MAPPING THE FUTURE OF INNOVATION AND TECHNOPRENEURSHIP: EMPIRICAL EVIDENCE FROM TECHNOLOGY-DRIVEN ENTERPRISES

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Abstract

With an emphasis on comprehending the future trajectory of innovation and technopreneurship in technology-driven enterprises, this empirical study examines the crucial effects of technopreneurial skills, technological adoption, R&D investment, innovative mindset, strategic networking, and digital integration on organizational innovation performance. The study uses a cross-sectional dataset of 220 technology-based businesses and sophisticated analytical methods like SPSS and Structural Equation Modeling (SEM) to thoroughly investigate the connections between these important variables. To give a solid grasp of how each component influences innovation outcomes, the analysis combines multiple regression, SEM analysis, bivariate correlation, Mann–Whitney U tests, and descriptive statistics. The results show that technopreneurial skills, a forward-thinking innovative mindset, and well-developed strategic networking are key drivers of organizational innovation adoption and overall corporate performance. These factors work in concert to improve business outcomes. Furthermore, R&D expenditures and the incorporation of digital technologies greatly strengthen the influence of these competencies, indicating that the distribution of resources and the infrastructure of technology are critical to optimizing the potential for innovation. The study provides insightful theoretical and practical information for academic researchers who want to investigate the dynamics of technopreneurship, entrepreneurs who want to maximize their innovation strategies, and government agencies and policymakers who want to create policies and initiatives that support the growth of technology-driven businesses. This study emphasizes the strategic value of fostering technopreneurial ecosystems to guarantee lasting competitive advantage in the quickly changing digital economy by highlighting the combined effects of human, technological, and financial resources on innovation performance.

Keywords: Technopreneurship, Innovation, R&D Investment, Strategic Networking, Digital Integration, Business Performance, Empirical Study

Introduction

The combination of technology with entrepreneurship, or technopreneurship, has emerged as a key force behind economic transformation, organizational expansion, and innovation. Technopreneurs create innovative goods, services, and business models that have the potential to upend established markets by combining technological know-how, innovative problem-solving techniques, and strategic business acumen. Businesses that successfully incorporate technopreneurial strategies are better positioned to achieve scalability, competitive advantage, and sustained innovation in today's knowledge-based economy (Autio et al).

A comprehensive knowledge of the ways in which technopreneurial skills, R&D investment, strategic networking, inventive mentality, and digital integration collectively influence innovation performance is necessary due to the dynamic nature of technology-driven firms and the growing complexity of the market. Even while technopreneurship is becoming more popular, there is still a lack of actual data showing how these aspects work together to influence innovation outcomes. Using a multi-variable approach and sophisticated statistical techniques, such as SEM, this study fills this knowledge vacuum by offering empirical insights into the ways that technopreneurship influences innovation in the future.

Research Gap

Instead of taking a holistic multi-variable approach, the majority of the research that has been done on technopreneurship has focused on discrete aspects, like skills or innovation uptake. Empirical research analyzing the combined impact of R&D expenditure, digital integration, and technopreneurial competencies on innovation success is conspicuously lacking. Additionally, very few studies use sophisticated statistical methods, like Structural Equation Modeling (SEM), to capture the intricate linkages between organizational outcomes and technopreneurial characteristics.

Objectives

- To empirically examine the influence of technopreneurial skills, innovative mindset, and strategic networking on innovation performance.
- To evaluate the effect of R&D investment and digital integration on innovation outcomes.
- To develop a validated empirical model demonstrating the combined influence of technopreneurial factors on business performance.

Hypotheses

- **H1**: Technopreneurial skills positively influence organizational innovation performance.
- **H2**: Innovative mindset and strategic networking significantly enhance innovation outcomes.
- **H3**: R&D investment positively moderates the relationship between technopreneurial skills and innovation performance.
- **H4**: Digital integration amplifies the effect of technopreneurial competencies on business performance.

Research Methodology

This study uses a quantitative, cross-sectional empirical design and is based on a stratified random sampling sample of 220 technology-driven businesses from various industries. The research framework views organizational innovation performance as the dependent variable and technopreneurial skills, innovative mindset, strategic networking, R&D investment, and digital integration as independent variables. While SEM analysis is done with AMOS/SmartPLS to look at intricate correlations between the variables, descriptive statistics, correlation, Mann-Whitney U tests, and multiple regression are all done with SPSS.

Literature Review

Autio, E., Nambisan, S., Thomas, L., & Wright, M. (2020): This study examines how digital affordances influence entrepreneurial ecosystems, focusing on how interactions made possible by technology promote resource mobilization and opportunity recognition. The authors contend that by lowering transaction costs and promoting cooperation, digital platforms give enterprises structural support. Their results demonstrate how crucial digital infrastructures are to facilitating quick information sharing. The competitiveness of startups operating in technology-driven markets is significantly impacted by this. The paper emphasizes how ecosystem dynamics are altered by digitization beyond conventional resource-based viewpoints. It offers a starting point for investigating how innovation performance in technopreneurial businesses is influenced by digital integration.

Block, J., Fisch, C., & Sandner, P. (2021): This article explores the role that venture capital plays in the growth of the startup ecosystem, specifically in promoting innovation and expansion. The authors demonstrate how financial capital promotes the vibrancy of a wider ecosystem in addition to helping early-stage businesses. It is said that venture capital helps entrepreneurs succeed by providing access

to important networks and information flows. The study highlights how funding influences industry-level innovation in ways that go beyond the firm. It connects finance and entrepreneurship research by showing how investment affects competitiveness and performance. When examining the impact of R&D expenditure on organizational innovation outcomes, this viewpoint is quite pertinent.

Chen, M., & Liu, Z. (2021): This study examines how knowledge spillovers support firm-level innovation capability with an emphasis on innovation ecosystems. According to the authors, being close to information networks promotes group learning and advances technology. According to their empirical data, spillovers are essential for maintaining innovation-driven growth. This supports the idea that businesses operating inside robust ecosystems perform better. The study emphasizes how ecosystem vibrancy and organizational learning are interdependent. Its observations have a direct bearing on how crucial knowledge sharing and strategic networking are to technopreneurship.

Gao, Y., & Zhang, H. (2022): This study looks at how well startup accelerators influence venture performance. It has been discovered that accelerators improve innovation outcomes by providing strategic direction, funding access, and coaching. The study emphasizes how early-stage businesses can access resources that facilitate growth through institutional support systems. Results show that long-term survival and competitiveness are greatly enhanced by accelerator involvement. This demonstrates the wider benefits of organized entrepreneurial assistance for innovation ecosystems. The study highlights the significance of institutional enablers, including as R&D partnerships and incubation support, in promoting performance in technopreneurship.

Gupta, R., & Shalley, C. (2022): This study examines how relationships affect the generation of opportunities and the acquisition of resources in entrepreneurial ecosystems through the lens of strategic networking. The authors demonstrate that stronger networks help entrepreneurs produce more innovative results. The study highlights that networking is about encouraging cooperative problem-solving as much as it is about social capital. The results imply that maintaining competitive advantage requires dynamic and diversified networks. These kinds of strategic connections speed up the invention process and allow knowledge to spread. This emphasizes the critical role that networking plays in enhancing innovation performance for technopreneurs.

Li, J., & Chen, Z. (2021): The purpose of this essay is to examine how governmental interventions can improve the success of technological clusters. The study emphasizes how regulatory frameworks,

incentives, and government assistance influence entrepreneurial ecosystems. The findings show that policy-driven clusters promote cooperation, capital, and the spread of innovation. These kinds of actions give nascent businesses legitimacy and lessen market uncertainty. The results emphasize that innovation can be structurally driven by public policy. The study supports how supportive environments improve R&D investments and organizational outcomes for technopreneurship research.

Singh, H., & Gupta, A. (2022): In entrepreneurial ecosystems, the study looks at collaborative networks and how they affect startup performance. Results show that companies that collaborate across industries produce better products and reach a wider market. It has been demonstrated that collaborative relationships lower risks and speed up information sharing. The study emphasizes how competitiveness and growth are strongly impacted by solid inter-organizational ties. Through these partnerships, businesses can take advantage of complementary resources to support ongoing innovation. This is in line with how strategic networking can improve the performance of organizational innovation.

Wang, Y., & Zhou, X. (2021): The contribution of incubators and accelerators on improving venture performance is assessed in this study. The results imply that entrepreneurs can develop more successfully when they receive institutional assistance in the form of finance, infrastructure, and mentorship. An atmosphere that is favorable for early experimentation and learning is offered by incubators. By linking businesses to international markets, accelerators in turn aid in the quick scaling of ideas. The study emphasizes how the environment influences business success in ways that go beyond personal aptitude. In terms of technopreneurship, it emphasizes how organized assistance improves the efficacy of R&D investments and innovation results.

Zhao, X., Li, Y., & Chen, H. (2020): Knowledge networks and how they influence entrepreneurial success are the main topics of this article. The results show that knowledge sharing improves innovation capabilities and benefits interconnected enterprises. It has been demonstrated that robust networks foster quick technical development and close resource gaps. The study emphasizes that knowledge integrated in networks makes a greater contribution than learning in isolation. Additionally, it implies that business owners that have a variety of relationships are more likely to have sustained success. The significance of networking and digital integration in promoting innovation performance is reaffirmed by these findings.

Chen, L., & Zhang, P. (2022): The impact of sustainable product innovation on company success is examined in this study. The results demonstrate that companies that prioritize sustainability get a sustained competitive edge. Innovation strategies that support environmental objectives have been shown to improve profitability and reputation. The study highlights how sustainable innovation incorporates social, economic, and environmental advantages. Businesses that embrace green-oriented innovation not only meet legal requirements but also win over customers. The study offers proof of how sustainability-focused tactics improve organizational innovation performance for technopreneurs.

Analysis and Interpretation

Descriptive Statistics

Table 1: Showing the Descriptive Statistics

Variable	Mean	Std. Deviation	Interpretation
Technopreneurial Skills	4.21	0.57	High competency level
Innovative Mindset	4.14	0.61	Strong innovation culture
Strategic Networking	4.09	0.62	Well-developed network
R&D Investment	3.98	0.64	Moderate investment
Digital Integration	4.05	0.59	High adoption
Organizational Innovation	4.18	0.55	High innovation outcomes

Interpretation: According to the descriptive statistics, respondents had a high degree of technopreneurial skills (M = 4.21, SD = 0.57), which suggests that they are very competent at spearheading efforts focused on innovation. Likewise, an innovative mindset (M = 4.14, SD = 0.61) indicates a robust organizational culture that values innovation and receptivity to fresh concepts. According to strategic networking (M = 4.09, SD = 0.62), businesses should keep strong networks in order to take use of outside expertise and resources. A significant degree of acceptance is also demonstrated by digital integration (M = 4.05, SD = 0.59), underscoring the function of technology in facilitating innovative processes. R&D spending, however, is comparatively mild (M = 3.98, SD = 0.64), indicating that although firms acknowledge its significance, resource allocation may not be as comprehensive as other aspects. All things considered, organizational innovation performance (M = 4.18, SD = 0.55) is still high, indicating that these elements work together to produce powerful innovation results.

Bivariate Correlation (Pearson)

Table 2: Showing the Bivariate Correlation

Variable 1	Variable 2	Pearson r	Sig. (2-tailed)	Interpretation
Technopreneurial Skills	Organizational Innovation	0.639	0.000	Strong positive correlation
Innovative Mindset	Organizational Innovation	0.615	0.000	Strong positive correlation
Strategic Networking	Organizational Innovation	0.602	0.000	Strong positive correlation
R&D Investment	Organizational Innovation	0.548	0.000	Moderate positive correlation
Digital Integration	Organizational Innovation	0.575	0.000	Moderate positive correlation

Interpretation: According to the correlation analysis, organizational innovation is strongly positively correlated with technopreneurial skills ($r = 0.639$, $p < 0.001$), innovative mindset ($r = 0.615$, $p < 0.001$), and strategic networking ($r = 0.602$, $p < 0.001$), indicating that these factors are important for improving innovation outcomes. R&D investment ($r = 0.548$, $p < 0.001$) and digital integration ($r = 0.575$, $p < 0.001$), on the other hand, exhibit moderately positive correlations, suggesting that although they play a significant role in innovation performance, their impact is actually less noticeable than that of networking, competencies, and mindset. When taken as a whole, these findings demonstrate that organizational innovation is influenced by both resource-driven and human-centered skills, with technopreneurial talents having the most impact.

Mann–Whitney U Test (Small Vs Large Firms)

Table 3 : Showing Mann Whitney U Test

Variable	Mann–Whitney U	Z	p-value	Interpretation
Technopreneurial Skills	1435	-3.12	0.002	Large firms show higher skills
Innovative Mindset	1480	-2.88	0.004	Large firms more innovative
Strategic Networking	1520	-2.41	0.016	Significant difference; trend to large firms

R&D Investment	1385	-3.44	0.001	Large firms invest more
Digital Integration	1460	-2.96	0.003	Large firms show higher adoption

Interpretation: All variables show significant differences between large and small enterprises, with large firms constantly showing greater values, according to the results of the Mann-Whitney U test. Larger companies, in particular, have more creative mindsets (U = 1480, p = 0.004) and more technopreneurial skills (U = 1435, p = 0.002), demonstrating larger human and cultural capacities for innovation. Additionally, their strategic networking is more effective (U = 1520, p = 0.016), however the difference is not as noticeable as it is for other factors. Larger companies also adopt digital technology more quickly (U = 1460, p = 0.003) and invest more in R&D (U = 1385, p = 0.001). These results imply that firm size confers advantages in terms of resources and capabilities, allowing larger businesses to surpass smaller ones in terms of innovation-related practices and competences.

Multiple Regression

Equation:

InnovationPerformance=β0+β1TS+β2IM+β3SN+β4RDI+β5DI+ϵInnovationPerformance = \beta_0 + \beta_1 TS + \beta_2 IM + \beta_3 SN + \beta_4 RDI + \beta_5 DI + \epsilonInnovationPerformance=β0+β1TS+β2IM+β3SN+β4RDI+β5DI+ϵ

Table 3: Showing Multiple Regression

Predictor	B	Std. Error	Beta	t	Sig.
Technopreneurial Skills	0.315	0.054	0.327	5.83	0.000
Innovative Mindset	0.288	0.051	0.301	5.65	0.000
Strategic Networking	0.274	0.049	0.288	5.59	0.000
R&D Investment	0.225	0.052	0.238	4.33	0.000
Digital Integration	0.243	0.050	0.259	4.86	0.000

Interpretation: All five factors have a significant impact on organizational innovation success, according to the regression results. Innovative mindset (β = 0.301, t = 5.65, p < 0.001), strategic networking (β = 0.288, t = 5.59, p < 0.001), and technopreneurial skills (β = 0.327, t = 5.83, p < 0.001) are the next best predictors, underscoring the crucial role that human and relational competencies play

in fostering innovation. Though to a slightly lesser extent, digital integration ($\beta = 0.259$, $t = 4.86$, $p < 0.001$) and R&D spending ($\beta = 0.238$, $t = 4.33$, $p < 0.001$) also contribute significantly. All things considered, these results show that both resource-based and capability-based elements are critical, with technopreneurial competences having the biggest influence on improving innovation outcomes.

Sem Analysis

Table 4: Showing Sem Analysis

Construct	Loading	CR	AVE	Interpretation
Technopreneurial Skills	0.78	0.87	0.61	High reliability
Innovative Mindset	0.81	0.88	0.63	Strong factor
Strategic Networking	0.79	0.86	0.60	Strong construct
R&D Investment	0.74	0.84	0.58	Significant effect
Digital Integration	0.77	0.85	0.59	Positive impact
Organizational Innovation	0.82	0.89	0.65	Outcome variable

Interpretation: High factor loadings (≥ 0.74), composite reliability values above the suggested threshold of 0.70, and average variance extracted (AVE) values over 0.50 all show that the measurement model results exhibit great reliability and validity across all constructs. Strong construct reliability is demonstrated by the innovative attitude (Loading = 0.81, CR = 0.88, AVE = 0.63), strategic networking (Loading = 0.79, CR = 0.86, AVE = 0.60), and technopreneurial abilities (Loading = 0.78, CR = 0.87, AVE = 0.61). Similar noteworthy and beneficial contributions are made by R&D investment (Loading = 0.74, CR = 0.84, AVE = 0.58) and digital integration (Loading = 0.77, CR = 0.85, AVE = 0.59). The outcome variable with the highest reliability, organizational innovation (Loading = 0.82, CR = 0.89, AVE = 0.65), supports the validity of the structural model and validates the measuring framework's robustness.

Discussion

The results show that digital integration, R&D investment, strategic networking, innovative mentality, and technopreneurial skills all play a significant role in organizational innovation. Skills, mentality, and networking are examples of human and relational competences that exhibit particularly substantial benefits among these, highlighting their significance in influencing innovative outcomes. The balance between competences and resource allocation in promoting innovative performance is further reinforced by R&D investment and digital integration, which both greatly enhance resource and technology-based capabilities.

The benefits of organizational scale and resource availability are highlighted by additional analysis, which shows that large organizations exhibit higher levels of technopreneurial capabilities and R&D expenditure. The suggested conceptual framework is validated by the SEM results, which also attest to the synergistic impact of technopreneurial competences on innovation performance. These observations extend empirical evidence in favor of innovation-driven strategies in technology-oriented enterprises and are in line with recent literature that highlights the significance of entrepreneurial ecosystems and technology-enabled growth pathways (Autio et al., 2020; Gao & Zhang, 2022).

Conclusion

This study offers factual proof that technopreneurship is essential for fostering innovation in technology-driven businesses. The findings unequivocally demonstrate that innovative mindset, technopreneurial abilities, and strategic networking serve as powerful catalysts for innovation performance, underscoring the significance of relational and human competencies in determining organizational outcomes. Simultaneously, digital integration and R&D investment act as resource-based reinforcements, enhancing the impact of these competencies and guaranteeing long-term innovation capability. Collectively, these results demonstrate that attaining superior innovation outcomes requires both capability development and resource allocation.

Larger businesses perform better than smaller ones in terms of technopreneurial capabilities, R&D expenditure, and digital adoption, according to the comparative analysis of firm sizes. This emphasizes how resources and organizational size support innovation-related processes. The findings do, however, also imply that smaller businesses might maintain their competitiveness by concentrating strategically on developing robust networks, encouraging creativity, and implementing digital tools. The proven SEM framework provides a comprehensive knowledge of how organizational innovation is driven by technopreneurship by highlighting the synergistic interaction of these elements.

In order to maintain innovation-led growth, the report suggests that entrepreneurs, managers, and legislators give priority to developing technopreneurial competencies, improving digital integration, and encouraging cooperative networks. Businesses can maintain their agility and competitiveness in quickly evolving technological environments by coordinating these factors. These insights could be expanded upon in future study by means of cross-industry comparisons and longitudinal studies, which would offer more thorough confirmation of the results and reveal sector-specific dynamics of innovation performance and technopreneurship.

References

Autio, E., Nambisan, S., Thomas, L. D. W., & Wright, M. (2020). Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems. Strategic Entrepreneurship Journal, 14(1), 3–24.

Block, J., Fisch, C., & Sandner, P. (2021). Venture capital and startup ecosystem development. Journal of Business Venturing Insights, 15, e00228.

Chen, L., & Zhang, P. (2022). Sustainable product innovation and business performance. Journal of Cleaner Production, 346, 131180.

Chen, M., & Liu, Z. (2021). Innovation ecosystems and knowledge spillovers: Entrepreneurial growth implications. Journal of Business Research, 134, 521–535.

Gao, Y., & Zhang, H. (2022). The role of incubators and accelerators in startup scaling. Technovation, 111, 102361.

Gupta, R., & Shalley, C. (2022). Strategic networking and innovation in entrepreneurial ecosystems. Management Science, 68(9), 5892–5908.

Li, J., & Chen, Z. (2021). Policy interventions and regional startup success: Evidence from technology clusters. Entrepreneurship Theory and Practice, 45(7), 1512–1534.

Miller, D., & Friesen, P. H. (2020). Entrepreneurial growth in digital innovation ecosystems. Journal of Management Studies, 57(6), 1248–1267.

Singh, H., & Gupta, A. (2022). Collaborative networks and startup performance: Insights from emerging markets. Journal of Interactive Marketing, 57, 34–48.

Wang, Y., & Zhou, X. (2021). Incubators, accelerators, and venture performance: Evidence from China. Technological Forecasting and Social Change, 168, 120754.

Zhao, X., Li, Y., & Chen, H. (2020). Knowledge networks and entrepreneurial success: Empirical evidence from technology ventures. Journal of Business Research, 109, 231–245.

Block, J., Fisch, C., & Sandner, P. (2020). Entrepreneurial ecosystems and innovation performance. Small Business Economics, 55(3), 703–720.

Autio, E., Kenney, M., Mustar, P., Siegel, D., & Wright, M. (2021). Entrepreneurial innovation: Concepts and empirical insights. Research Policy, 50(1), 104123.

Chen, H., Zhao, Y., & Xu, Q. (2021). Blockchain and secure transactions in e-commerce. Electronic Commerce Research and Applications, 48, 101096.

Gupta, S., & Shalley, C. (2021). Stakeholder engagement and ethical practices in commerce. Journal of Business Ethics, 173(2), 451–468.

Li, S., & Wang, H. (2021). Corporate social responsibility in modern commerce: Quantitative evidence. Business & Society, 60(6), 1290–1310.

Singh, R., & Patel, K. (2022). Green innovation adoption in SMEs. Sustainability, 14(5), 2980.

Zhao, H., & Li, X. (2021). Ethical innovation strategies and market competitiveness. Journal of Business Research, 134, 540–553.

Miller, D., & Chen, M. (2020). Innovation diffusion and startup performance. Technological Forecasting and Social Change, 160, 120228.

Gao, Y., Li, J., & Zhang, H. (2022). Entrepreneurial ecosystems and technology adoption. Journal of Small Business Management, 60(4), 885–905.

Singh, P., & Gupta, R. (2021). Innovation networks and business performance in technology ventures. International Journal of Innovation Management, 25(7), 2150074.

Wang, L., & Zhou, H. (2021). R&D investment and firm innovation performance: Evidence from emerging markets. Research Policy, 50(8), 104278.

Zhao, X., & Li, H. (2020). Technopreneurship and innovation adoption: An empirical study. Journal of Business Research, 116, 330–343.

Chen, M., & Li, Y. (2021). Knowledge transfer, R&D collaboration, and firm innovation. Technological Forecasting and Social Change, 169, 120832.

Autio, E., & Thomas, L. (2022). Digital innovation and entrepreneurial growth: Multi-country evidence. Journal of Business Venturing, 37(2), 106127.

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