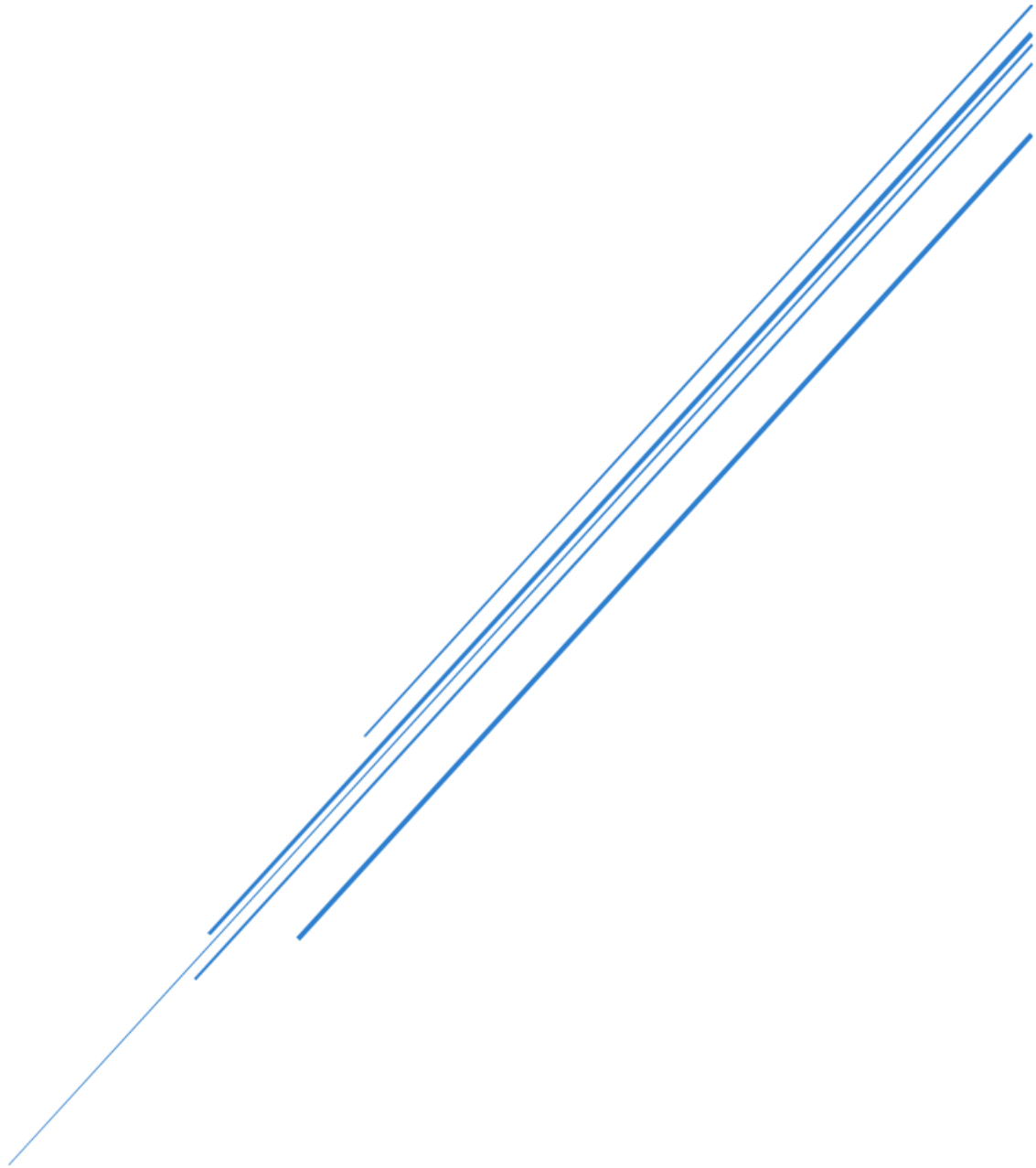


# CIS 9655 – DATA VISUALIZATION PROJECT REPORT



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## Project Report

### ❖ Methodology:

We worked with the Crunchbase startup investment dataset, which provided detailed information about startups, markets, and funding rounds. To understand the influence of individual investors, we merged this dataset with the Crunchbase external investor dataset, enabling us to uncover patterns such as investor preferences by market and funding behavior over time.

We used Python-based libraries including pandas, matplotlib, seaborn, and plotly for analysis and visualization. The goal was not just to explore the data but to build a narrative that supports our hypothesis and presents real insights about startup funding patterns.

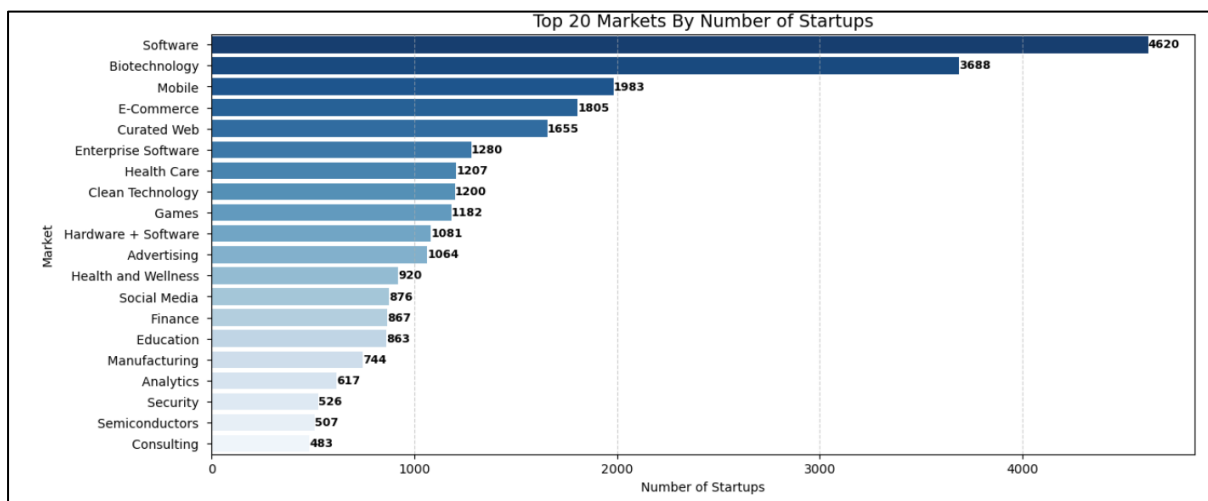
### ❖ Link to the Investor Dataset used for Merging:

<https://www.kaggle.com/datasets/chhinna/crunchbase-data?select=inv.csv>

### ❖ What We Visualized and Why:

We started by exploring the dataset to get a feel for what the data was telling us understanding the big picture before diving into the details. Once we had that foundation, we moved on to building specific visualizations that helped us dig deeper. Let's now walk through each chart, pull out the key takeaways, and see how well they support our hypothesis.

#### 1. Top 20 Markets by Number of Startups



#### What the chart says:

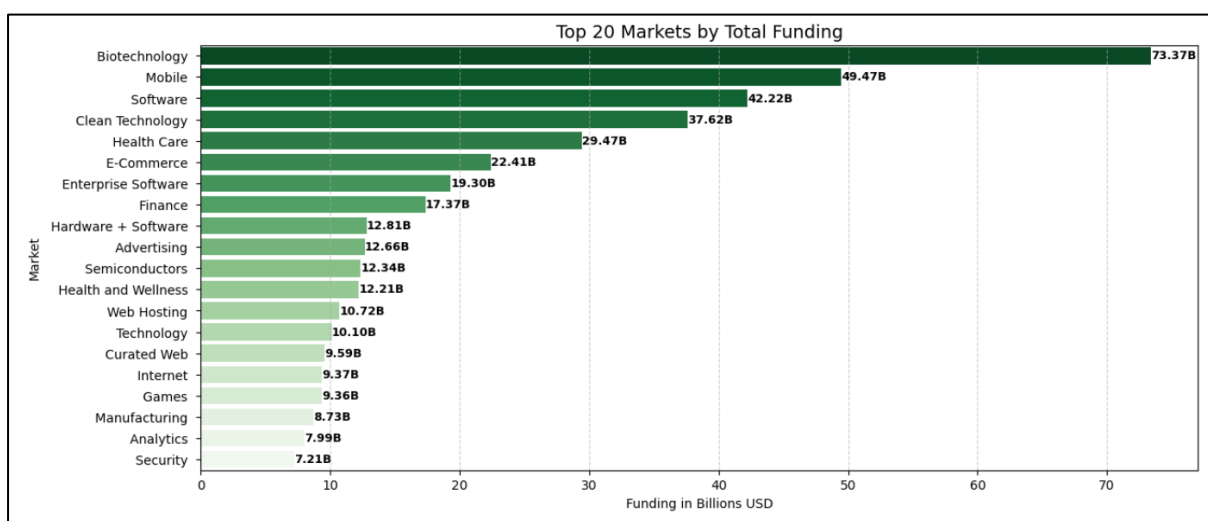
- Software, Biotechnology, and Mobile dominate the startup landscape by volume.
- These sectors alone account for nearly half the total startups.

- It reflects how digital-first industries continue to inspire entrepreneurial confidence.

### Why it matters:

- Software is accessible, scalable, and requires less physical infrastructure making it a startup magnet.
- Biotechnology's prominence signals a response to healthcare and life sciences demands, especially post-COVID.
- Mobile markets reflect global smartphone adoption and app-based business innovation.

## 2. Top 20 Markets by Total Funding



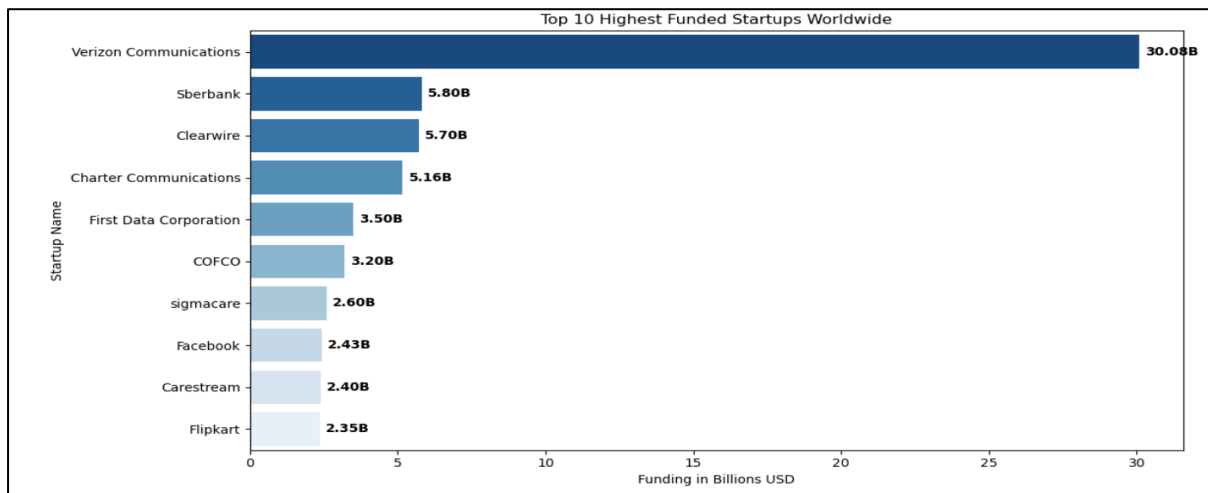
### What the chart says:

- Biotechnology, Mobile, and Software again take the lead and get the most funding.
- Biotechnology stands out with \$73B+ in total funding, more than any other sector.
- Clean Technology and Healthcare also show strong investor backing.
- Funding flows heavily into high-tech and scalable sectors.

### Why it matters:

- Investors are doubling down on deep tech and health-focused innovation.

### 3. Top 10 Highest Funded Startups Worldwide



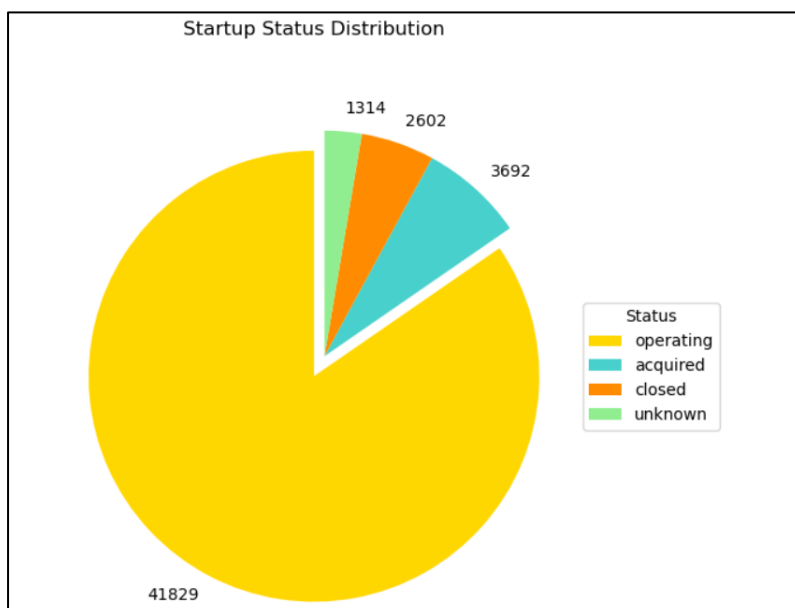
#### What the chart says:

- Giants like Verizon Communications, Sberbank, and Facebook top the list.
- The top 10 startups raised billions often in tech-intensive domains.
- Facebook remains a tech success and signifies investor trust.

#### Why it matters:

- High funding suggests scalability, strong leadership, and market readiness.
- Most are tech-centric, reinforcing the belief that innovation drives capital.
- Traditional industries are largely absent from this list showing where the money is headed.

### 4. Startup Status Distribution



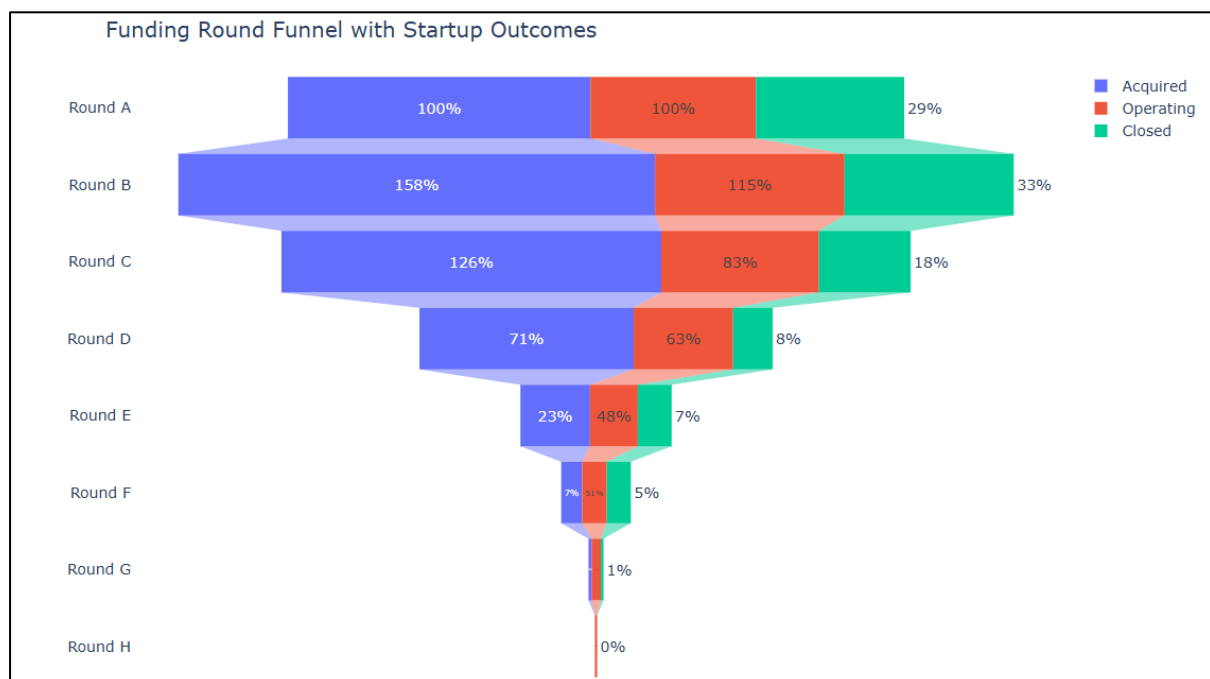
### What the chart says:

- Over 80% of startups are still operating, while others have been acquired or closed.
- “Acquired” startups point to successful exits and investor confidence.

### Why it matters:

- Operating startups imply sustainability often linked to strong early funding.

## 5. Funding Round Funnel by Startup Outcome



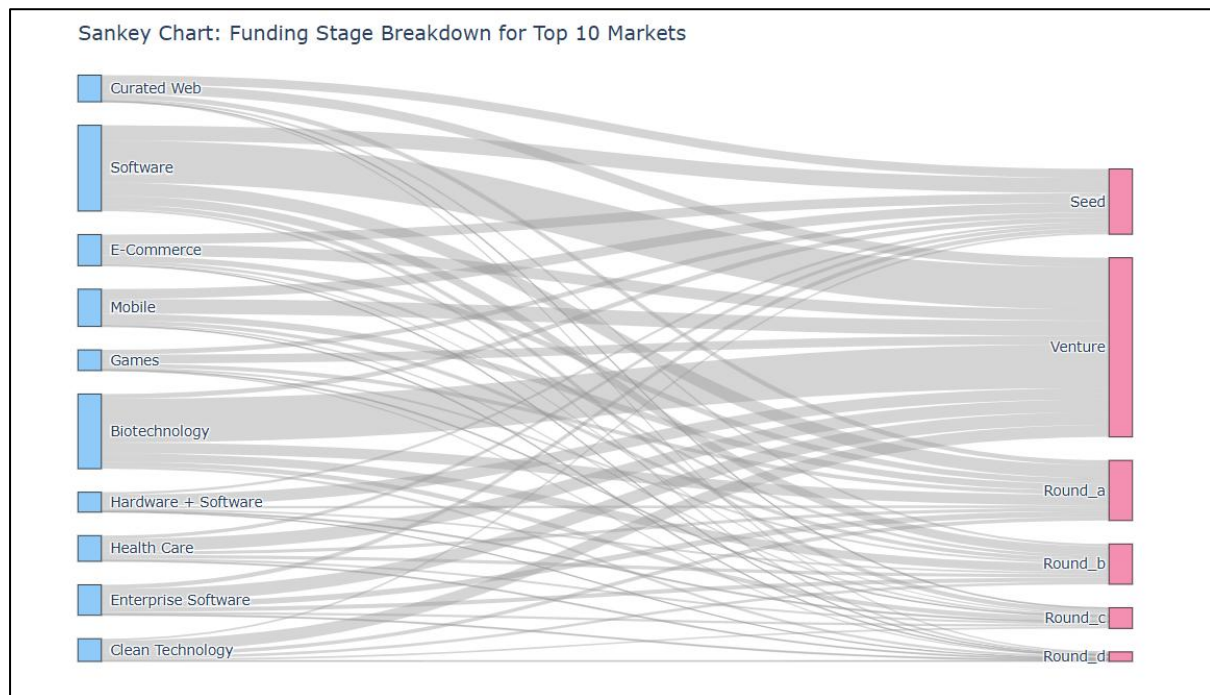
### What the chart says:

- The funnel plot shows how startups progress through funding rounds and their eventual status.
- Round B funding has the most startups under it, followed by Round A funding.
- Many startups drop off after Round C, often due to funding gaps or market fit.
- Startups reaching Round D+ are rare but successful, many are in tech.

### Why it matters:

- The funnel shows how early-stage support is crucial for long-term progression.
- Acquisitions become more likely in later rounds, suggesting maturity or strategic value.

## 6. Sankey Chart – Top 10 Markets to Funding Stages



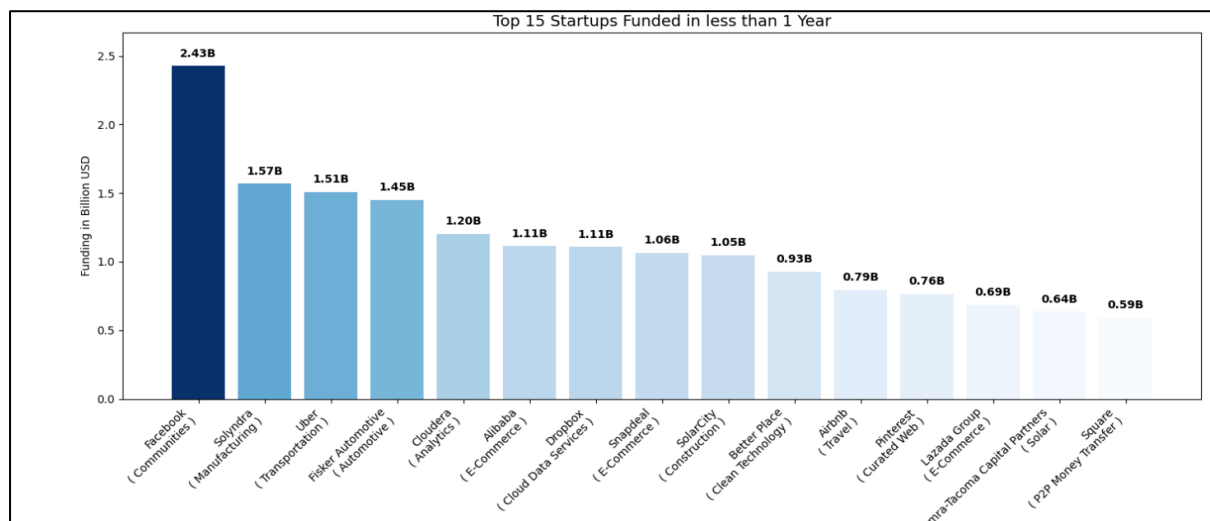
### What the chart says:

- Thick flows from Software, Biotech, and Mobile into Seed and Venture rounds.
- Markets like E-commerce and Games also show up but with thinner trails.
- Later stages like Round C and D mostly receive flows from core tech markets.

### Why it matters:

- It highlights how and when markets get funded.
- Traditional markets rarely make it beyond early funding stages.

## 7. Top 15 Startups Funded in Less Than 1 Year



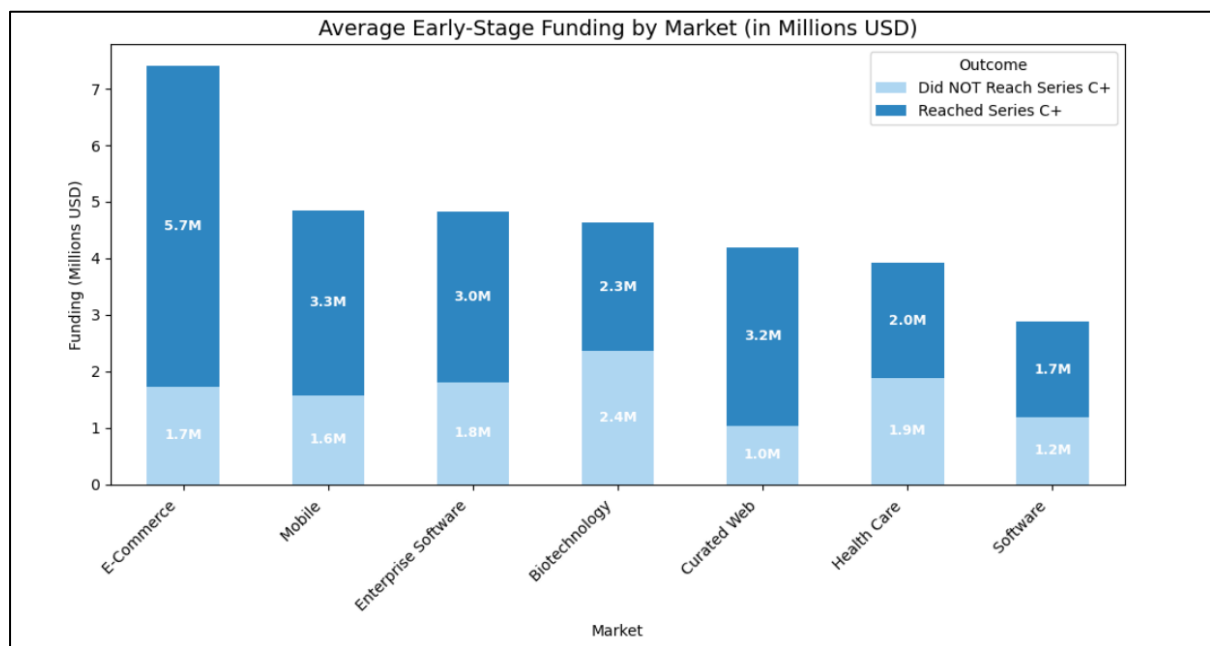
### What the chart says:

- Startups like Facebook, Solyndra, Uber raised billions almost instantly.
- These are mostly tech and manufacturing disruptors.

### Why it matters:

- Speed of funding indicates high investor conviction.
- It also reflects the influence of external hype cycles, media, and innovation trends.
- Fast capital → fast scale → fast acquisition or IPO.

## 8. Stacked Bar – Early Funding vs. Series C+ Progression



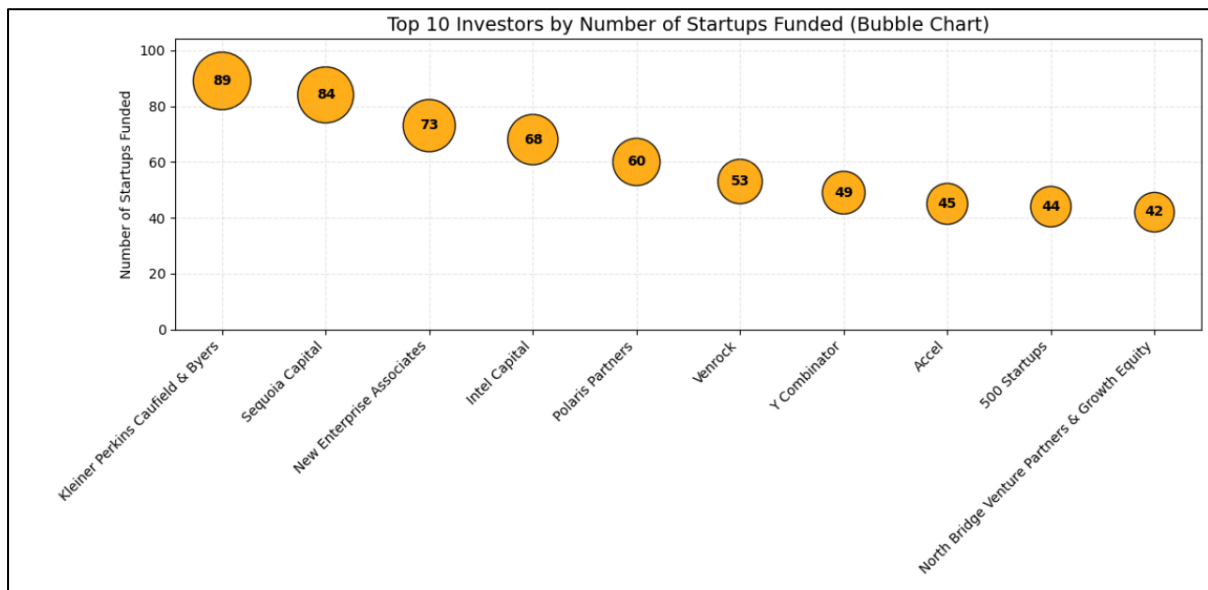
### What the chart says:

- E-Commerce stands out with the highest average early-stage funding — a total of \$7.4 million, of which \$5.7 million went to startups that eventually reached Series C+.
- Other strong performers include Mobile, Enterprise Software, and Biotechnology, where the majority of funding also went to startups that progressed beyond early rounds.

### Why it matters:

- It's a visual proof of early funding being a launchpad for startup survival.
- Tech markets don't just get more money they go further with it.
- This is key evidence that supports the second part of our hypothesis.

## 9. Top 10 Investors by Startup Count – Bubble Chart



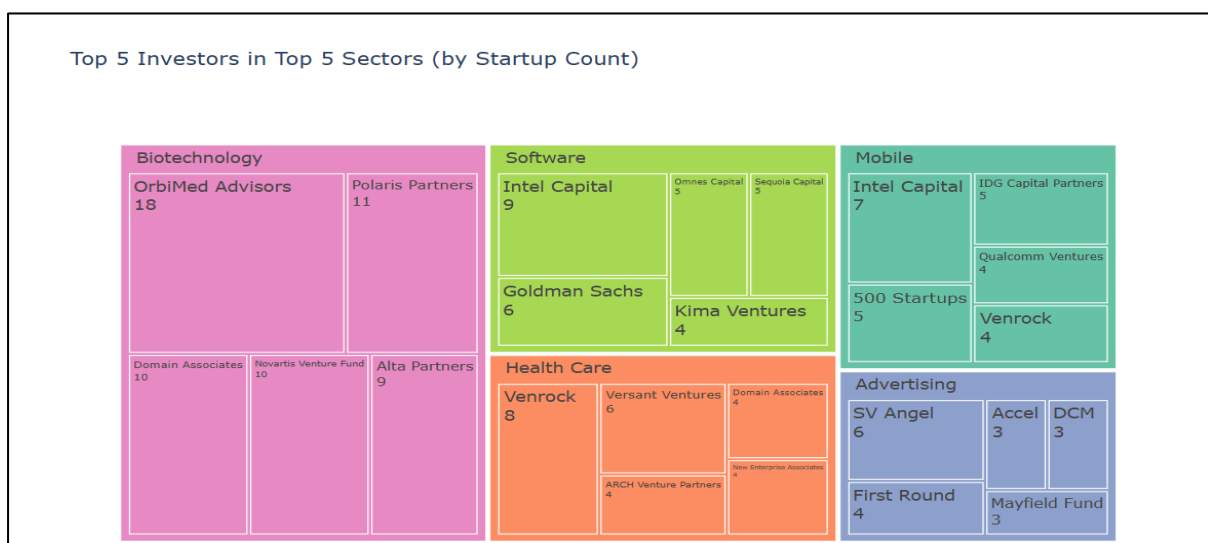
### What the chart says:

- Investors like Sequoia Capital, Intel Capital, and New Enterprise Associates top the chart.
- Bubble size and number show consistent funding activity.
- All are well-known tech-focused venture firms.

### Why it matters:

- Helps identify key players driving innovation.
- Confirms that major investors focus on tech and biotech sectors.
- Their continued presence in rounds shows belief in these markets.

## 10. Top 5 Investors in Top 5 Sectors – Treemap





### **What the chart says:**

- Shows which investors fund the most startups in sectors like Biotech, Software, Mobile.
- OrbiMed Advisors, Intel Capital, and Venrock stand out.
- Each rectangle visualizes both volume and dominance.

### **Why it matters:**

- We see clear investor-market alignment.
- Dominant players reflect sector expertise and influence.
- This map helps understand who shapes the startup economy.

### **❖ Conclusion:**

As we explored the startup landscape through our visualizations, one thing became consistently clear capital gravitates toward innovation. Technology-driven sectors like software, fintech, and biotechnology not only saw the highest number of startups, but also consistently attracted larger funding amounts across all stages. And it didn't stop there. Startups that secured higher early-stage investments were far more likely to raise follow-on rounds and progress toward Series C, D, and even IPOs. Whether it was a fast-funded tech unicorn, or a biotech startup backed through multiple stages, the data told a consistent story: early belief by investors translates into long-term success. Our hypothesis wasn't just supported it was reflected vividly in the data. Startups thrive when innovation meets investment early, and our findings reinforce just how crucial that combination is in today's entrepreneurial ecosystem.