews. *Journal of Positive School Psychology*, 6(2), 6060–6069.
- 34. B Mahammad Rafee, S Mohammed Zaheed, Y Shoba Devi, Jaber Asan, A Ahamed Jakith, R Sadique Ahamed, Vijayalaxmi Ramesh. (2023). A RISE OF HYDROPONICS THE FUTURE URBAN FARMING AND SUSTAINABILITY OF AGRICULTURE–AN OVERVIEW. *Journal of Research Administration*, 5(2), 8325–8336.
- 35. B Mahammad Rafee, Vijayalaxmi Ramesh, R Mohammed Ali, M Shahul Hameed, Ahamed Jakith, K Sankar. (2023). Addiction of Students through usage of Smart Phone and its Impact on Human Resources in India: A Preliminary Survey. *Journal of Pharmaceutical Negative Results*, 14(3), 1619–1643.
- 36. Ms.PoojaRay, Dr.Mahammedrafee, Dr. Mohamad Arif Pasha. (2020). An Empirical Study On Employees Productivity Enhancement Against Digital Factors At Design Mentors, Bangalore. *Lnternational Journal of Innovative Research in Management Studies (IJIRMS)*, 4(11), 142–150. http://ijirms.com/downloads/29072020180720-188.pdf
- 37. Ms. Kajal Jaiswal, Dr. Mahammad Rafee, Dr. Mahammad Arif Pasha. (2020). A Study To Understand The Problem Of PatientS Gratification Level With The Existing Healthcare Services In Bangalore. *International Journal of Innovative Research in Management Studies (IJIRMS)*, 4(12), 40–50. http://ijirms.com/downloads/0808202002082020-1.pdf
- 38. Ambika, Dr.Mahammad Rafee, Dr.Mohammed Arif Pasha. (2020). A Study On Impact Of Artificial Intelligence In Financial Services Of Private Banks In Bangalore. IOSR-JEF, 11(4), 34–38. <a href="http://www.iosrjournals.org/iosr-jef/papers/Vol11-Issue4/Series-6/E1104063438.pdf">http://www.iosrjournals.org/iosr-jef/papers/Vol11-Issue4/Series-6/E1104063438.pdf</a>
- 39. Bhargav N, Prof.Sneha Singh,Dr. Mahammad Rafee. (2020). A Study on Occupational Stress among the Doctor's in Private Sector Hospitals at Bangalore Urban District. *IOSR-JBM*, 22(8), 9–15. http://www.iosrjournals.org/iosr-jbm/papers/Vol22-issue8/Series-7/B2208070915.pdf
- 40. B.Mahammad Rafee, Prof. Saleena desai, prof.sneha singh. (2020). Impact Of GST (Goods And Service Tax) And Economic Growth In India. *Purakala*, *31*(11), 95–102.
- 41. Dr.B.Mahammad Rafee. (2020). THE IMPACT OF GST (GOODS AND SERVICE TAX) IN INDIA-A SPECIAL REFERENCE TO RESTAURANTS BUSINESS IN INDIA. *International Journal of Technical Research and Science*, 5(2), 19–23.
- 42. Angel Chakraborty Sneha Singh M. Gurusamy Mahammad Rafee. (2020). An Empirical Study on Green Marketing from the Indian Consumer Perspective with Special Reference to Bengaluru. *TEST-Engineering and Management*, 83(1), 8559–8571. http://testmagzine.biz/index.php/testmagzine/article/view/5189/4188
- 43. Dr.B.Mahammad Rafee. (2020). THE IMPACT OF GST (GOODS AND SERVICE TAX) IN INDIA-A SPECIAL REFERENCE TO RESTAURANTS BUSINESS IN INDIA. *International Journal of Technical Research and Science*, 5(2), 19–23
- 44. Dr.B.Mahammad Rafee, Dr.Gurusamy, Dr.Gunaseelan. (2020). Emergence of E-Finance Opportunities and Challenges in India . *Journal of Interdisciplinary Cycle Research*, *11*(12), 147–157.
- 45. Dr.B.Mahammad Rafee, Dr.A.Hidhayatulla. (2019). A Survey on Empirical Literature Relating To Oil Economics. *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*, 24(10), 66–78.