Publisher
Vandana Publications
www.vandanapublications.com

International Journal of Engineering and Management Research

2026 Volume 16 Number 1 February

E-ISSN:2250-0758
P-ISSN:2394-6962

Research Article

Start-Ups

Data-Driven Marketing Strategies for Start-Up Companies: A Literature-Based Analytical Study

Anoop Gurunathan, A[1*]

DOI:10.31033/IJEMR/16.1.2026.1834

[1*] Anoop Gurunathan, A, Digital Marketing Manager, Aadhiriya Education Foundation, Edappal, Kerala, India.

In an increasingly competitive and digitally-driven marketplace, start-up companies face significant challenges in acquiring, retaining, and engaging customers with limited resources. Data-driven marketing has emerged as a critical strategic approach that enables start-ups to make informed decisions, personalize customer experiences, and optimize marketing performance. This study consolidates the existing literature to examine the role of data-driven marketing strategies in enhancing the growth, efficiency, and sustainability of start-up enterprises. Using a systematic literature review methodology, the study analyzes prior studies related to marketing analytics, customer data utilization, performance measurement, and digital tools adopted by start-ups. The findings reveal that data-driven marketing significantly improves targeting efficiency, customer engagement, and return on marketing investment, while also presenting challenges related to data quality, technological capability, and skill gaps. The study identifies critical research gaps and provides practical insights for entrepreneurs, marketers, and researchers, highlighting future research directions in data-driven decision-making for start-ups.

Keywords: Data-Driven Marketing, Start-Ups, Marketing Analytics

Corresponding Author

Anoop Gurunathan, A, Digital Marketing Manager, Aadhiriya Education Foundation, Edappal, Kerala, India.

Email: anoop.g24365@gmail.com

How to Cite this Article

Anoop Gurunathan, A, Data-Driven Marketing Strategies for Start-Up Companies: A Literature-Based Analytical Study. Int J Engg Mgmt Res. 2026;16(1):1-10.

Available From https://ijemr.vandanapublications.com/index.php/j/article/view/1834

To Browse

Manuscript Received	Review Round 1	Review Round 2	Review Round 3	Accepted
2026-01-01	2026-01-17			2026-02-02

Conflict of Interest	Funding	Ethical Approval	Plagiarism X-checker	Note
None	Nil	Yes	4.83	

1. Introduction

The rapid evolution of digital technologies has transformed how organizations approach marketing, shifting decision-making from intuition-based practices to data-driven strategies. For start-up companies, which typically operate under financial, human, and technological constraints, the ability to leverage data effectively has become a decisive factor for survival and growth. Data-driven marketing enables firms to analyze customer behavior, predict trends, personalize communication, and optimize marketing campaigns in real time (Surabhi et al., 2017).

Start-ups, unlike established firms, lack historical brand equity and large marketing budgets. As a result, their success often depends on precision, agility, and efficient resource utilization. The integration of marketing analytics, customer data platforms, and performance metrics allows start-ups to compete more effectively in a dynamic market (Sergey, 2014). This study aims to consolidate and critically review existing literature on data-driven marketing strategies as applied to start-up companies.

2. Research Methodology

This study adopts a systematic literature review (SLR) approach to examine scholarly articles, conference papers, and credible secondary sources related to data-driven marketing and start-up businesses. Peer-reviewed journals indexed in databases such as Google Scholar, Scopus, and Web of Science were consulted.

A two-stage screening process was employed:

1. Initial screening based on title and abstract relevance.
2. Full-text review to assess conceptual alignment with the research objectives (Snyder, 2019).

Only studies published in English and focused on marketing, entrepreneurship, analytics, or digital strategy were included.

The initial database search across Scopus, Web of Science, Google Scholar, and other academic sources yielded a substantial number of records related to data-driven marketing, start-ups, and digital entrepreneurship.

After removing duplicate entries, the remaining records were screened based on titles and abstracts to assess their relevance to the study objectives.

Studies that did not explicitly address start-up contexts, marketing analytics, or data-driven decision-making were excluded at this stage. The full texts of the shortlisted articles were then reviewed against predefined inclusion and exclusion criteria, focusing on methodological rigor, relevance to marketing strategy, and applicability to start-up firms.

Following this multi-stage screening process, a final set of 27 studies was deemed eligible for inclusion in the systematic literature review. These studies formed the empirical and conceptual foundation for thematic synthesis, framework development, and analytical discussion. The PRISMA flow diagram ensures transparency, reproducibility, and methodological robustness of the review process.

2.1 Research Type

This research is descriptive and analytical in nature, relying exclusively on secondary data. It aims to analyse existing theoretical and empirical findings rather than test hypothesis through primary data collection.

2.2 Research Problem

Despite the growing importance of data-driven marketing, many start-ups struggle to implement analytics-based strategies effectively. Challenges such as lack of expertise, limited access to quality data, and unclear strategic frameworks hinder optimal adoption. There is a need to consolidate existing knowledge to understand how data-driven marketing contributes to start-up performance and what barriers remain unresolved.

2.3 Research Questions

1. What is the influence of data-driven marketing on the performance of start-up companies?
2. What are the key data-driven marketing strategies adopted by start-ups?
3. What challenges do start-ups face in implementing data-driven marketing?
4. What are the research gaps existing in the current literature?

2.4 Objectives of the Study

- To examine the concept of data-driven marketing in the context of start-ups.

- To analyze existing literature on marketing analytics and start-up growth.
- To identify key benefits and challenges of data-driven marketing strategies.
- To highlight research gaps and future research opportunities.

3. Literature Review

3.1 Start-up Failures and Marketing Deficiencies

Literature on entrepreneurship consistently emphasizes the fragile nature of start-ups. CB Insights (2021) noted that inadequate marketing often leads to misalignment between offerings and market needs. Ruß (2025) observed that many founders overestimate demand or fail to adapt messaging to customer expectations. Narayana Murthy (2020) added that Indian entrepreneurs, particularly fail to integrate analytics into decision-making, thereby losing opportunities for competitive advantage. The implication is clear: without data-driven insights, start-ups risk making costly assumptions that jeopardize survival.

3.2 Evolution of Marketing Paradigms

The evolution of marketing can be mapped across three major phases:

1. Mass Marketing (pre-1990s): Campaigns targeted at large audiences using traditional media (print, radio, TV), emphasizing reach over precision.
2. Digital Marketing (1990s–2010s): Introduction of internet-based tools (websites, SEO, social media, email marketing), enabling greater interactivity but still limited personalization.
3. Data-Driven Marketing (2010s–present): Integration of big data, AI, machine learning (ML), and predictive modeling. Campaigns are tailored, dynamic, and measurable in real time (Ketan, 2018).

Start-ups, due to their agility, are well-positioned to leapfrog directly into the third phase.

3.3 Theoretical Frameworks in Data-Driven Marketing

Several marketing frameworks are increasingly applied in start-up contexts:

- **RACE (Reach, Act, Convert, Engage):** Structures customer journey engagement.
- **AIDA (Attention, Interest, Desire, Action):** Guides persuasive messaging.
- **SOSTAC (Situation, Objectives, Strategy, Tactics, Action, Control):** Offers holistic planning with embedded feedback loops (Anoop and Lakshmi, 2025).

These frameworks are enhanced through data inputs, making strategies evidence-based rather than assumption-driven.

3.4 Applications of Data Analytics in Start-ups

1. Customer Segmentation: Analytics identifies micro-segments, enabling hyper-personalized targeting.
2. Predictive Analytics: Forecasts customer churn, purchase likelihood, and future demand.
3. ROI Measurement: Attribution models determine which channels deliver the best outcomes.
4. Social Media Analytics: Sentiment analysis monitors brand perception in real time.
5. Automation: Chatbots, recommendation engines, and programmatic advertising scale engagement. (Esha, 2025).

3.5 Global Insights

- **India:** Start-ups in Coimbatore, Bangalore, Hyderabad, Pune, Gurgaon and Kochi often underutilize customer data. Research shows that structured analytics adoption could drastically improve ROI (Maran and Harikumar, 2024).
- **Japan:** Agritech start-ups employ IoT sensors, drones, and AI for production efficiency and for market positioning, addressing issues such as aging workforces (Suresh et al., 2024)
- **United States and Europe:** Silicon Valley and Berlin ecosystems use advanced tools such as blockchain-enabled customer engagement, but also face ethical scrutiny regarding privacy (Cai et al., 2025).

3.6 Barriers to Adoption

Despite potential, challenges persist:

- **Skills gap:** Limited availability of data science expertise.
- **Cost constraints:** High costs of tools and talent deter small start-ups.
- **Data governance:** Privacy laws and compliance issues.

Cultural resistance: Founders often rely on intuition over data (Baragde, 2024).

Table 1: Summary of Key Studies on Start-ups and Data-driven Marketing

Author (Year)	Study Focus	Methodology	Key Findings
Sergey (2014)	Data-driven business models	Conceptual analysis	Data analytics transforms multiple sectors and is vital for start-ups
Beier (2016)	Start-up marketing misalignment	Case study synthesis	Weak market timing and lack of targeted marketing are critical risks
Ketan (2018)	Adoption of analytics in marketing	Case-based industry review	Data-driven marketing enables optimal resource utilization
Franklin (2019)	Indian start-ups and data use	Survey study	Start-ups possess data but underutilize it, leading to inefficiency
Mikle (2020)	Reasons for start-up failures	Analysis of 101 failed start-ups	42% failed due to lack of market demand; 14% due to poor marketing
Narayana Murthy (2020)	Readiness of Indian entrepreneurs	Expert commentary	Failure to adopt analytics results in loss of competitive advantage
Baragde (2024)	Strategic use of data	Industry commentary	Data creates value only when linked to actionable strategies
Maran & Harikumar (2024)	Unicorn pred. analysis (India)	Empirical predictive modeling	Strong correlation between analytics adoption and rapid unicorn scaling
Suresh et al. (2024)	Agritech start-ups (India & Japan)	Mixed-method case studies	IoT and predictive analytics improve sustainability and marketing efficiency
Ruß (2025)	Start-up adaptation to analytics	Case study	Early analytics integration reduces costs and increases ROI

Table 2: Applications of Data-driven Marketing in Start-ups

Application	Tools/Approaches	Impact on Start-ups
Customer Segmentation	Cluster analysis, CRM analytics	Enables hyper-personalized targeting, improves conver. rates
Predictive Analytics	Machine learning, AI	Forecasts churn, purchase propensities, improves retention
ROI Measurement	Multi-touch attribution, dashboard metrics	Helps allocate scarce resources effectively, improves cost efficiency
Social Media Analytics	Sentiment analysis, clickstream data	Real-time insights into customer perception and brand health
Automation	Chatbots, programmatic ads, recomm. engines	Reduces human costs, supports scalability
Data Governance	Compliance tools, blockchain	Builds customer trust, mitigates privacy risks

3.7 Data-Driven Marketing and Start-Up Growth

Several researchers argue that data-driven marketing enhances customer acquisition and retention by enabling precise targeting and personalization. Studies indicate that start-ups leveraging customer data analytics achieve higher engagement rates and improved conversion metrics compared to intuition-based approaches (Wedel and Kannan, 2016., Prashanthi, 2022).

3.8 Marketing Analytics and Decision-Making

Marketing analytics supports evidence-based decision-making by translating raw data into actionable insights. Literature highlights tools such as predictive analytics, customer segmentation models, and performance dashboards as essential for start-up marketers (Jain, 2022).

3.9 Challenges in Data Adoption

Despite its benefits, scholars note challenges including poor data quality, lack of analytical skills, high technology costs, and privacy concerns. Start-ups often face difficulties integrating data across platforms and aligning analytics with strategic goals (Singhal et al., 2022).

3.10 Roles of Data-Driven Marketing

Evidence consistently shows that data-driven marketing enhances:

- **Customer acquisition efficiency** - Customer Acquisition Cost (CAC) is the total cost required to acquire a new customer (including marketing, advertising, and sales expenses). Hence, CAC need to be reduced.
- **Market segmentation precision** - Data-driven marketing helps to accurately divide customers into well-defined groups based on demographics, behaviour, preferences, and purchasing patterns, enabling highly targeted and personalized marketing strategies that improve relevance and conversion rates.
- **Real-time campaign monitoring** – That is Click-Through Rate (CTR) meaning the percentage of users who click on an ad or campaign after seeing it, indicating engagement effectiveness and Cost Per Click (CPC) meaning the amount paid for each click on an advertisement, used to measure campaign cost efficiency (Wong & Ngai, 2024).

In short, customer acquisition efficiency (through reduced CAC), market segmentation precision (by accurately targeting the right customer groups with relevant and personalized messaging), and real-time campaign monitoring through CTR and CPC together enable data-driven optimization of marketing performance.

3.11 Structural Approaches

Start-ups adopt:

- **Frameworks:** SOSTAC, RACE, AIDA.
- **Technologies:** Cloud-based CRMs, AI-driven dashboards.
- **Processes:** Iterative A/B testing, feedback loops (Maurya et al., 2024).

3.12 Effects on Performance

- **India:** Unicorns such as Byju's leveraged predictive analytics to scale user acquisition (Maran and Harikumar, 2024).
- **Japan:** Agritech start-ups improved sustainability outcomes with IoT + analytics (Suresh et al., 2024)
- **US:** Fintech start-ups achieved exponential growth through blockchain-enabled trust systems (Cai et al., 2025).

3.13 Barriers

- **Skills gap:** lack of data science talent.
- **Costs**: high software/AI adoption expenses.
- **Governance issues:** compliance with General Data Protection Regulation (GDPR) and Indian data laws.
- **Cultural resistance:** reliance on intuition over evidence (Ansari et al., 2025).

3.14 Case Study Analysis

The following cases illustrate the practical application of data-driven marketing strategies in the early stages of globally successful start-ups.

3.14.1 Airbnb: Data-Driven Platform Integration and UX Optimization

In its infancy, Airbnb faced a "chicken-and-egg" problem: it needed hosts to attract guests and guests to attract hosts. Their strategy became a hallmark of data-driven growth hacking.

- **The Craigslist Integration:** Airbnb identified through data analysis that their target audience was heavily active on Craigslist. They developed a technical integration that allowed hosts to "cross-post" their Airbnb listings to Craigslist with one click. This was not a random experiment; it was based on data tracking where their highest-converting traffic originated (Kumar et al., 2025).
- **Professional Photography Experiment:** In 2009, Airbnb's founders noticed a data trend: listings in New York with high-quality photos had two to three times the booking rate of those with amateur photos. They did not just suggest better photos; they data-tested the hypothesis by hiring professional photographers for a small sample. When the data confirmed a massive revenue spike, they scaled the program globally, proving that "visual data" is a key driver of trust and conversion (Fahad, 2020)

3.14.2 Dropbox: Viral Loops and the Referral Data Engine

Dropbox provides the quintessential case for viral marketing analytics. Unlike competitors who spent heavily on Search Engine Marketing (SEM)—where the CAC was often over $200 for a $99 product—Dropbox turned inward to their existing data (Chakraborti et al., 2022).

- **The Referral Pivot:** Data showed that users who were invited by a friend had a much higher retention rate than those who came through cold ads. They implemented a "double-sided" incentive: 500MB of free space for both the referrer and the referee.
- **Optimization via Analytics:** They used granular funnel analytics to identify where users dropped off during the referral process. By simplifying the "Invite Friends" interface based on user click-path data, Dropbox grew from 100,000 to 4,000,000 users in 15 months with nearly zero ad spend (Gupta and Raghuvanshi, 2024).

3.14.3 Netflix (Early Stage): Predictive Modeling for Retention

Netflix's early survival as a DVD-by-mail start-up relied on its Cinematch algorithm.

- **Inventory Management:** Netflix used data-driven marketing to push "long-tail" content. If a new blockbuster was out of stock, the algorithm would use predictive modeling to suggest a similar niche film to the user. This data-driven "demand shaping" ensured high customer satisfaction (Retention) while managing limited physical inventory (Efficiency) (Suchi, 2016).

3.15 Gaps in Literature

Few comparative studies analyzed adoption across sectors or regions. Longitudinal studies tracking start-up trajectories post-adoption are rare. Furthermore, ethical considerations such as algorithmic bias remain underexplored.

3.16 Research Gap

Existing literature primarily focuses on large enterprises, with limited empirical studies dedicated to start-ups. There is a lack of integrated frameworks that address the unique constraints of start-ups, particularly in emerging markets. Furthermore, few studies examined long-term sustainability outcomes of data-driven marketing in early-stage ventures.

4. Findings

The review reveals that data-driven marketing:

- Enhances marketing efficiency and ROI
- Improves customer understanding and personalization
- Supports faster and more accurate decision-making

4.1 Findings Based on Objectives

- Data-driven marketing emerges in start-ups as an operational strategy centered on customer analytics, performance measurement, and personalized digital campaigns, enabling precision marketing under resource constraints.
- The literature provides strong evidence that data-driven marketing significantly enhances start-up growth and competitiveness by improving customer acquisition efficiency, retention, and scalability.
- Despite its benefits, start-ups face persistent barriers in adopting data-driven marketing, particularly due to analytical skill shortages, fragmented data systems, and financial constraints.
- Existing studies reveal notable gaps in longitudinal analysis, emerging-market evidence, and ethical considerations, indicating substantial opportunities for future research on sustainable data-driven marketing in start-up ecosystems.

5. Suggestions

- Start-up firms should invest in foundational marketing analytics tools that are aligned with clearly defined business objectives to support evidence-based decision-making while minimizing technological complexity and cost.
- The development of data literacy and analytical capabilities among marketing teams should be prioritized, as skill shortages were identified as a major constraint on effective implementation of data-driven marketing strategies.
- Start-ups are encouraged to adopt scalable, cloud-based marketing technologies that enable incremental deployment and cost-efficient growth, thereby addressing budgetary and infrastructural limitations.
- Academic institutions and industry practitioners should collaborate to co-develop simplified and context-specific data-driven marketing frameworks tailored to start-up environments.
- Academia–industry collaboration can help bridge the gap between theoretical knowledge and practical application, supporting the sustainable adoption of analytics-driven marketing practices in start-ups.

6. Discussion

6.1 Key Patterns Identified

- Start-ups that integrate marketing analytics into decision-making exhibit higher survival rates, improved scalability, and stronger competitive positioning compared to intuition-driven firms.
- Data-driven marketing adoption enables start-ups to optimize customer acquisition, monitor campaign performance in real time, and allocate limited resources more efficiently.

- Regional differences are evident in adoption patterns:
  - Indian start-ups prioritize cost-efficiency and rapid experimentation due to resource constraints.
  - Japanese start-ups emphasize precision, reliability, and sustainability, often leveraging IoT and predictive analytics.
  - Start-ups in the United States and Europe focus on innovation, differentiation, and advanced data infrastructure.

Adoption of data-driven marketing is consistently associated with improved ROI, supported by the effective tracking of key performance indicators such as CAC, customer lifetime value (CLV), and engagement metrics.

6.2 Contradictions and Tensions

- Over-reliance on analytics may constrain creativity, particularly during early stages where founder intuition and experimentation remain critical.
- While data-driven personalization enhances customer engagement and experience, it simultaneously introduces risks related to data privacy, governance, and regulatory compliance.

6.3 Theoretical Integration

- Findings align with the Stimulus–Organism–Response (SOR) model, demonstrating how data-driven stimuli influence consumer cognition and behavioral responses.
- Traditional marketing frameworks such as AIDA remain relevant but are significantly enhanced through real-time data inputs and analytics-enabled feedback mechanisms.

6.4 Policy and Ecosystem Considerations

- Although initiatives such as India's Startup Mission promote digital adoption, many start-ups struggle to operationalize analytics due to skill shortages and infrastructural limitations.
- Incubators and accelerators play a critical role in improving analytics literacy and facilitating access to marketing technologies.

7. Implications

This research provides practical insights for entrepreneurs, marketers, and policymakers. It emphasizes the need for skill development, supportive digital infrastructure, and data-centric entrepreneurial education.

7.1 Academic

- Provides a consolidated review bridging start-ups, marketing, and data analytics.
- Calls for longitudinal studies to measure sustained impact of analytics adoption.
- Opens comparative research opportunities (India vs Japan vs US).

7.2 Managerial

- Start-up founders should integrate affordable cloud analytics early.
- Data-driven KPIs (CAC, CLV, CTR) must guide marketing decisions.
- Adopt lean analytics frameworks to avoid costly tools.

7.3 Policy

- Governments must subsidize analytics adoption for start-ups.
- Incubators and accelerators should include data literacy training.
- Policy must ensure ethical use of consumer data (e.g., General Data Protection Regulation (GDPR) compliance).

7.4 Societal

- Data-driven personalization enhances consumer satisfaction.
- Risks: privacy infringement and algorithmic bias.
- Calls for consumer education on how data is used.

8. Limitations of the Study

- The study relies exclusively on secondary data, limiting the ability to capture real-time implementation challenges and organizational dynamics.
- There is limited availability of start-up-specific empirical studies, particularly from emerging economies and non-technology sectors.

- The findings may not be fully generalizable across all industries, as data-driven marketing adoption and outcomes vary by sectoral context.
- Differences in methodological approaches across reviewed studies may affect the consistency and comparability of findings.
- Rapid technological advancements in analytics and AI may render some reviewed studies less applicable to current start-up environments.

9. Future Scope of the Study

Future research can extend the findings of this study in several meaningful directions.

- Empirical investigations using primary data from start-up firms would provide deeper insights into the real-world implementation of data-driven marketing strategies.
- Industry-specific studies are needed to examine how data-driven marketing outcomes vary across sectors, particularly in non-technology and service-oriented start-ups.
- Comparative research between start-ups and established firms could further clarify how organizational maturity, resource availability, and strategic orientation influence the adoption and impact of marketing analytics.
- Longitudinal studies tracking start-ups over time would be valuable in understanding how data-driven marketing capabilities evolve across different stages of the start-up life cycle.
- Future research may also explore ethical and governance dimensions, including data privacy, algorithmic bias, and consumer trust, within entrepreneurial marketing contexts.

10. Conclusion

This systematic literature review demonstrates that data-driven marketing has emerged as a transformative strategic capability for start-up companies, enabling them to address challenges related to resource scarcity, market uncertainty, and scalability. Evidence synthesized from 27 peer-reviewed studies indicates that start-ups adopting analytics-driven marketing practices achieve superior outcomes in customer acquisition, return on investment, and operational scalability compared to intuition-based approaches.

However, the review also highlights persistent barriers to effective adoption, particularly skill shortages, financial constraints, fragmented data infrastructures, and governance-related challenges. These findings underscore the importance of balanced strategic approaches that integrate data-driven insights with entrepreneurial intuition and contextual judgment.

Overall, data-driven marketing has become an indispensable component of a start-up's success in increasingly competitive and digitalized markets. By consolidating and critically analyzing existing literature, this study contributes to a clearer understanding of the strategic role of marketing analytics in start-ups and provides a robust foundation for future academic inquiry and practical application.

References

[1] Anoop Gurunathan., & Lakshmi, K.S. (2025). Understanding the relevance and significance of different digital marketing frameworks – A review. *European Economic Letters (EEL)*, *15*(2), 324–337. https://doi.org/10.52783/eel.v15i2.2849

[2] Ansari, H., Shukla, P., & Anees, M. (2025). AI-enabled circular economy strategies: Transforming start-up ecosystems for sustainable business and technological progress. *International Journal for Multidisciplinary Research*, *7*(4), 1 – 14.

[3] Baragde, D. B. (2024). Role of information technology for startups in India. In: *Ecosystem Dynamics and Strategies for Startups Scalability,* pp. 114-132. IGI Global Scientific Publishing.

[4] Beier, M. (2016). Startups' experimental development of digital marketing activities. A case of online-videos. In*A Case of Online-Videos (September 7, 2016). 14th Interdisciplinary European Conference on Entrepreneurship Research (IECER), Chur, Switzerland*.

[5] Cai, F., Bolisani, E., Kassaneh, T. C., Kirchner, K., & Moradi, B. (2025). How does AI-driven knowledge management enhance sustainability of startups? A conceptual framework. In:*Proceedings of the 25th European Conference on Knowledge Management, (2 vols)*. Academic Conferences and Publishing Limited.

[6] CB Insights. (2021). *The top 12 reasons startups fail*. https://www.cbinsights.com/research/report/startup-failure-reasons-top/

[7] Chakraborti, J., Dutta, A., & Jana, B. (2022). Digital marketing adoption among startups in India: A systematic review and bibliometric analysis. *Journal of Information and Optimization Sciences*, *43*(6), 1301-1309.

[8] Esha, Shabbir. (2025). *Data-driven marketing: Optimize your strategy for growth*. Usermaven. https://usermaven.com/blog/data-driven-marketing

[9] Fahad, Muhammad. (2020). *How to use predictive analytics in your marketing strategy?*. https://instapage.com/blog/what-is-predictive-analytics

[10] Franklin, Jovitha. (2019). *Allure strategies: Data-driven digital marketing strategies for your business. silicon India startup city*. https://startup.siliconindia.com/vendor/allure-strategies-datadriven-digital-marketing-strategies-for-your-business-cid-10477.html

[11] Gupta, P., & Raghuvanshi, A. (2024). A study on emerging trends in startups in India. *International Journal for Multidisciplinary Research*, *6*(2), 1-9.

[12] Jain, R. (2022). *Growth of AgriTech startups in India: Government initiatives, leading agritech startups, and more*. https://startuptalky.com/indian-agritech-startups-growth/

[13] Ketan, Pandit. (2018). *Why marketers should opt for a data and analytics driven marketing strategy*. https://www.expresscomputer.in/big-data-analytics/why-marketers-should-opt-for-a-data-and-analytics-driven-marketing-strategy/29153/

[14] Kumar, S. H., Mahalakshmi, S., Maney, S. K., & Kautish, S. (2025). Harnessing strategic analytics for start-up success: Innovations. *Strategy Analytics for Business Resilience Theories and Practices*, *33*, 129.

[15] Maran. K., & Harikumar Pallathadka. (2024). Unicorn startup predictive analysis with reference to India. *Int. J. Res. Manage., 6*(2), 300-304. DOI:10.33545/26648792.2024.v6.i2d.222.

[16] Maurya, S., Gulhane, M., Ranolia, D., Vimal, V., Tiwari, A., & Kumar, R. (2024). The integral significance of data science in startup ecosystems. In:*International Conference on Smart Computing and Communication,*pp. 65-75. Singapore: Springer Nature Singapore.

[17] Mikle, Lenka. (2020). Startups and reasons for their failure. *SHS Web of Conferences*, pp. 83. https://doi.org/10.1051/shsconf/20208301046

[18] Narayana, Murthy. (2020). *Infosys Co-founder NR Narayana Murthy on startups, entrepreneurship, and more*. *https://yourstory.com/2020/01/infosys-co-founder-nr-narayana-murthy-startups-koskii*

[19] Prashanthi, M. (2022). Startup India: Challenges and opportunities. *International Journal of Management and Commerce*, *4*(1), 81-83.

[20] Ruß, B. (2025).*Impact of data-driven insights in the fashion industry Predict market demand and customer preference.*https://doi.org/10.34726/hss.2025.134695

[21] Sergey, Filippov. (2014). *Data-driven business models: Powering startups in the digital age*. https://lisboncouncil.net/wp-content/uploads/2020/08/Sergey-Filippov.pdf

[22] Singhal, J., Rane, C., Wadalkar, Y., Joshi, M., & Deshpande, A. (2022). Data driven analysis for startup investments for venture capitalists. *International Conference for Advancement in Technology* (ICONAT), pp. 01-06.

[23] Snyder, Hannah. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research, Elsevier*, *104*(C), 333-339. https://doi.org/10.1016/j.jbusres.2019.07.039

[24] Suchi, Bansal. (2016). *Time for data-driven marketing decisions*. https://www.livemint.com/Opinion/kNeGAZoAaG4fHQaeii2TzI/Time-for-datadriven-marketing-decisions.html

[25] Surabhi, Singh., Mohammed, Naved. Khan., Naseem, Abidi. (2017). Use of data analytics for building marketing strategies of firms. *International Journal of Transformation in Operational & Marketing Management*, *1*(2), 1-3. https://doi.org/10.13140/RG.2.2.26569.80488

[26] Suresh, D., Choudhury, A., Zhang, Y., Zhao, Z., & Shaw, R. (2024). The role of data-driven agritech startups—The case of India and Japan. *Sustainability, 16*, 4504. https://doi.org/10.3390/su16114504

[27] Wedel, M., & Kannan, P.K. (2016). Marketing analytics for data-rich environments. *Journal of Marketing*, *80*, 97-121. https://doi.org/10.1509/jm.15.0413

[28] Wong, D. T., & Ngai, E. W. (2024). Data-driven innovation: A literature review, conceptual framework, and research agenda. *IEEE Transactions on Engineering Management*, *71*, 5815-5828. https://doi.org/10.1109/TEM.2024.3371094