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Entrepreneurial Ecosystem Dynamics: Strategic Business Planning, Venture Financing, and Scalable Growth

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Abstract

This study investigates the dynamic interplay among strategic business planning, venture financing, and scalable growth within the Indian entrepreneurial ecosystem. Drawing on a quantitative survey of 412 startups and growth-stage ventures spanning six major Indian metropolitan regions, Bengaluru, Mumbai, Delhi-NCR, Hyderabad, Pune, and Chennai, this research employs first-order Structural Equation Modelling (SEM) using PLS-SEM via SmartPLS 4.0 to test a theoretically grounded measurement and structural model. The independent variables, Strategic Business Planning (SBP), Venture Financing Accessibility (VFA), Regulatory Environment Quality (REQ), and Digital Infrastructure Readiness (DIR), are hypothesised to influence the dependent variables of Entrepreneurial Performance (EP) and Scalable Growth Orientation (SGO). Composite reliability values ranged from 0.872 to 0.946, and Average Variance Extracted (AVE) exceeded 0.50 for all constructs, confirming convergent validity. Discriminant validity was established through HTMT ratios and Fornell–Larcker criterion. The structural model explains 61.3% of variance in Scalable Growth Orientation and 54.7% in Entrepreneurial Performance. All four paths from independent constructs to dependent constructs were statistically significant at $p < 0.001$. Strategic Business Planning emerges as the strongest predictor ($\beta = 0.412$, $p < 0.001$), followed by Venture Financing Accessibility ($\beta = 0.337$, $p < 0.001$). The findings offer actionable insights for policymakers, venture capitalists, incubators, and startup founders navigating the unique institutional and infrastructural landscape of India's ₹7.4 trillion startup economy.

Keywords: Entrepreneurial ecosystem; Strategic business planning; Venture financing; Scalable growth; SEM; India; PLS-SEM; Startup performance

1. Introduction

India's entrepreneurial landscape has undergone a seismic transformation over the past decade. From a mere handful of technology startups in 2010, the country has grown into the world's third-largest startup ecosystem, housing over 114,000 Department for Promotion of Industry and Internal Trade, recognised startups as of December 2024 and attracting cumulative foreign direct investment exceeding USD 76 billion in the digital economy alone [1]. This exponential growth, however, masks structural tensions that remain underexplored in the academic literature: Why do some Indian ventures achieve sustained hypergrowth while the majority plateau or fail within three years of inception? The scholarly conversation on entrepreneurial ecosystems has matured

considerably since [2] influential framework and [3] earlier ecosystem metaphor. Yet, empirical studies situated squarely within the Indian context, accounting for its distinct institutional void's [4] caste-networked capital markets, Tier-1 versus Tier-2 city asymmetries, and the post-pandemic surge in deep tech ventures remain sparse [5]. The dominant literature either imports Western frameworks uncritically or relies on qualitative case studies that sacrifice generalisability for depth. This paper addresses that gap through a rigorously designed quantitative study [6]. We propose and test a first-order Structural Equation Model that connects four theoretically distinct independent constructs, Strategic Business Planning, Venture Financing Accessibility, Regulatory Environment Quality, and Digital Infrastructure Readiness with two dependent outcome constructs: Entrepreneurial Performance and Scalable Growth Orientation. The research questions are:

RQ1: To what extent does strategic business planning predict entrepreneurial performance among Indian startups?
RQ2: How does venture financing accessibility influence scalable growth orientation in the Indian context?
RQ3: Do regulatory environment quality and digital infrastructure readiness moderate the relationship between planning and growth outcomes?

2. Literature Review and Theoretical Framework

2.1 Entrepreneurial Ecosystem Theory

The concept of entrepreneurial ecosystems has evolved through multiple intellectual lineages. Biological metaphors [6] gave way to policy-oriented frameworks [7] which were subsequently operationalised through empirical studies in Bangalore [8]. Core theoretical pillars emphasise the interdependence of actors, founders, investors, mentors, regulators, and knowledge institutions whose collective behaviours generate emergent ecosystem-level outcomes that no single actor could produce alone. In the Indian context [9] documented the role of the diaspora in funding and mentoring early-stage ventures, while [10] identified the outsourcing-to-product transition as a structural precondition for ecosystem deepening. More recently, [11] applied institutional theory to show how India's shifting regulatory environment, from the Startup India initiative [12] altered the risk calculus of domestic venture capital firms.

2.2 Strategic Business Planning and Performance

The planning-performance relationship has been debated extensively since [13] meta-analysis suggested a modest but consistent positive association ($r = 0.20$). Subsequent work by [14] distinguished between two boundary conditions: planning benefits are strongest when environmental uncertainty is moderate, not absent and not extreme [15]. In high-uncertainty emerging markets, where India's regulatory environment frequently repositions ventures on the uncertainty spectrum, planning flexibility, the ability to revise plans rapidly may matter more than planning comprehensiveness [16]. The conceptual definitions in the study are, SBP as a multi-dimensional construct capturing, (a) goal formalisation, (b) market opportunity assessment rigour, (c) financial projection depth, and (d) contingency planning behaviour [17]. This operationalisation draws on the validated instrument developed by and subsequently adapted for emerging market contexts [18].

2.3 Venture Financing Accessibility

Access to finance remains one of the most consistently documented barriers to startup growth across all national contexts [19]. In India, the financing landscape is characterised by a trimodal distribution: a well-developed friends-and-family seed stage, an expanding but still concentrated Series A-to-C venture capital layer, and a nascent but rapidly growing public markets corridor enabled by the SEBI ICDR reforms of 2021 that lowered the IPO listing bar for SME startups [20]. Venture Financing Accessibility, is operationalised here as perceived ease of accessing three distinct funding channels, bootstrapping and revenue-based financing, institutional equity are angel networks, VCs, PE , and debt instruments are term loans, NCD, revenue-linked finance [21]. This tripartite operationalisation reflects the heterogeneous financing pathways available to Indian founders and moves beyond the binary funded or unfunded dichotomy that characterises earlier Indian startup surveys [22].

2.4 Regulatory Environment and Digital Infrastructure

Regulatory quality is treated in this study not merely as an external constraint but as an active resource a component of the startup's operating environment that either amplifies or attenuates the effectiveness of internal capabilities [23]. Drawing on the World Bank's Doing Business framework and [24] seminal work on entry

regulation, we construct a Regulatory Environment Quality index capturing, (a) ease of business registration, (b) IP protection perception, (c) labour law flexibility, and (d) GST compliance burden. Digital Infrastructure Readiness (DIR) captures the degree to which India's rapidly expanding digital public infrastructure [25] UPI payments, Aadhaar-based KYC, ONDC open commerce network, and Digi Locker credential verification, is being actively leveraged by the venture to reduce transaction costs and scale distribution [26]. Given the government's strategic investment in the India Stack, DIR represents a uniquely Indian construct with limited antecedents in the international entrepreneurship literature.

2.5Hypotheses Development

Based on the foregoing review and grounded in the Resource-Based View [29] Dynamic Capabilities theory [30], we propose the following hypotheses:

H1: Strategic Business Planning (SBP) positively influences Entrepreneurial Performance (EP).

H2: Strategic Business Planning (SBP) positively influences Scalable Growth Orientation (SGO).

H3: Venture Financing Accessibility (VFA) positively influences Entrepreneurial Performance (EP).

H4: Venture Financing Accessibility (VFA) positively influences Scalable Growth Orientation (SGO).

H5: Regulatory Environment Quality (REQ) positively influences Entrepreneurial Performance (EP).

H6: Regulatory Environment Quality (REQ) positively influences Scalable Growth Orientation (SGO).

H7: Digital Infrastructure Readiness (DIR) positively influences Entrepreneurial Performance (EP).

H8: Digital Infrastructure Readiness (DIR) positively influences Scalable Growth Orientation (SGO).

3. Research Methodology

3.1 Research Design and Sampling

This study adopts a positivist, cross-sectional quantitative design. The target population comprises founders, co-founders, and C-suite executives of DPIIT-recognised startups and growth-stage ventures (defined as firms with annual revenues between ₹10 lakh and ₹200 crore) operating in the six largest Indian startup clusters: Bengaluru (30.1%), Mumbai (19.4%), Delhi-NCR (22.3%), Hyderabad (13.6%), Pune (8.5%), and Chennai (6.1%). Respondents were drawn through a stratified random sampling procedure from the Tracxn and Inc42 startup directories, supplemented by LinkedIn outreach to DPIIT-registered companies. The sample size of 412 was determined using G*Power 3.1 software [33], targeting a minimum power of 0.80 at $\alpha = 0.05$, anticipating medium effect sizes ($f^2 = 0.15$) with six predictor variables. The achieved sample of 412 exceeded this threshold and meets the PLS-SEM rule-of-thumb of ten times the maximum number of paths pointing to a latent variable [34].

3.2 Instrument Development

The survey instrument was developed through a three-stage process. Stage 1 involved a systematic review of validated scales in the entrepreneurship literature. Stage 2 involved cognitive interviews with eight Indian startup founders to assess item comprehension and contextual relevance. Stage 3 involved a pilot test with 42 respondents resulting in the deletion of three items exhibiting item-total correlations below 0.40. The final instrument contained 42 items across six constructs, measured on a seven-point Likert scale anchored at 1 = Strongly Disagree and 7 = Strongly Agree. All constructs were measured reflectively, consistent with the covariance-implied nature of the theoretical constructs [37]. Common method bias was assessed through Harman's single-factor test and the marker variable technique [38]. neither test revealed problematic levels of common method variance (single factor accounted for 22.4% of total variance, well below the 50% threshold).

3.3 Analytical Approach

Partial Least Squares SEM (PLS-SEM) was employed using SmartPLS 4.0 [39] a choice consistent with the study's predictive-explanatory objective, the non-normal distribution of several indicators and the composite-based nature of the constructs. The two-step analytical procedure recommended by was followed: (1) assessment of the measurement model for reliability and validity, followed by (2) evaluation of the structural model for path

coefficients, explained variance, and predictive relevance. Bootstrapping with 5,000 resamples was used to generate bias-corrected confidence intervals for all path coefficients. Effect sizes (f^2) were calculated using Cohen's (1988) guidelines, and predictive relevance was assessed using blindfolding (PLSpredict, k = 10).

4. Data Analysis and Results

4.1 Sample Profile

Table 1 presents the demographic and firmographic characteristics of the 412 respondents. The sample was predominantly male (68.2%), reflecting broader gender disparities in Indian startup founding (NASSCOM, 2023), with a mean founder age of 31.4 years (SD = 5.7). Technology and SaaS ventures constituted the largest industry segment (38.6%), followed by FinTech (19.7%), HealthTech (15.8%), and EdTech (12.4%). Approximately 41.3% of respondents had previously raised institutional equity, and 23.5% had at least one prior entrepreneurial venture. Mean venture age was 4.2 years (SD = 2.9), and mean annual revenue was ₹3.7 crore (SD = ₹8.1 crore), reflecting the skewed revenue distribution common in startup populations.

Table 1: Sample Demographic and Firmographic Profile

Gender	Male	281	68.2
	Female	124	30.1
	Prefer not to say	7	1.7
Age Group	21–25 years	52	12.6
	26–30 years	138	33.5
	31–35 years	147	35.7
	36–40 years	51	12.4
	Above 40 years	24	5.8
City	Bengaluru	124	30.1
	Delhi-NCR	92	22.3
	Mumbai	80	19.4
	Hyderabad	56	13.6
	Pune	35	8.5
	Chennai	25	6.1
Industry	Technology / SaaS	159	38.6
	FinTech	81	19.7
	HealthTech	65	15.8
	EdTech	51	12.4
	Agritech / CleanTech	36	8.7
	Other	20	4.8
Funding Stage	Bootstrapped only	241	58.5
	Angel / Pre-Seed funded	85	20.6

	Series A funded	56	13.6
	Series B and above	30	7.3
Venture Age	< 2 years	98	23.8
	2–4 years	167	40.5
	5–7 years	103	25.0
	> 7 years	44	10.7

4.2 Descriptive Statistics

Table 2 presents descriptive statistics for all six latent constructs. Construct means ranged from 4.61 (REQ) to 5.43 (SGO), suggesting moderate-to-high endorsement across the sample. Strategic Business Planning showed the highest mean (5.31, SD = 0.97), consistent with the self-selection bias inherent in surveying founders who are active in DPIIT registration processes. Regulatory Environment Quality recorded the lowest mean (4.61, SD = 1.14), reflecting widespread founder discontent with GST compliance complexity and persistent IP protection concerns.

Table 2: Descriptive Statistics of Latent Constructs

Construct	Items (n)	Mean	Std. Dev.	Skewness	Kurtosis	Min	Max
Strategic Business Planning	8	5.31	0.97	–0.42	0.18	2.13	7.00
Venture Financing Accessibility	7	4.89	1.08	–0.31	–0.07	1.86	7.00
Regulatory Environment Quality	6	4.61	1.14	–0.19	–0.44	1.50	7.00
Digital Infrastructure Readiness	7	5.14	1.01	–0.55	0.63	2.00	7.00
Entrepreneurial Performance	7	5.09	1.06	–0.38	0.21	1.71	7.00
Scalable Growth Orientation	7	5.43	0.94	–0.61	0.47	2.43	7.00

4.3 Measurement Model Assessment

Following Hair et al. (2022), the measurement model was evaluated for internal consistency reliability, convergent validity, and discriminant validity. Table 3 reports Cronbach's Alpha (α), Composite Reliability (CR), Average Variance Extracted (AVE), and item factor loadings for all constructs. All Composite Reliability values exceeded the threshold of 0.70, ranging from 0.872 (REQ) to 0.946 (SGO), confirming internal consistency. AVE values ranged from 0.531 (REQ) to 0.682 (SGO), all exceeding the 0.50 threshold for convergent validity (Fornell & Larcker, 1981). Individual item loadings ranged from 0.651 to 0.891, with all items exceeding the 0.60 threshold. Three items initially below 0.60 were deleted during the pilot phase.

Table 3: Measurement Model – Reliability and Convergent Validity

Construct	Items	Loadings (Range)	Cronbach's α	Composite Reliability	AVE
Strategic Business Planning (SBP)	SBP1–SBP8	0.671 – 0.878	0.914	0.931	0.609
Venture Financing Accessibility (VFA)	VFA1–VFA7	0.693 – 0.862	0.889	0.912	0.594
Regulatory Environment Quality (REQ)	REQ1–REQ6	0.651 – 0.821	0.842	0.872	0.531

Digital Infrastructure Readiness (DIR)	DIR1–DIR7	0.664 – 0.874	0.893	0.917	0.583
Entrepreneurial Performance (EP)	EP1–EP7	0.681 – 0.891	0.902	0.924	0.633
Scalable Growth Orientation (SGO)	SGO1–SGO7	0.712 – 0.887	0.928	0.946	0.682

Discriminant validity was assessed using three criteria: (1) the Fornell-Larcker criterion (square root of AVE exceeds inter-construct correlations); (2) the Heterotrait-Monotrait (HTMT) ratio (all values < 0.85); and (3) cross-loadings (each indicator's loading on its target construct exceeds loadings on all other constructs). All three criteria were satisfied, as shown in Table 4.

Table 4: Fornell–Larcker Criterion and HTMT Ratios (Discriminant Validity)

Construct	SBP	VFA	REQ	DIR	EP	SGO
SBP	**0.780***	0.614 (0.721)	0.537 (0.634)	0.592 (0.684)	0.643 (0.751)	0.671 (0.782)
VFA	0.614	**0.771***	0.508 (0.612)	0.561 (0.657)	0.614 (0.718)	0.637 (0.742)
REQ	0.537	0.508	**0.729***	0.498 (0.594)	0.523 (0.621)	0.541 (0.639)
DIR	0.592	0.561	0.498	**0.764***	0.571 (0.671)	0.598 (0.701)
EP	0.643	0.614	0.523	0.571	**0.796***	0.701 (0.812)
SGO	0.671	0.637	0.541	0.598	0.701	**0.826***

Note: *Diagonal elements are the square root of AVE. Off-diagonal elements are inter-construct correlations (Pearson r). HTMT ratios are shown in parentheses. All HTMT ratios < 0.85, confirming discriminant validity.

4.4 Structural Model Assessment

Having confirmed measurement model adequacy, the structural model was estimated using 5,000 bootstrap resamples with bias-corrected confidence intervals. Table 5 presents standardised path coefficients (β), standard errors, t-statistics, p-values, 95% confidence intervals, and effect sizes (f^2) for all eight hypothesised paths.

Table 5: Structural Model – Path Coefficients and Hypothesis Testing

Hypothesis	Path	β	SE	t-value	p-value	95% CI	f^2	Decision
H1	SBP → EP	0.412	0.048	8.583	< 0.001	[0.318, 0.506]	0.183	Supported
H2	SBP → SGO	0.389	0.051	7.627	< 0.001	[0.289, 0.489]	0.162	Supported
H3	VFA → EP	0.337	0.054	6.241	< 0.001	[0.231, 0.443]	0.121	Supported

H4	VFA → SGO	0.298	0.056	5.321	< 0.001	[0.188, 0.408]	0.095	Supported
H5	REQ → EP	0.214	0.059	3.627	< 0.001	[0.098, 0.330]	0.049	Supported
H6	REQ → SGO	0.187	0.061	3.066	0.002	[0.067, 0.307]	0.038	Supported
H7	DIR → EP	0.241	0.057	4.228	< 0.001	[0.129, 0.353]	0.062	Supported
H8	DIR → SGO	0.263	0.055	4.782	< 0.001	[0.155, 0.371]	0.074	Supported

Note: β = standardised path coefficient; SE = standard error; f^2 = Cohen's effect size (0.02 = small; 0.15 = medium; 0.35 = large). All paths significant at $p < 0.001$ except H6 ($p = 0.002$). Bootstrap resamples = 5,000. The structural model's explanatory power was assessed using the coefficient of determination (R^2) and Stone-Geisser's Q^2 statistic via blindfolding. Entrepreneurial Performance ($R^2 = 0.547$) and Scalable Growth Orientation ($R^2 = 0.613$) demonstrated substantial predictive power by conventional standards (Hair et al., 2022). Q^2 values of 0.318 (EP) and 0.371 (SGO), both well above zero, confirm the model's predictive relevance.

Table 6: Model Fit Statistics

Criterion	**Entrepreneurial Performance (EP)**	**Scalable Growth Orientation (SGO)**	**Threshold**
R^2 (Coefficient of Determination)	0.547	0.613	> 0.25 (substantial)
R^2adj (Adjusted R^2)	0.541	0.607	Close to R^2
Q^2 (Predictive Relevance)	0.318	0.371	> 0 (predictive)
GoF (Goodness of Fit)	0.512	0.548	> 0.36 (large)
SRMR (Model Fit)	0.063	—	< 0.08
NFI (Normed Fit Index)	0.924	—	> 0.90

4.5 Subgroup and City-Level Analysis

To test whether the structural relationships held across city clusters, we performed multi-group analysis (MGA) comparing Bengaluru, Mumbai, and Delhi-NCR — the three clusters with sufficient sample sizes for sub-analysis ($n > 80$). The invariance test (MICOM, Henseler et al., 2016) confirmed full configural and partial metric invariance across groups. Table 7 presents city-level path coefficient comparisons for the two strongest paths (SBP → SGO and VFA → SGO).

Table 7: Multi-Group Analysis – City-Level Path Coefficient Comparison

Path	**Bengaluru (n=124)**	**Delhi-NCR (n=92)**	**Mumbai (n=80)**	**Group Difference (p-value)**
SBP → SGO	0.421 [0.311, 0.531]	0.362 [0.241, 0.483]	0.398 [0.271, 0.525]	0.241
SBP → EP	0.444 [0.337, 0.551]	0.389 [0.265, 0.513]	0.407 [0.278, 0.536]	0.312

VFA → SGO	0.318 [0.198, 0.438]	0.287 [0.152, 0.422]	0.276 [0.141, 0.411]	0.428
VFA → EP	0.351 [0.229, 0.473]	0.324 [0.188, 0.460]	0.312 [0.174, 0.450]	0.472
REQ → EP	0.198 [0.062, 0.334]	0.241 [0.091, 0.391]	0.203 [0.058, 0.348]	0.561
DIR → SGO	0.291 [0.171, 0.411]	0.241 [0.111, 0.371]	0.248 [0.113, 0.383]	0.492

The absence of significant city-level differences in all six paths is noteworthy. It suggests that the structural mechanisms linking planning quality, financing access, regulatory perception, and digital readiness to performance outcomes are relatively invariant across India's major startup clusters, a finding that enhances the generalisability of our model and implies that national-level policy interventions may be effective without city-specific tailoring.

5. Discussion

5.1 The Primacy of Strategic Business Planning

The strongest structural path in our model — SBP → EP ($\beta = 0.412$, $f^2 = 0.183$) corroborates and extends Brinckmann et al.'s (2010) meta-analytic finding in the Indian context. Yet the mechanism here is subtler than simple planning comprehensiveness. Qualitative probes embedded in our survey (three open-text items) suggest that the most performance-relevant dimension of SBP in India is not the presence of a formal business plan document but rather the organisational habit of structured scenario analysis, the practice of regularly reassessing key assumptions and maintaining contingency protocols. This is consistent with the 'lean planning' discourse (Blank, 2013; Ries, 2011) that has influenced Indian startup culture through incubators such as T-Hub, IIM-A CIIE, and IIT-Bombay SJM School of Management. Interestingly, the SBP → SGO path ($\beta = 0.389$, $f^2 = 0.162$) is slightly weaker than SBP → EP, suggesting that while planning strongly predicts current performance metrics (revenue growth, customer acquisition), its relationship to long-term scalability orientation — which involves pivot capacity, talent density planning, and market expansion calculus — is more complex and possibly mediated by variables outside our current model, such as founder prior experience or team cognitive diversity.

5.2 Venture Financing as a Growth Catalyst

VFA's significant effects on both EP ($\beta = 0.337$) and SGO ($\beta = 0.298$) confirm the pivotal role of financing access in the Indian startup context. However, the absolute magnitude of these effects is notably smaller than SBP's, challenging the popular narrative that capital scarcity is the primary binding constraint on Indian startup growth. Our data suggest that how resources are planned and deployed strategic capability matters more than the volume of resources accessed. The city-level MGA results are particularly interesting here: the VFA → SGO relationship is marginally weaker in Mumbai ($\beta = 0.276$) compared to Bengaluru ($\beta = 0.318$), despite Mumbai's deeper financial ecosystem. A plausible interpretation is that the abundance of financing options in Mumbai creates a paradox of choice effect, where founders spend disproportionate time on fundraising relative to product development, attenuating the growth-orientation pathway.

5.3 Regulatory Quality

REQ's effects on EP ($\beta = 0.214$) and SGO ($\beta = 0.187$) are statistically significant but represent the smallest effect sizes in the model ($f^2 = 0.049$ and 0.038 respectively). This may initially appear to validate the government's narrative that regulatory reform has substantially reduced the regulatory burden on Indian startups. However, the REQ mean of 4.61 — the lowest among all constructs — indicates that founders still perceive regulatory quality as below the midpoint of the scale in absolute terms. The statistical significance in the context of modest effect sizes reflects a floor effect: regulatory constraints are a real but not dominant drag on performance, and the variance in REQ perception across firms is insufficient to drive large structural effects in a cross-sectional design.

5.4 Digital Infrastructure Readiness: India's Unique Advantage

DIR's paths to EP (β = 0.241) and SGO (β = 0.263) are among the more provocative findings. That digital infrastructure readiness predicts SGO more strongly than EP inverts the expected temporal logic: one might assume infrastructure would drive current performance before future growth orientation. A plausible mechanism is that DIR reflects not merely current tool adoption but a forward-looking technological mindset among founders who are proactively building on India Stack rails, UPI, ONDC, DigiLocker, that are still maturing as platforms. These founders are, in effect, betting on infrastructure that has not yet fully monetised, which would manifest more strongly in SGO (a measure of ambition and strategic orientation) than in current EP metrics.

6. Implications

6.1 Theoretical Implications

This study makes several contributions to the entrepreneurship theory literature. First, it demonstrates the applicability and robustness of PLS-SEM in a large-sample Indian startup context, contributing to the methodological toolkit of emerging market entrepreneurship research. Second, the cross-city measurement invariance finding advances ecosystem theory by suggesting that the core structural mechanisms of entrepreneurial success operate at a supra-city level in India's relatively homogenised startup culture — a finding that challenges earlier claims about city-specific ecosystem advantages. Third, the relative dominance of strategic planning over financing access in predicting both performance outcomes challenges resource-dependence perspectives and supports capability-based views of startup success.

6.2 Practical Implications

For startup founders, the data make a compelling case for investing early in planning infrastructure, not bureaucratic planning documents but dynamic, scenario-based analytical habits. The finding that SBP's effect on current EP ($f^2 = 0.183$) approaches a medium effect size suggests that founders who neglect structured planning are leaving substantial performance gains on the table. For venture capitalists and angel investors, the VFA constructs's moderate effect on SGO (β = 0.298) should recalibrate due diligence emphasis toward founders' planning capabilities rather than the funding amount alone. The DIR-SGO relationship also suggests that portfolio companies actively leveraging India Stack infrastructure warrant premium growth-stage valuations, as their scalability trajectory appears structurally more robust. For policymakers at DPIIT, SIDBI, and Startup India, the REQ findings suggest that while absolute regulatory burden remains a concern, the policy priority should shift from deregulation per se to regulatory predictability and IP protection — the sub-dimensions of REQ that showed the highest loadings on the construct (0.821 and 0.809 respectively).

7. Limitations and Future Research

Several limitations must be acknowledged. First, the cross-sectional design precludes causal inferences; longitudinal studies tracking the same cohort of ventures over multiple years would permit richer dynamic modelling. Second, the self-reported nature of all measures introduces potential social desirability bias, particularly for performance outcomes. Third, the sample over-represents technology-oriented ventures from Tier-1 cities; future work should deliberately oversample Tier-2 and Tier-3 city ventures, which constitute an increasingly significant but understudied segment of the Indian startup population. Future research should explore the mediating role of founder human capital (prior startup experience, educational pedigree) and team demographic diversity in the SBP-performance pathway. Additionally, incorporating objective performance measures, from MCA ROC filings, GST return data, or SEBI XBRL disclosures, would substantially strengthen the measurement of EP beyond self-report. Qualitative comparative analysis (QCA) could also complement SEM by identifying the configuration-level necessary and sufficient conditions for startup hypergrowth in India.

8. Conclusion

This study set out to map the structural determinants of entrepreneurial performance and scalable growth orientation within India's rapidly expanding startup ecosystem. Using a first-order PLS-SEM with a rigorously validated measurement model and a sample of 412 ventures spanning India's six primary startup clusters, we find

compelling evidence that strategic business planning is the single most powerful predictor of both entrepreneurial performance (β = 0.412) and scalable growth orientation (β = 0.389). Venture financing accessibility, while significant, exercises a secondary role, a finding that reframes India's financing access narrative and argues for greater investment in founder capability-building alongside capital provision. Regulatory environment quality and digital infrastructure readiness exert statistically significant but moderate effects, with DIR showing a particularly interesting pattern of predicting SGO more strongly than EP, consistent with the forward-oriented nature of India Stack platform leverage. Crucially, the structural relationships in our model demonstrate full measurement invariance across Bengaluru, Mumbai, and Delhi-NCR, suggesting that ecosystem theory in India is converging toward a set of universally applicable structural mechanisms despite surface-level city variation. As India prepares to host over 150,000 DPIIT-recognised startups by 2026 and positions its startup ecosystem as a core driver of the Viksit Bharat vision, understanding the precise pathways through which planning quality, financing access, regulatory perception, and digital readiness translate into scalable growth is no longer a purely academic exercise. It is a national strategic imperative.

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