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Unveiling the Dynamics: VC Funding Trends across Software Sectors in Karnataka

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Purpose: This study seeks to analyze VC investment distribution across software sectors in Karnataka. By evaluating investment patterns, main objective is to determine which domains, such as SaaS, fintech, AI and enterprise solutions, receive the highest levels of venture capital interest. This analysis will elucidate sector-specific growth trajectories, highlight emerging interests and assess VCs' strategic focuses. This goal will illuminate how VCs prioritize specific economic factors like profitability, market expansion and technology differentiation in capital allocation. Grasping these elements will yield crucial insights for software startups pursuing funding, allowing them to better align their approaches with VC investment expectations and strengthen Karnataka's investment ecosystem.
Design/ Methodology:The study combines quantitative analysis of venture capital investment data across industries with qualitative insights from interviews and case studies, utilising a mixed-methods approach. Qualitative data reveals patterns and economic aspects impacting venture capital selections, but Quantitative results provide a more profound knowledge of venture capitalists' funding among software entities.
Findings: Findings from this study can underscore Karnataka's software industry strengths and reveal investment prospects across various tech fields, aiding the state's overall tech ecosystem development. The study will also investigate the economic criteria influencing VCs' funding choices for Karnataka's software companies. By examining economic drivers such as growth projections, market demand, revenue potential and scalability, the researcher aim to clarify the rationale behind VC selection processes.
Limitations: This research is constrained by its dependence on the accessible venture capital (VC) funding data, which may fail to encompass the entirety of investments and by the possible biases inherent in qualitative responses, thereby

affecting the generalizability of the results across various sectors.
Originality Value: The distinctiveness of the present research endeavor is fundamentally anchored in its comprehensive and methodologically diverse exploration of the prevailing trends associated with venture capital investment, with a pronounced focus on the economic factors that play a pivotal role in shaping funding decisions specifically within the software industry. By amalgamating a range of quantitative indicators alongside qualitative evaluations, this scholarly investigation provides an intricate and nuanced understanding of the various criteria that venture capitalists utilize in their selection processes, as well as the distinctive strategies that are characteristic of this particular sector, thus significantly enhancing the existing corpus of academic literature surrounding the domain of venture capital. As such, the findings derived from this research not only contribute to a deeper theoretical understanding of venture capital dynamics but also offer practical insights that may inform future investment strategies and decision-making processes within the rapidly evolving landscape of technology-driven enterprises.
Keywords: Venture Capital Investments, Venture Capitalists, Software Sectors, Economic Factors, Growth Potentials and Financial Returns.

1. Introduction

Over the past decade, the domain of venture capital (VC) has emerged as an exceptionally significant catalyst for the advancement of the software industry, fostering ground breaking innovations across a multitude of sectors, particularly in artificial intelligence (AI), financial technology (fin-tech), health technology (health-tech), cyber-security and software as a service (SaaS). By supplying essential financial support to emerging startups and enterprises in their growth phases (Dr. Saloni Pahuja, 2017), venture capitalists have markedly accelerated the evolution of technology-driven solutions that have fundamentally transformed business operations and consumer behavior on a global scale (Sinha, 2017). As the integration of software progressively infiltrates every aspect of the economy, the venture capital landscape has experienced notable transformations, with investors adopting strategic methodologies that are meticulously customized to address the distinct demands and characteristics of specific industries within the software sector (Bjørgum & Sørheim, 2015). A comprehensive understanding of the prevailing trends and objectives associated with VC investments in the software industry is of utmost significance for a diverse array of stakeholders, which includes entrepreneurs, investors and policymakers alike (Nigam et al., 2021). This scholarly inquiry aims to rigorously analyze the intricate interplay of venture capital funding, with a focus on industry-specific trends and the myriad economic variables that fundamentally affect the decision-making frameworks of venture capitalists. In particular, this study investigates the manner in which venture capitalists prioritize essential elements such as growth potential, innovation and projected returns on investment, while concurrently assessing how these priorities profoundly influence the distribution of funding across various segments of the software industry. Also, by performing a detailed breakdown of the significant economic factors that inform the decision-making of venture capitalists, this paper highlights how current market scenarios, legal structures and technological growths together mold the

extensive investment plans used by venture capitalists. Utilizing a mixed-method approach that integratively combines quantitative data analysis with qualitative insights facilitates an extensive and nuanced exploration of the motivations and behavioral patterns that underpin venture capital investments within the software domain. This study aspires to furnish an in-depth comprehension of the dynamics of venture capital funding in the software sector, providing valuable insights for stakeholders endeavoring to navigate or influence this multifaceted and rapidly evolving landscape.

1.1. General trends and consequences

a. Karnataka's Prominent Role:

Over the years, Karnataka has persistently garnered a substantial share of venture capital funding in the software sector, particularly during the years 2021 and 2022, when it secured the preponderance of venture capital investments pertaining to software in India. This phenomenon can be attributed to Karnataka's robust technological infrastructure, favorable governmental policies and a well-established talent pool, rendering it the premier destination for investors seeking substantial growth and scalability within the software domain.

b. Emerging Investment Patterns:

While Karnataka remains of significant relevance, the changes in investment dynamics identified in 2023 imply that several other Indian states and regions are rising as substantial competitors for technological growth. This phenomenon may result in a more equitable allocation of technological expertise and financial resources throughout the nation, thereby enhancing the comprehensive technological ecosystem of India.

c. Macroeconomic Influence:

Factors such as prevailing global digitization trends, supportive governmental policies (e.g., "Digital India") and the economic resurgence post-COVID-19 have significantly impacted the escalation of funding. India’s emergence as a preeminent player in software and digital services has rendered it particularly appealing to international venture capitalists, thereby amplifying funding levels. The ascendance of Karnataka as a prominent destination for software venture capital funding exemplifies India's technological growth narrative, with Bengaluru serving as its nucleus. The data underscores the state's pivotal role; however, recent developments indicate a burgeoning potential for growth across additional Indian states, thereby diversifying and fortifying India's overarching technology sector. This trajectory is anticipated to persist as India consolidates its status as a global technology hub, engendering novel opportunities across its various regions.

2. REVIEW OF LITERATURE

2.1. Venture Capital Investment

Venture Capital (VC) Investment constitutes a fundamental and critical mechanism of financing meticulously designed for emergent enterprises distinguished by substantial growth potential (Meena et al., 2018)(Bjørgum & Sørheim, 2015), particularly within sectors that are predominantly influenced by innovation, encompassing, but not confined to, technology,

healthcare and software industries (Sinha, 2017). In marked contrast to more conventional financial instruments such as traditional loans or equity markets (Meena et al., 2018), venture capital funding involves a sophisticated arrangement whereby investors provide capital with the anticipation of acquiring a fractional ownership interest in the enterprise (Athreye & Hobday, 2010), thereby assuming considerable risks with the expectation of receiving significant returns on their investment (Lerner & Nanda, 2020). Venture capital firms strategically focus their endeavors on startups exhibiting disruptive potential (Bjørgum & Sørheim, 2015)(Brown, 2005), with the overarching objective of promoting their growth trajectories and aiding them in achieving successful exit strategies (Brown, 2005), which may manifest as profitable acquisition transactions or initial public offerings (IPOs) that have the potential to yield substantial financial benefits for both the entrepreneurs and their investors (Kalra & Tripathi, 2020)(Gupta & Arora, 2023).

The process of VC investment is generally structured in a systematic, phased approach that evolves from seed funding to subsequent stages of financing rounds (Dr. Saloni Pahuja, 2017). Seed funding fulfills an indispensable role by supplying the essential capital required for a newly established enterprise to undertake critical activities such as product testing, executing comprehensive market research or creating a minimum viable product that can function as a prototype for further refinement (Braune et al., 2021). The ensuing financing rounds, which encompass Series A, B and potentially additional rounds thereafter, are expressly intended to support the enterprise in expanding its market footprint, enhancing its product portfolio and scaling its operational capabilities to address increasing demand.

In addition to providing financial resources, venture capitalists frequently engage in a proactive and participatory capacity within the enterprises in which they invest (D. B. Audretsch et al., 2012), contributing not only their financial support but also their extensive expertise, extensive industry networks and strategic insights that can be exceptionally advantageous (Yesugade et al., 2023) (Dr CS. Mala Kumari Upadhyay, 2024). This active engagement is often critical in steering startups towards attaining long-term viability and success within a progressively competitive business environment (Colombo et al., 2010).

The impact of venture capital transcends mere financial investment (D. Audretsch & Lehmann, 2004), as it exerts a profoundly transformative influence on national economies by fostering innovation, facilitating job creation and propelling overall industry expansion (Rédis, 2010). Across numerous countries, particularly in India, venture capital has been instrumental in cultivating the development and proliferation of a dynamic startup ecosystem (Deshmukh, 2011) (Panda & Dash, 2016), effectively nurturing the evolution of innovative business models and cutting-edge technologies that endeavor to address both local challenges and global issues in diverse contexts.

2.2. Software sector

The sphere of software, defined by its fluid dynamics and essential relevance within the extensive architecture of the world economy, encompasses a multitude of organizations engaged in the crafting, sharing and ongoing assistance of various software solutions and products that fulfill a wide spectrum of needs (Athreye & Hobday, 2010). This comprehensive sector comprises an extensive variety of applications, ranging from foundational components such as operating systems and enterprise-level software to highly specialized solutions that are

tailored to specific fields, including but not limited to artificial intelligence (AI), data analytics, cyber security and the increasingly pivotal area of cloud computing. The significance of the software industry cannot be overstated, as it plays a critical role in enhancing both business operations and consumer experiences alike (Colombo et al., 2010)(Williams & Shah, 2013), by furnishing the essential tools that facilitate automation, streamline communication, manage data effectively and drive innovation across an array of sectors, which notably include finance, healthcare, manufacturing and education (Teker et al., 2016).

The current environment shows that the software domain has encountered an extraordinary increase in development, mainly fueled by the growing embrace of innovative digital solutions alongside a major move to automation and cloud systems that change operational frameworks (Bjørgum & Sørheim, 2015). Companies operating within this sector frequently prioritize the development of scalable solutions that are not only robust but also capable of being tailored to address the unique requirements of diverse industries and individual users, thereby enhancing functionality and usability (Colombo et al., 2010). The development of the software-as-a-service (SaaS) model has remarkably revamped the sector dynamics, enabling firms to tap into sophisticated applications through a subscription approach, which eases the strain of significant upfront financial requirements that had been traditionally linked to software purchases (Satyanarayana et al., 2021).

The software sector has taken on an important role in countries including India, acting as a major catalyst for economic expansion and improvement, illustrating its indispensable impact on the national economy (Kalra & Tripathi, 2020). By leveraging a vast and adept talent base, paired with exceptional technical prowess and a rapidly growing digital ecosystem, India has made its mark as a distinguished global hub for software innovation and development, attracting noteworthy foreign investments and simultaneously nurturing a vibrant startup community that enhances the sector's overall energy (Sheth et al., 2020).

2.3. Investment Objectives of VC

Venture capital (VC) firms operate under a set of pivotal investment objectives that serve as guiding principles for their funding decisions (Benson & Ziedonis, 2009), which are predominantly centered around the ambition of attaining exceptionally high returns on investment while simultaneously managing the intrinsic risks that are associated with investments made during the early stages of a company’s development. The primary objective that these firms strive to achieve is to secure a remarkably high return on investment (ROI), with a typical target that often is set at an ambitious goal of achieving ten times or more the amount of capital that has been invested (Sinha, 2017). This impressive return is largely secured through the careful discernment of fast-expanding businesses that not only feature the ability to scale up swiftly but also may disrupt conventional industries or to roll out innovative offerings that could dramatically reshape the market environment.

In addition to the aforementioned goals, another critical investment objective that VC firms prioritize is the allocation of resources to scalable businesses that exhibit considerable growth potential (Henderson, 2009)(Rédis, 2010)(Thillai Rajan, 2010), as these firms actively seek out startups that have the ability to capture substantial market shares (Morsli, 2023), expand their operations on a global scale and achieve exponential growth trajectories that ensure their long-term viability (Saranya. S & Dr. Amulya. M, 2019)(Benson & Ziedonis, 2009). Besides

the focus on scalability, the role of innovation is vital in the investment determinations of venture capitalists (Gonzalo & Kantis, 2021), who prioritize ventures capable of delivering exceptional technologies or solutions that can significantly redefine and transform entire industries (Bertoni et al., 2010).

Moreover, the strength and capability of the management team represent a significant consideration for venture capitalists (Braune et al., 2021), as the presence of experienced and visionary leaders is deemed essential for adeptly navigating the numerous challenges that arise and for successfully executing the strategic business plans that have been established (Braune et al., 2021)(Williams & Shah, 2013)(Chandra Sekhara Rao Nuthalapati, 2019). Additionally, venture capitalists undertake a thorough assessment of the market opportunity available to ensure that the company in question is strategically positioned within a growing market that exhibits high potential for expansion and profitability (Reddy, 2014).

Alongside these objectives, venture capital firms also emphasize the reduction of risk through strategic diversification and thorough due diligence methodologies, while concurrently ensuring that a practical exit strategy is developed, such as an initial public offering (IPO) or acquisition (Brown, 2005)(Williams & Shah, 2013), which will ultimately allow them to capitalize on the returns from their investments (Parhankangas, 2012)(Jin et al., 2021). Moreover, the careful synchronization of possible investments with their comprehensive portfolio objectives and the distinct fields of knowledge that the venture capital entities hold greatly affects the choices they make concerning the distribution of their investment funds (Bushra & Akhter, 2019).

2.4. Economics Aspects

The economic dimensions play a pivotal role in shaping the investment choices undertaken by venture capitalists (VCs), as they rigorously analyze a plethora of economic indicators to evaluate the anticipated returns and risks associated with financing emergent startups (Mainela et al., 2011). A fundamental economic indicator is the market opportunity (Zheng et al., 2024). VCs exhibit a pronounced affinity for industries or sectors that demonstrate significant growth potential, characterized by increasing demand and a sufficiently expansive market size conducive to scalable business models (Mcnally, 1995). Possible areas of growth may feature fast-developing sectors like AI technologies, electronic banking or eco-friendly energy sources, with a strong likelihood of producing notable economic advantages (ELLOUMI, 2022).

Venture capitalists are significantly swayed in their decision-making processes by factors including inflationary trends, fluctuations in interest rates and the growth indicators of GDP (D. B. Audretsch et al., 2012)(Yesugade et al., 2023). A robust economy often results in heightened consumer demand, thereby creating favorable conditions for business expansion (Ahmed Idi & Evelyn Germinah, 2022), whereas economic downturns may elevate risks and reduce the likelihood of profitable exits (Brown, 2005)(Drover et al., 2017). VCs are also highly sensitive to regulatory environments that can impact startups (Drover et al., 2017). Favorable regulations, such as tax incentives designed to encourage innovation or supportive governmental policies, can make certain markets considerably more attractive (H Bala Subrahmanya, 2017)(Clara Wijaya Rosa et al., 2019). Furthermore, the availability of capital and prevailing liquidity conditions are crucial components. As the economy grows, the influx

of capital typically rises, assisting startups in securing essential funding (Reid & Smith, 2003). In a different light, during phases defined by financial uncertainty, VCs might implement a more conservative strategy, highlighting the necessity of risk management approaches. A thorough comprehension of these economic factors equips VCs to make prudent decisions and adeptly navigate risk while pursuing high-yield investment opportunities.

3. RESEARCH METHODOLOGY

3.1. Research Context:

The study examines the dynamic exchange between venture capital funding and the software sector in Bengaluru, Karnataka, recognized as India's technology epicentre. The region has experienced significant growth in technology entrepreneurship, making it a focal point for diverse VC investments in software. The surge in VC funding has been vital for promoting innovation, enhancing the development of promising companies and stimulating regional economic growth. As the software industry adapts to technological advancements like AI, cloud computing and SaaS, venture capitalists increasingly favor companies utilizing these innovations to meet market needs. Nonetheless, the investment strategies of venture capitalists in Karnataka's software sector are shaped by various economic, technological and competitive influences, which are essential for comprehending VC decision-making processes.

3.2. Sample Size:

To investigate the primary investment objectives of venture capitalists (VCs) within the framework of economic considerations, particularly concerning the selection criteria applied to software enterprises in Karnataka, a total of 82 VCs were identified to engage in a meticulously structured questionnaire related to their funding decisions for software firms, culminating in the collection of 34 responses. At present, Karnataka is home to approximately 169 private VCs that have been recorded in accordance with the directives established by the Securities and Exchange Board of India (SEBI). A thorough evaluation disclosed 78 software companies that have successfully secured funding from VCs in Karnataka, from which 55 responses were obtained from individuals occupying managerial positions. Currently, in Karnataka, there exist around 896 software companies that have acquired venture capital financing.

3.3. Objectives for the study:

1. To analyse the Venture Capital investment made in the different software sectors in Karnataka.

2. To investigate the key investment objectives of VCs based on economic aspects with reference to the selection of software companies for VC funding decisions.

3.4. Hypothesis for the study:

H_0: There is no significant relationship between key investment objectives of VCs based on economic aspects with reference to the selection of software companies for VC funding decisions.

H_1: There is a significant relationship between key investment objectives of VCs based on

economic aspects with reference to the selection of software companies for VC funding decisions.

4. ANALYSIS AND INTERPRETATION

Objective 1: To analyse the Venture Capital investment made in the different software sectors in Karnataka.

Table no 4.1: Venture capital financing on companies of different sector in Karnataka

Time frame-01/Jan/2019 to 29/Oct/2024

Sl.No	Sectors	Number of companies	Percent	Valid Percent	Cumulative Percent
1	Administrative service	81	3.7	3.7	3.7
2	Advertising	27	1.2	1.2	4.9
3	Agriculture and Farming	62	2.8	2.8	7.8
4	Biotechnology	43	2.0	2.0	9.7
5	Clothing and Apparel	54	2.5	2.5	12.2
6	Commerce and Shopping	279	12.7	12.7	24.9
7	Consumer Electronics and Goods	82	3.7	3.7	28.7
8	Education and Professional Services	135	6.2	6.2	34.8
9	Energy and Natural Resources	35	1.6	1.6	36.4
10	Events, Food and Beverage	77	3.5	3.5	40.0
11	Financial Services	229	10.5	10.5	50.4
12	Gaming and hardware	65	3.0	3.0	53.4
13	Government and Military	4	.2	.2	53.6
14	Health Care and Sports	149	6.8	6.8	60.4
15	IT and ITES	665	30.4	30.4	90.7
16	Manufacturing	61	2.8	2.8	93.5
17	Media and Entertainment	49	2.2	2.2	95.8
18	Other	31	1.4	1.4	97.2
19	Real Estate	23	1.1	1.1	98.2
20	Science and Engineering	27	1.2	1.2	99.5
21	Sustainability	4	.2	.2	99.6
22	Travel and Tourism	8	.4	.4	100.0
	Total	2190	100.0	100.0	

Source: Crunchbase.com

Note: Total number of companies backed by VC investment between 01-01-2019 to 29-10-2024 in India are 8691 companies

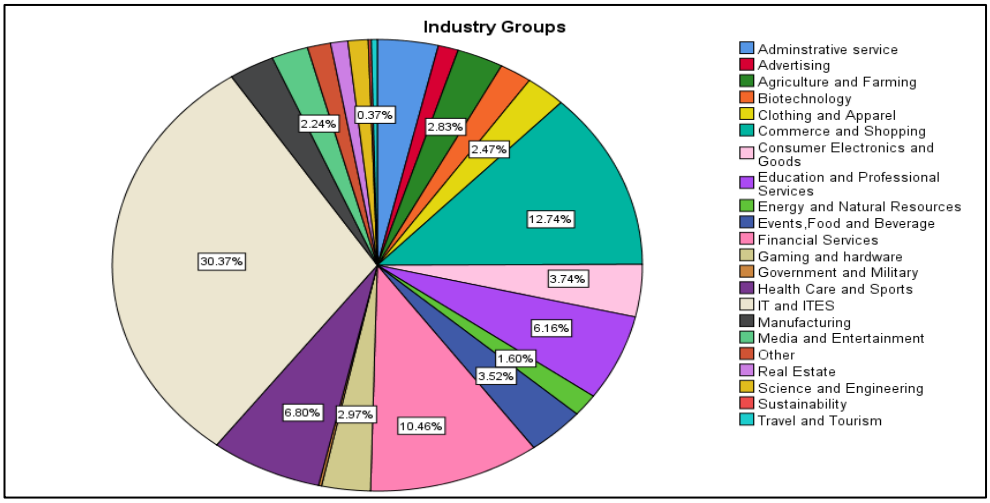

Chart no 2: Chart showing the Venture capital financing on companies of different sector in Karnataka with Time frame-01/Jan/2019 to 29/Oct/2024

Interpretation:

Karnataka's Contribution to India's Venture Capital Landscape: Karnataka is home to 2,190 venture capital-backed enterprises, representing almost 25% of India's total of 8,691 such companies, underscoring its critical role in the national startup ecosystem. Bengaluru, being the preeminent state, attracts substantial venture capital due to its enormous talent reservoir, strong infrastructure and thriving technological ecosystem.

[1] Dominance of Technology-Driven Sectors:

The Information Technology (IT) and Information Technology Enabled Services (ITES) sector constitutes the most significant segment, accounting for 30.4% of all venture capital-backed enterprises within Karnataka. This classification encompasses a total of 665 firms out of 2,190. Karnataka, with a particular emphasis on Bengaluru, serves as a pivotal technology and startup nexus, as evidenced by the substantial number of funded enterprises in the IT and ITES domains. IT corporations frequently deliver scalable, technology-centric solutions that garner venture capital interest due to their potential for rapid growth and considerable returns on investment. Moreover, other technology-centric sectors, such as Commerce and Shopping (12.7%) and Financial Services (10.5%), are also prominently represented. The robust presence of e-commerce and fintech signifies that investors perceive considerable potential within Karnataka's digital economy, propelled by the region's technologically proficient workforce and the increasing penetration of internet access.

[2] Emerging and Moderately Funded Sectors:

Various sectors, including Education and Professional Services (6.2%), Health Care and Sports (6.8%) and Consumer Electronics and Goods (3.7%), exhibit noteworthy venture capital engagement; however, this engagement is diminished in scale when juxtaposed with the realms of Information Technology and commerce. These sectors present significant opportunities for growth. The educational technology sector (edtech) has experienced

remarkable advancement in India, with entrepreneurs devising innovative pedagogical solutions that garner substantial venture capital interest. The concurrent development of healthcare technology and consumer electronics is driven by an increasing consumer appetite for health and wellness products, alongside technology-centric healthcare innovations.

[3] Niche and Emerging Interest Sectors:

Smaller sectors, such as Agriculture and Farming (2.8%), Manufacturing (2.8%) and Media and Entertainment (2.2%), are presently garnering venture capital, albeit at a diminished velocity. This financial influx may signify investor engagement with emergent technologies across various domains, encompassing agritech advancements, industrial automation and digital content generation. Sustainability (0.2%) and Government and Military (0.2%) exhibit a limited array of accredited enterprises. This minimal proportion may arise from significant entry obstacles, protracted scaling challenges or the specialized characteristics inherent to certain industries, thereby rendering them less appealing to private venture capital investors.

[4] Underfunded Sectors:

Specific areas, like Advertising (1.2%), Real Estate (1.1%) and Travel and Tourism (0.4%), present investment levels that are quite minimal. This phenomenon may be attributable to factors such as market saturation, economic volatility (exemplified by the pandemic's repercussions on the travel industry) or investor inclinations favoring sectors that demonstrate more rapid trajectories of growth.

This data elucidates the sectors within Karnataka that currently captivate venture capital investors, underscoring trends in economic concentration and the potential for employment growth and innovation. Karnataka's focus on technology, particularly in the realms of information technology, e-commerce and financial technology, underscores its sustained advancement as a leader in India's digital economy. The escalating interest in sectors such as education, healthcare and consumer electronics indicates prospective avenues for future growth and innovation.

This table illustrates the influence of venture capital on the economic landscape of Karnataka and accentuates broader trends concerning the state's industrial objectives, competencies and prospective areas for growth. Karnataka's prominence in technical sectors and its increasing participation across various domains signify its transformation into a multifaceted, progressive economy within the context of India's startup ecosystem.

Table no 4.2: Venture capital Funding on Software industry in Karnataka

Time frame-01/Jan/2019 to 29/Oct/2024

	Across India's VC Funding		Across Karnataka's VC Funding	
Year	USD	INR (Millions)	USD	INR (Millions)
2019	943316416	79606.47	261556153	22072.72
2020	1420048211	119837.87	654055099	55195.71
2021	4850479471	409331.96	2680754219	226228.85
2022	11519085772	972095.65	9130090854	770488.37
2023	44071719560	3719212.41	2168996901	183041.65

2024(oct)	28142610930	2374954.94	15814959642	1334624.44

Source: Crunch base

Note: Data for the year 2024 is till October month

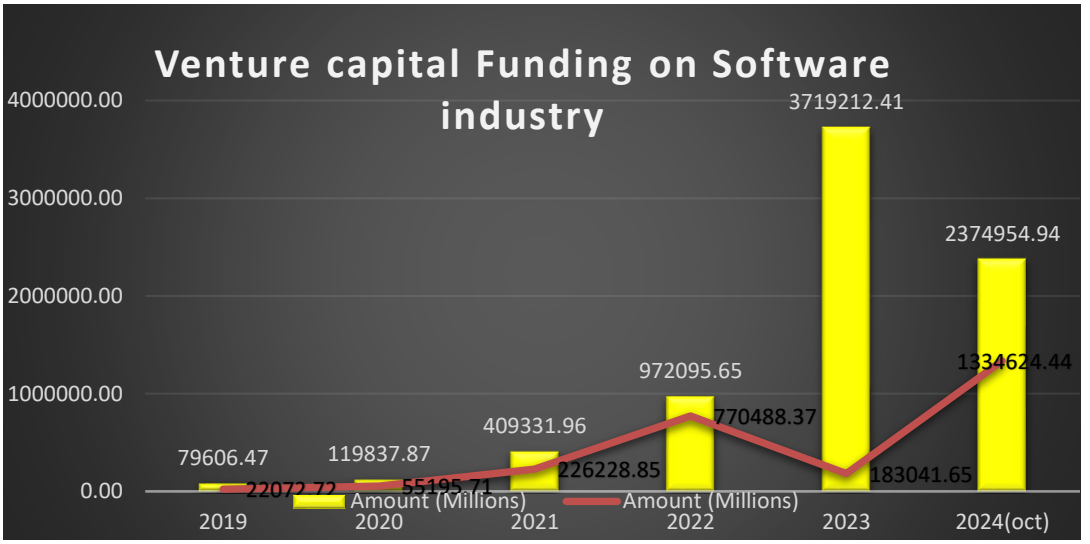

Chart no 4.2: Chart showing the Venture capital Funding on Software industry in Karnataka with Time frame-01/Jan/2019 to 29/Oct/2024

Interpretation:

The table and chart present an analysis of venture capital (VC) financing within India's software industry, elucidating the role of Karnataka, a prominent technological hub, over the period from January 1, 2019, to October 29, 2024. A comprehensive examination was undertaken utilizing empirical data and trends by focusing on Indian statistics throughout these years.

In 2019: Period of Modest Growth

India successfully attained USD 943 million (equivalent to INR 79,606 million) in venture capital investment within the software domain. This quantum established a reference point for the ensuing years. Karnataka achieved USD 261 million (INR 22,072 million), representing approximately 27.7% of the aggregate venture capital funding in India's software sector. During this period, despite the burgeoning interest in India's technological landscape, the country was merely beginning to attract significant global attention, with Bengaluru (located in Karnataka) already acknowledged as a distinguished hub for technology.

In 2020: The pandemic led to increased funding.

India's aggregate venture capital financing achieved a total of USD 1.42 billion (INR 119,838 million), reflecting a significant increase of 50% in comparison to the year 2019. The state of Karnataka attracted USD 654 million (INR 55,195 million), representing approximately 46% of the overall venture capital financing allocated to the software sector in India. This development underscored a considerable escalation, thereby illustrating Karnataka's appeal to

investors as a prominent technological epicenter. Despite the ongoing global outbreak, the software industry recorded substantial advancement as a result of increased remote labor and virtual services. Emerging companies concentrating on cloud technology, virtual learning and electronic payment solutions have sparked significant attention from investors in India, particularly in Karnataka.

In 2021: Investment Surge

Venture capital investment within India's software sector surged to USD 4.85 billion (INR 409,332 million), nearly doubling in comparison to the levels observed in 2020. Karnataka experienced a notable augmentation, securing USD 2.68 billion (INR 226,229 million), which constitutes approximately 55.3% of the aggregate venture capital financing allocated to India's software industry. The year 2021 represented a pivotal juncture on a global scale for investments in technology. In the aftermath of the pandemic, there was a pronounced acceleration towards digitalization, thereby rendering India’s vast market a highly attractive prospect for investors. The existing infrastructure in Karnataka, along with the esteemed reputation of Bengaluru, contributed to the attraction of nearly fifty percent of all venture capital investments directed towards the state. This period was characterized by a proliferation of high-value "unicorn" enterprises emerging from India, the majority of which are situated in Karnataka.

In 2022: A Year of Unprecedented Achievements

India achieved a remarkable USD 11.52 billion (INR 972,096 million) in software venture capital financing, effectively doubling the total from the preceding year. Karnataka accomplished a landmark USD 9.13 billion (INR 770,488 million) in capital raising, constituting 79% of India's aggregate software venture capital investment. The present year has seen Karnataka take center stage in India's tech economy, pulling in substantial investments across artificial intelligence, fintech, edtech and SaaS domains. The considerable growth potential of India drew the attention of major global investors, with Karnataka positioned as the technological nucleus and deriving substantial advantages. This concentration can be attributed to Bangalore's established reputation and the overwhelming number of startups based in that locale.

In 2023: India achieved its zenith, albeit with some redistribution.

Venture capital financing reached an apex of USD 44.07 billion (INR 3,719,212 million) in the year 2023, representing an almost fourfold escalation compared to the previous year, 2022. Notwithstanding the receipt of a considerable sum amounting to USD 2.17 billion (INR 183,041 million), Karnataka's proportion of the aggregate software venture capital funding within the nation was a mere 4.9%. In spite of a notable increase in overall funding across India, Karnataka's share experienced a decline. This transformation implies that investment capital may have commenced its redistribution towards alternative regions or sectors within India, including health technology, agricultural technology or nascent technological clusters situated in other states. Urban centers such as Hyderabad and Mumbai have emerged as pivotal technology hubs; consequently, they are broadening the geographical dispersal of venture capital resources throughout India.

In 2024 (Until October): Consistent Elevated Levels As of October 2024,

India's software industry has acquired a total of USD 28.14 billion (INR 2,374,955 million) in venture capital financing, reflecting a persistent demand following the peak observed in 2023. The financial inflow for Karnataka amounted to USD 15.81 billion (INR 1,334,624 million), which constitutes approximately 56.2% of the aggregate venture capital funding allocated to India's software sector for the year 2024 thus far. This significant capital infusion highlights the continued relevance of Karnataka within the broader context of India's technology landscape. Nonetheless, this year has seen funding distributed more uniformly across various regions, indicating that investors are not exclusively focusing on Bengaluru but are also considering other urban areas within Karnataka and potentially emerging hubs in different states.

Objective 2: To investigate the key investment objectives of VCs based on economic aspects with reference to the selection of software companies for VC funding decisions.

H_0: There is no significant relationship between key investment objectives of VCs based on economic aspects with reference to the selection of software companies for VC funding decisions.

H_1: There is a significant relationship between key investment objectives of VCs based on economic aspects with reference to the selection of software companies for VC funding decisions.

Factor analysis for determining Economic Factors in VC funding decisions.

Table No 4.3: Table Showing KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.550
Bartlett's Test of Sphericity	Approx. Chi-Square	537.602
	Df	45
	Sig.	.000

Interpretation:

The aforementioned findings suggest that the dataset is suitable for factor analysis, as evidenced by a The KMO statistic has recorded a value of 0.550, exceeding the recommended limit of 0.5. Moreover, the results of Bartlett's test of sphericity show that the analyzed factors are statistically relevant, given the p-value is beneath the prescribed significance boundary.

Table No 4.4: Table Showing Total Variance Explained

Total Variance Explained									
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.799	37.986	37.986	3.799	37.986	37.986	2.585	25.847	25.847
2	1.846	18.455	56.442	1.846	18.455	56.442	1.997	19.970	45.816
3	1.536	15.363	71.804	1.536	15.363	71.804	1.883	18.828	64.645
4	1.095	10.946	82.750	1.095	10.946	82.750	1.811	18.106	82.750
5	.755	7.552	90.302						
6	.341	3.406	93.708						
7	.266	2.655	96.363						
8	.193	1.931	98.294						

9	.101	1.010	99.304						
10	.070	.696	100.000						

Extraction Method: Principal Component Analysis.

Interpretation:

Based on the aforementioned table illustrating the total variance explained, it is evident that the analysis has identified three variables that together account for 82.750% of the changes seen in the whole dataset. These factors have been deemed significant since they possess Eigen values over 1. The percentages of variance described by each of the three factors are 25.847%, 19.970%, 18.828 and 18.106%, respectively.

Table No 4.5: Table Showing Component Matrix along with Communalities

Component Matrix[a]					Communalities
	Component				
	1	2	3	4	Extraction
E1	.223	.362	.819	-.207	.895
E2	.700	-.114	-.201	.421	.720
E3	.708	-.446	.136	-.462	.932
E4	.441	-.662	.116	.509	.905
E5	.659	-.511	.143	-.444	.914
E6	.605	-.176	.218	.214	.491
E7	.663	.639	-.061	-.089	.859
E8	.772	.184	-.472	-.135	.870
E9	.648	.374	-.469	-.032	.781
E10	.555	.436	.528	.363	.908

Extraction Method: Principal Component Analysis.[a]

a. 4 components extracted.

Interpretation:

The table presented above displays the component matrix, which includes the factor loadings of each component extracted using the principal component method. Communalities, which represent the sum of squares of each value of a specific variable, indicate the percentage of variation in the variables that is explained by the factors. By applying a cut-off of 0.9, the variables with the highest communalities are E 3, E 4, E 5 and E 10. This suggests that these variables are strongly influenced by the underlying factors collectively.

Key Economic factors determining the VC funding decision

1. Start-ups have the ability to rapidly scale, capture market share and attain significant growth in revenue and market value.

2. Organizations that possess a formidable competitive edge, such as exclusive market positioning, cutting-edge technology or a well-known brand.

3. The viability and sustainability of the business model of a software company.

4. Enterprises that possess a substantial competitive edge and have the capacity to achieve sustained dominance.

5. Software companies have the potential to stimulate economic growth through the promotion of innovation.

6. Software companies operating in these sectors have the potential to generate substantial economic benefits.

7. The potential for economic growth at both the local and national levels, as well as the creation of employment opportunities.

8. Software companies that possess the capacity for global expansion, thereby making contributions to both domestic and international economic growth.

9. Software enterprises that take advantage of network effects.

10. The potential for rapid growth and market dominance exists as the number of users or customers who subscribe to the platform augments the value of the product or service.

Table No 4.6: Table Showing Rotated Component Matrix[a]

Rotated Component Matrix[a]				
	Component			
	1	2	3	4
E1	-.102	.195	-.159	.906
E2	.482	.098	.691	.003
E3	.186	.920	.208	.084
E4	-.150	.256	.900	-.082
E5	.115	.920	.228	.044
E6	.172	.292	.546	.279
E7	.803	.040	-.039	.459
E8	.867	.298	.160	-.070
E9	.877	.067	.090	-.007
E10	.277	-.104	.375	.825

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 5 iterations.

Interpretation:

In the above study, three components were retrieved using the Principal Component Analysis extraction technique, followed by the use of the Varimax rotation method with Kaiser. The factor loadings of each extracted component were normalised. The rotated component matrix, with a factor loading cut-off point of 0.80, was used to assign names to the factors. Factor 1 consists of E 7 (The potential for economic growth at both the local and national levels, as well as the creation of employment opportunities), E 8 (Software companies that possess the

capacity for global expansion, thereby making contributions to both domestic and international economic growth) and E 9 (Software enterprises that take advantage of network effects). This factor might be referred to as the "ECONOMIC IMPACT FACTOR."

The second element encompasses E 3 (The viability and sustainability of the business model of a software company) and E 5 (Software companies have the potential to stimulate economic growth through the promotion of innovation). This phenomenon might be referred to as the "BUSINESS VIABILITY FACTOR."

The third component encompasses E 4 (Enterprises that possess a substantial competitive edge and have the capacity to achieve sustained dominance). This factor might be referred to as the "STRATEGIC POSITIONING FACTOR."

The fourth component encompasses E 1 (Start-ups have the ability to rapidly scale, capture market share and attain significant growth in revenue and market value) and E 10 (The potential for rapid growth and market dominance exists as the number of users or customers who subscribe to the platform augments the value of the product or service.). This factor might be referred to as the "SCALABILTIY AND MARKET POTENTIAL FACTOR."

Hence, based on the results of the Kaiser-Meyer-Olkin (KMO) test and Barlett's test of sphericity, it may be concluded that the factor analysis conducted is statistically significant. This conclusion is drawn when the p-value is found to be lower than the predetermined significance levels of 1% and 5%. Therefore, the alternative hypothesis is deemed to be supported and the findings are considered to be statistically significant.

5. CONCLUSION

The software sector in Karnataka is characterized by its dynamism and diversity, encompassing 2,886 enterprises financed across 20 distinct categories. The cumulative percentage column elucidates that, through investment in a multifaceted array of sectors, venture capital (VC) funds have not only enhanced high-growth enterprises such as artificial intelligence/machine learning (AI/ML) and educational technology (Ed-Tech) but have also sustained engagement in specialized niches. The venture capital allocations underscore both mature and emerging sectors, signifying a well-rounded approach that emphasizes scalability, adaptability and technological innovation throughout various software domains. The data underscores Karnataka's status as a leading hub for technology and software development in India, highlighting both cutting-edge technologies like AI and practical applications such as financial technology (fin-tech) and retail technology (retail-tech). This research aims to elucidate the investment aims and determinants employed by venture capitalists in the selection of software firms for financial support, with particular emphasis on economic variables. Analyzing the significance of market potential, growth patterns and scalability within investment frameworks will elucidate the economic anticipations that venture capitalists possess for potential software investments. Taking into account the thorough evaluation and the practical findings obtained from the Kaiser-Meyer-Olkin (KMO) assessment, alongside the analysis offered by Bartlett's sphericity test, it can be reasonably inferred that the factor analysis which has been carefully performed possesses a statistically notable significance in relation to this study. This particular conclusion is robustly drawn when

the p-value is empirically determined to be lower than the established thresholds for significance, which are conventionally set at the rigorous levels of 1% and 5%. In conclusion, this signifies that the alternative hypothesis receives strong affirmation from the data, thereby categorizing the outcomes of this study as statistically significant and deserving of further scholarly attention.

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