

Smart bridge Data Analytics Final Project

Team-314

Visualizing startup companies of India

Final Demo Link:

https://drive.google.com/file/d/16a-6YYr1pZdPlZy_BhFt6976fEJBZM7m/view?usp=sharing

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1. INTRODUCTION

1.1 Overview

The project involves visualizing startup companies using Tableau, a popular data visualization tool. The goal of the project is to explore and present insights from a dataset containing information about various startup companies, such as their type of industry, count, year and geographical locations .Overall, the analysis on visualizing startup companies in Tableau aims to provide a visually appealing and informative representation of the startup ecosystem. It allows stakeholders to understand trends, patterns, and key insights about startups, aiding in decision-making and strategic planning.

1.2 Purpose

The analysis of startup companies using Tableau can be helpful in several ways .

- i. Identifying trends and patterns
- ii. Identifying investment opportunities:.
- iii. Understanding market dynamics
- iv. Supporting strategic decision-making
- v. Facilitating communication and collaboration

The analysis of startup companies in Tableau can provide valuable insights for investors, entrepreneurs, policymakers, and other stakeholders. It facilitates data-driven decision-making, identifies trends and investment opportunities, and helps understand market dynamics, ultimately supporting the growth and success of startup ecosystems.

2. LITERATURE SURVEY

2.1 Existing Approaches

Startup companies are newly born companies which struggle for existence. These entities are mostly formed based on brilliant ideas and grow to succeed. Startups can have significant positive effects on employment and could rejuvenate industries with disruptive strategies by new creation. Moreover now Artificial intelligence can help this growth become a boom in entrepreneurial activities. A research gap identified that has not been answered by any of the existing studies or research within startups and its proper growth in the field. Thus, many researches been carried out that hasn't been studied at all regarding crucial issues relating to startups. Transformation of startup into a successful magnates is not easy task. Many determinants to be considered while starting a new ventures. Different studies comprising of statistical data of startups in India, ranks, and growth trend of entrepreneurial ventures has used some statistical tools for the data inference and analysis such as descriptive statistics, graphs and charts.

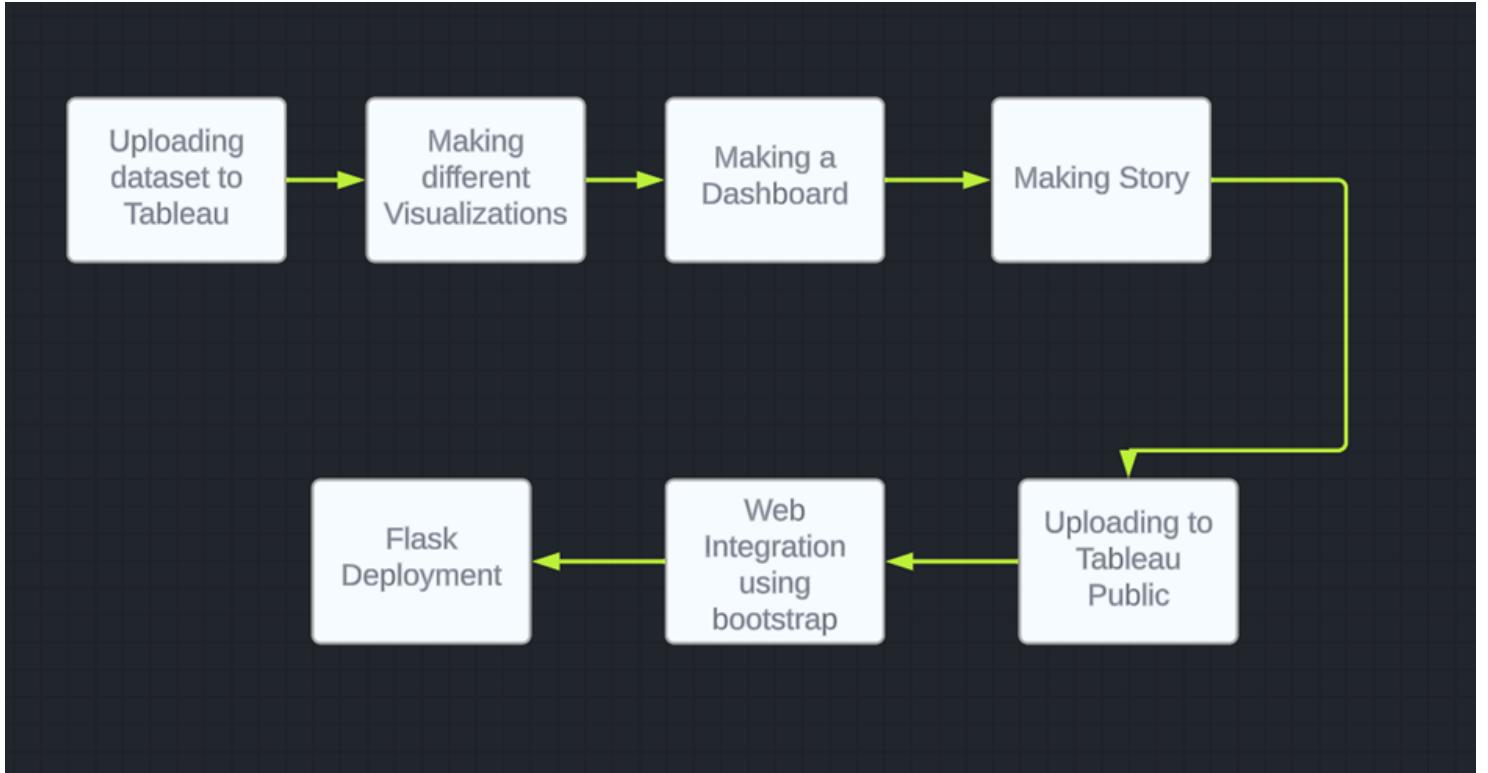
2.2 Proposed Solution

Visualizations play a crucial role in extracting meaningful insights, facilitating communication, enabling interactive exploration, and identifying patterns and outliers. Without visualizations, the analysis process becomes more challenging, time-consuming, and less effective in conveying complex information. Startups generate vast amounts of data, including industry, funding, revenue, and geographic information. Visual representations allow analysts to uncover trends, patterns, and relationships within the data that may not be immediately apparent in raw form. Here we have used Tableau which is highly beneficial due to its powerful visualizations capabilities. Some of the ways in which this visualization will help for better understanding are –

1. Interactive Dashboards
2. Geographic Mapping
3. Trend Analysis
4. Industry Analysis
5. Comparison and Ranking
6. Storytelling and Presentation

3. THEORETICAL ANALYSIS

3.1 Block Diagram



3.2 Software Requirements

1. MySQL

MySQL is an open-source relational database management system (RDBMS) widely used for storing and managing data in various applications and websites. Developed by Oracle Corporation, MySQL is known for its speed, reliability, and scalability, making it a popular choice for small to large-scale projects. It supports multiple platforms, including Windows, macOS, Linux, and UNIX, and is compatible with various programming languages such as PHP, Python, and Java. MySQL uses SQL (Structured Query Language) for querying and manipulating data, providing a robust and flexible way to interact with databases.

2. Tableau

Tableau is a powerful and widely-used data visualization and business intelligence tool that helps users analyze and present data in a visually appealing and interactive manner. Tableau allows users to connect to various data sources, including spreadsheets, databases, and cloud services, and transform raw data into meaningful visualizations without the need for complex coding. It provides a wide range of visualization options, such as charts, graphs, maps, and dashboards, allowing users to effectively explore and communicate insights from their data. Tableau's interactive features enable users to filter, drill down, and interact with visualizations, empowering them to gain deeper insights and make data-driven decisions. With its advanced analytics capabilities, Tableau supports statistical analysis, forecasting, and predictive modeling, enabling users to uncover patterns and trends in their data.

3. Bootstrap

Web integration using Bootstrap is a popular approach for creating responsive and visually appealing websites that work seamlessly across different devices and screen sizes. Bootstrap is a widely-used open-source front-end framework developed by Twitter, providing a comprehensive set of pre-designed CSS styles, JavaScript components, and responsive grid system. By leveraging Bootstrap's CSS classes and components, developers can quickly and efficiently build consistent and modern-looking web interfaces with minimal effort. Bootstrap's responsive grid system allows for easy layout creation, ensuring that the website's design automatically adjusts to fit various screen sizes, from desktops to mobile devices. Bootstrap offers a rich collection of customizable CSS styles, including typography, buttons, forms, navigation menus, and more, enabling developers to create a visually cohesive and aesthetically pleasing user interface. The framework includes a variety of pre-built JavaScript components, such as carousels, modals, dropdowns, and tooltips, that enhance the functionality and interactivity of the website.

4. Flask

Flask is a lightweight and popular web framework written in Python, designed for building web applications quickly and with minimal complexity. Developed as a microframework, Flask provides the core functionalities needed for web development, allowing developers to choose and integrate additional libraries and components as needed. Flask follows the WSGI (Web Server Gateway Interface) protocol, making it compatible with various web servers and deployment options. With its simplicity and flexibility, Flask enables developers to create scalable web applications, APIs, and microservices with ease. Flask's simplicity and Pythonic nature make it a preferred choice for beginners and experienced developers alike, enabling them to build high-quality web applications quickly and efficiently.

4.Experimental Analysis

Here's a breakdown of steps on analysis of successful business startup:

1. Idea Generation:

- This initial stage focuses on brainstorming and generating innovative business ideas.
- It involves identifying market gaps, assessing personal skills and interests, and exploring potential opportunities.

2. Market Research:

- The flowchart emphasizes the importance of conducting thorough market research.
- It includes analyzing the target market, studying customer needs and preferences, and evaluating the competitive landscape.

3. Business Planning:

- This stage involves developing a comprehensive business plan that outlines the startup's goals, strategies, and financial projections.
- It covers aspects such as market positioning, product/service description, marketing and sales strategies, and operational considerations.

4. Funding and Resources:

- The flowchart highlights the need for securing adequate funding and resources to support the startup's operations.
- It includes exploring various funding options like bootstrapping, angel investors, venture capital, or crowdfunding.

5. Legal and Regulatory Compliance:

- This stage emphasizes the importance of adhering to legal and regulatory requirements for operating a business.
- It covers tasks such as business registration, obtaining necessary licenses and permits, and understanding tax obligations.

6. Product/Service Development:

- The flowchart highlights the process of developing and refining the startup's product or service offering.
- It includes activities such as prototyping, testing, iterating based on customer feedback, and ensuring quality control.

7. Marketing and Sales:

- This stage focuses on developing effective marketing and sales strategies to reach the target audience.
- It includes activities like branding, promotional campaigns, pricing strategies, and identifying distribution channels.

8. Operations and Infrastructure:

- The flowchart emphasizes the need for establishing robust operational processes and infrastructure to support the business's day-to-day activities.
- It covers aspects such as hiring and training employees, setting up supply chains, and implementing efficient systems.

9. Launch and Growth:

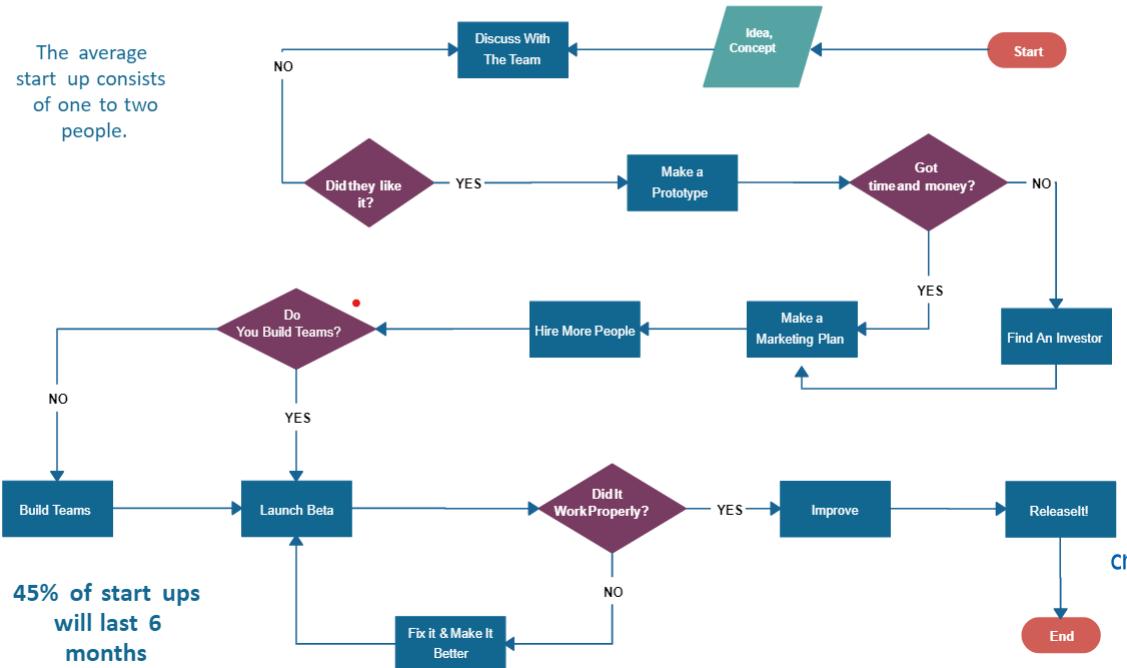
- This final stage involves launching the business in the market and scaling its operations.
- It includes monitoring performance, gathering customer feedback, making necessary adjustments, and pursuing growth opportunities.

5. FLOW CHART

Our Solution for a successful business startup

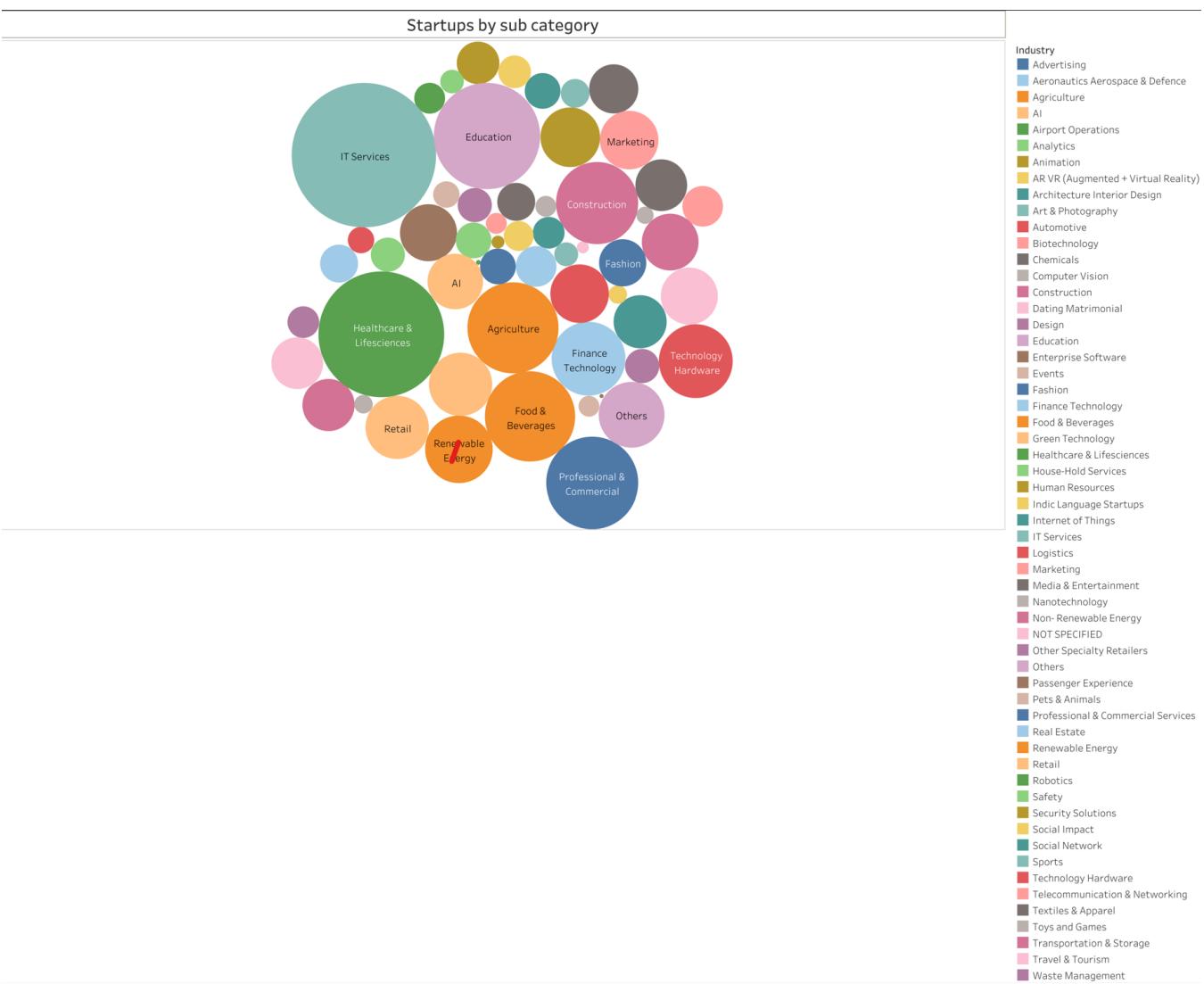
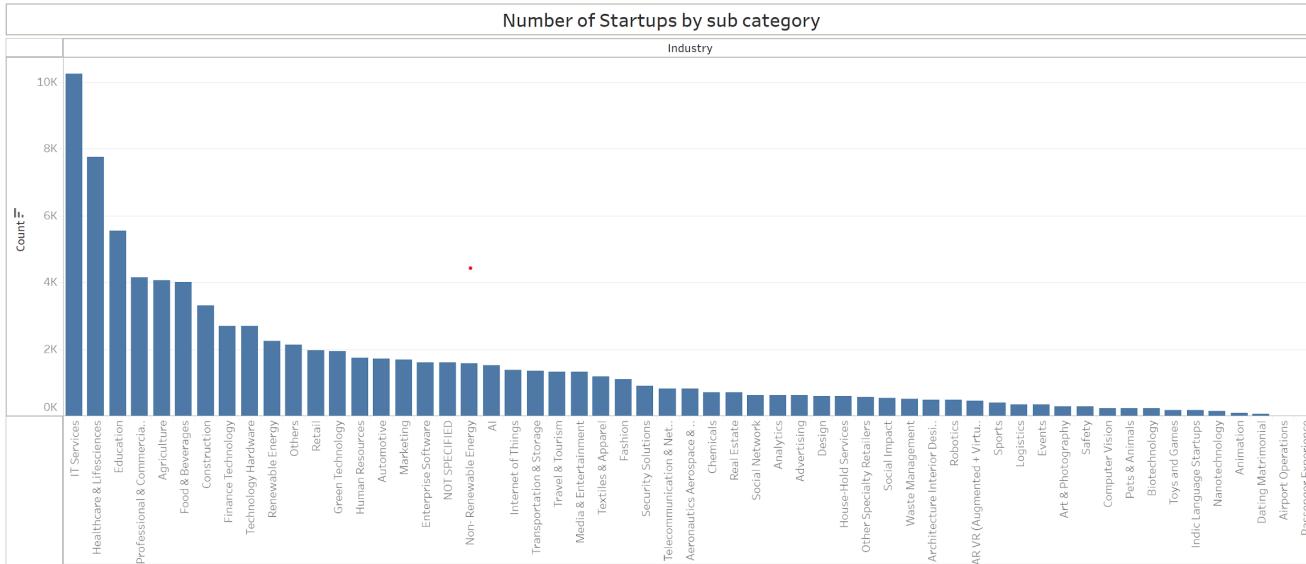
A successful business startup involves the strategic planning, execution, and continuous adaptation of a new business idea into a profitable and sustainable enterprise. It requires a combination of factors such as a strong value proposition, thorough market research, effective marketing and sales strategies, sound financial management, efficient operations, and a dedicated team. Successful startups are able to identify and address customer needs, differentiate themselves from competitors, and consistently deliver value to their target market, while also being agile and adaptable to changes in the business environment.

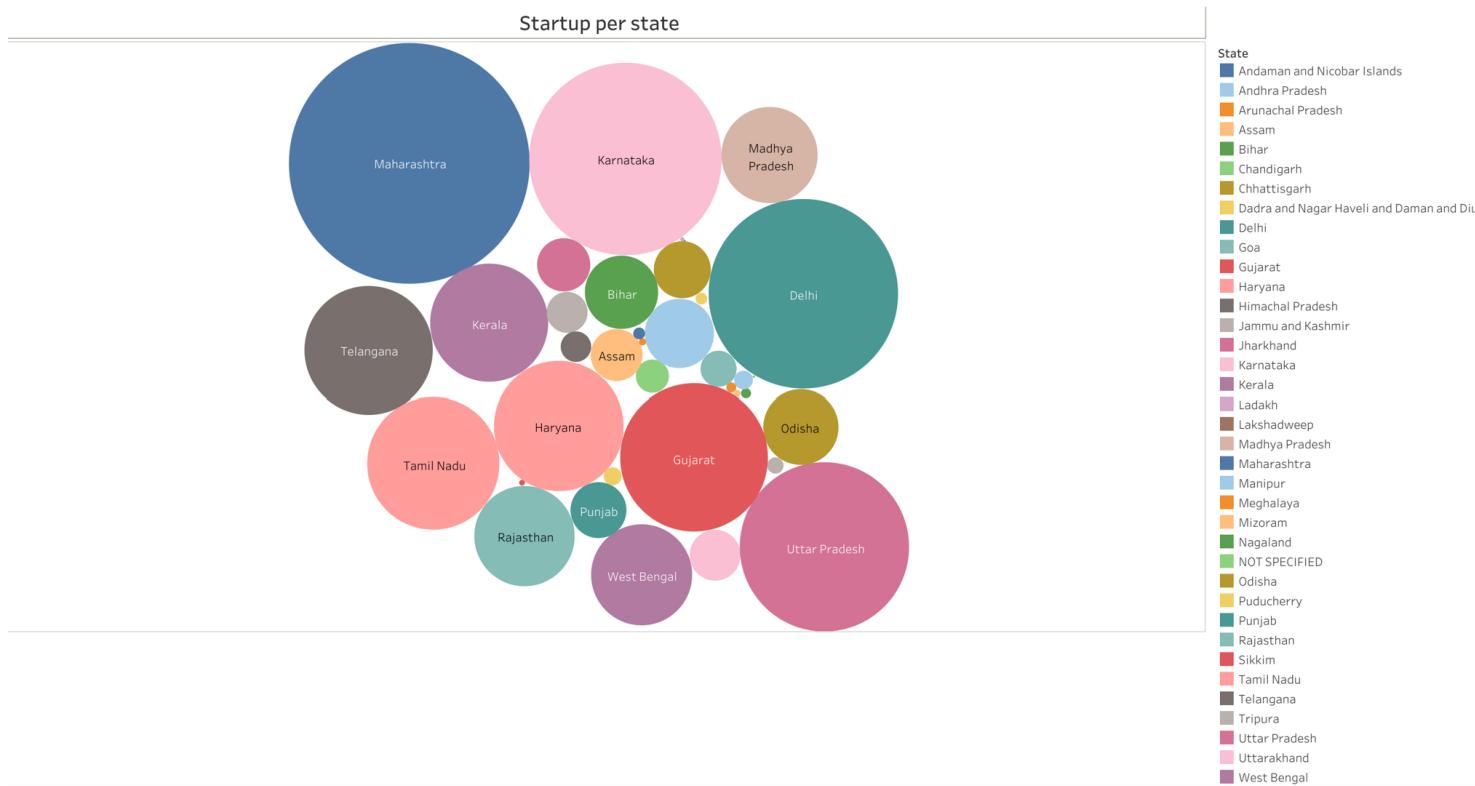
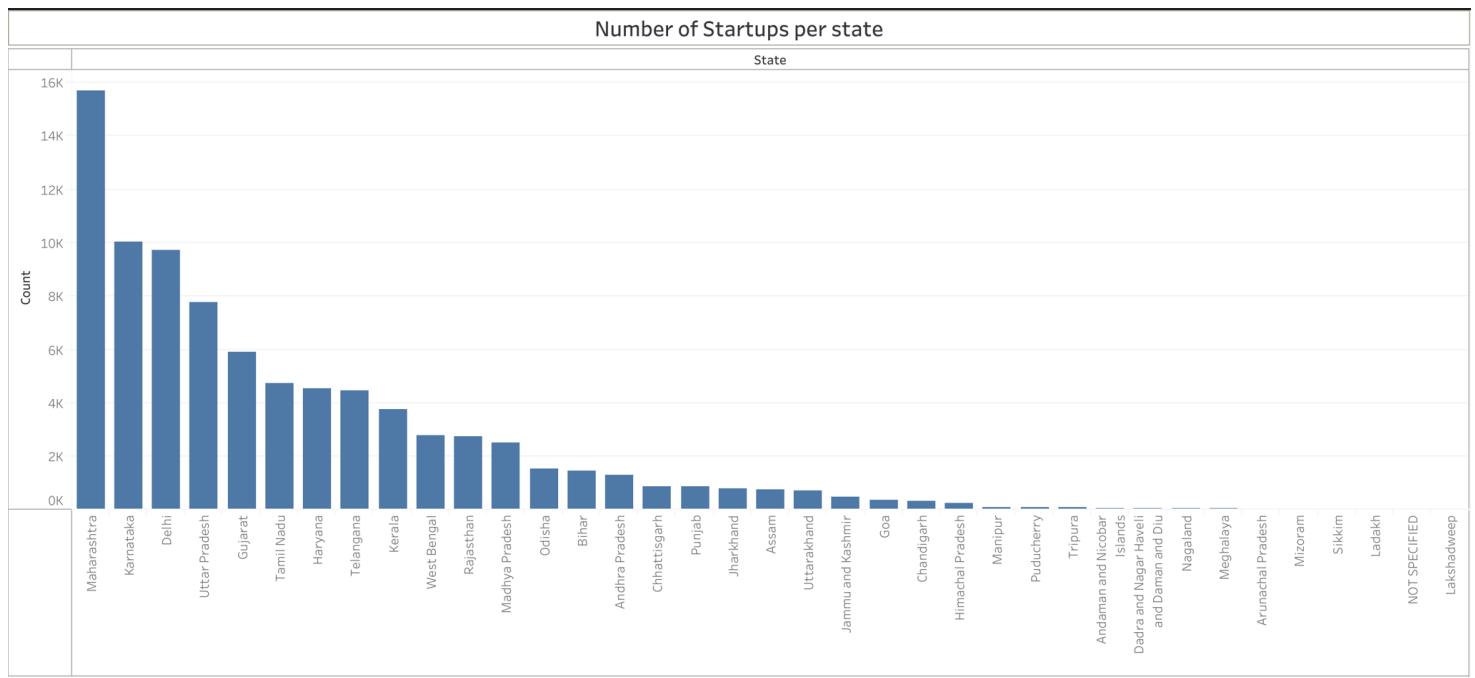
Successful Start ups



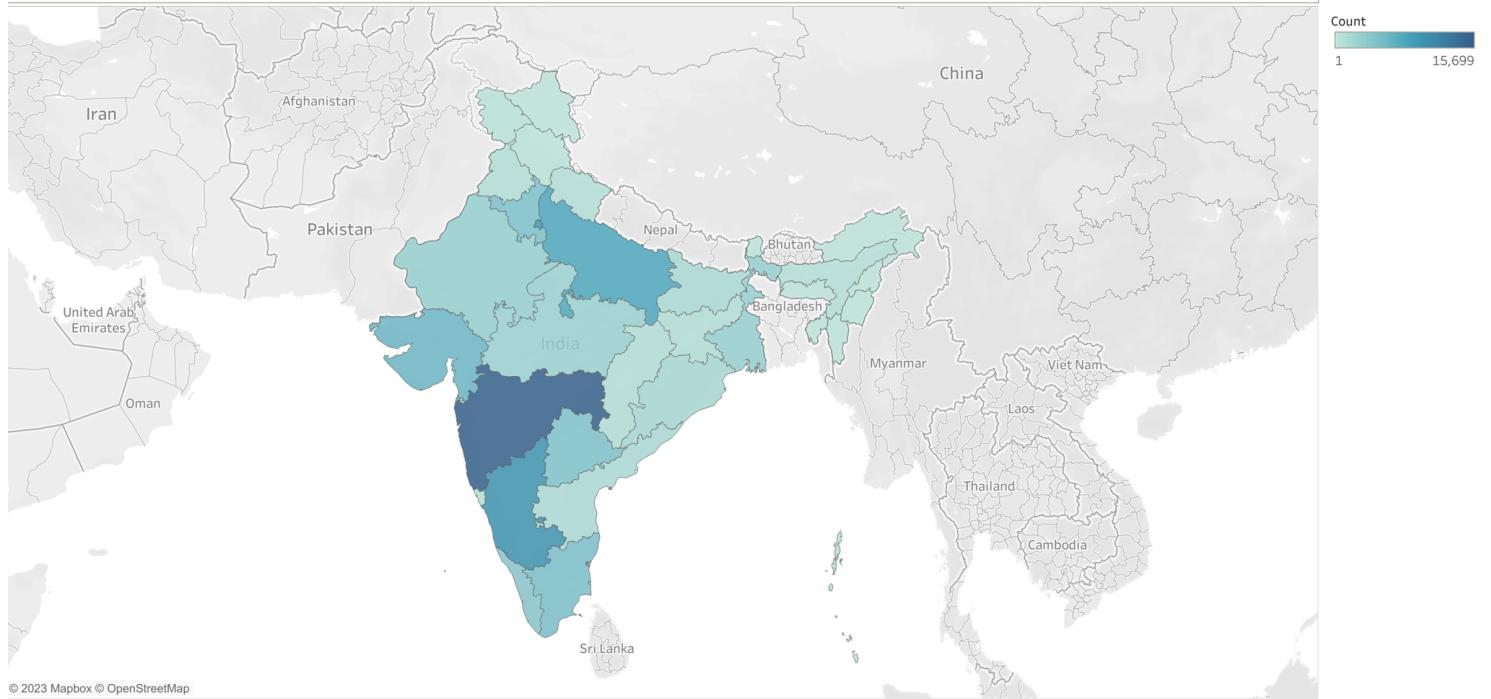
6. Result

6.1 VISUALIZATIONS

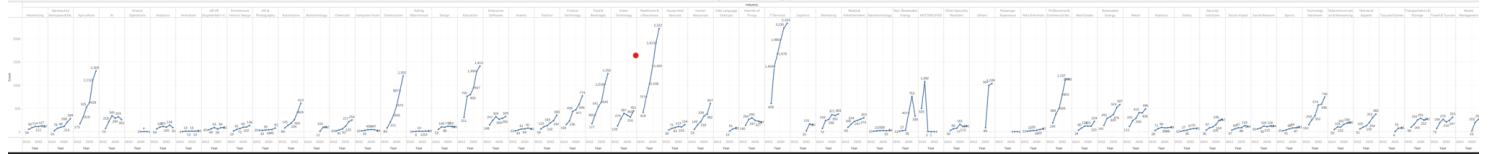




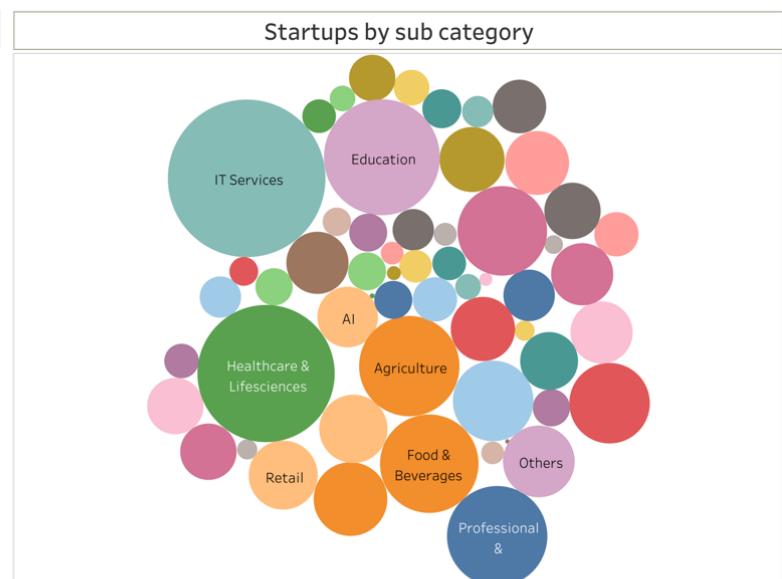
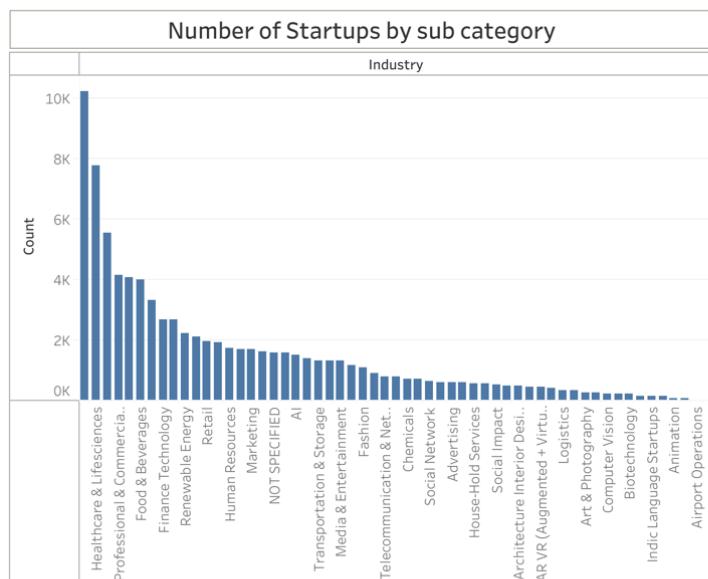
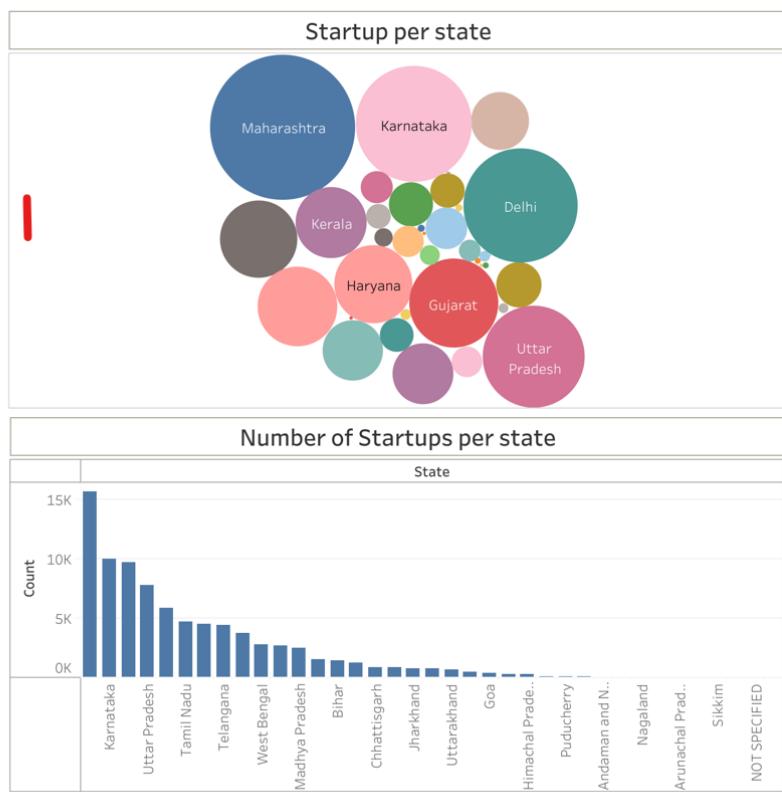
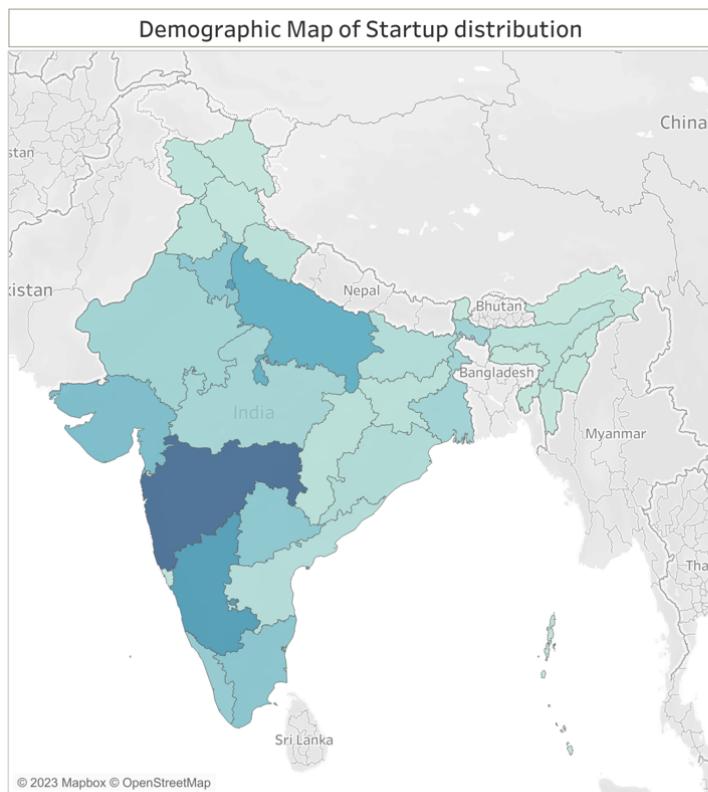
Demographic Map of Startup distribution



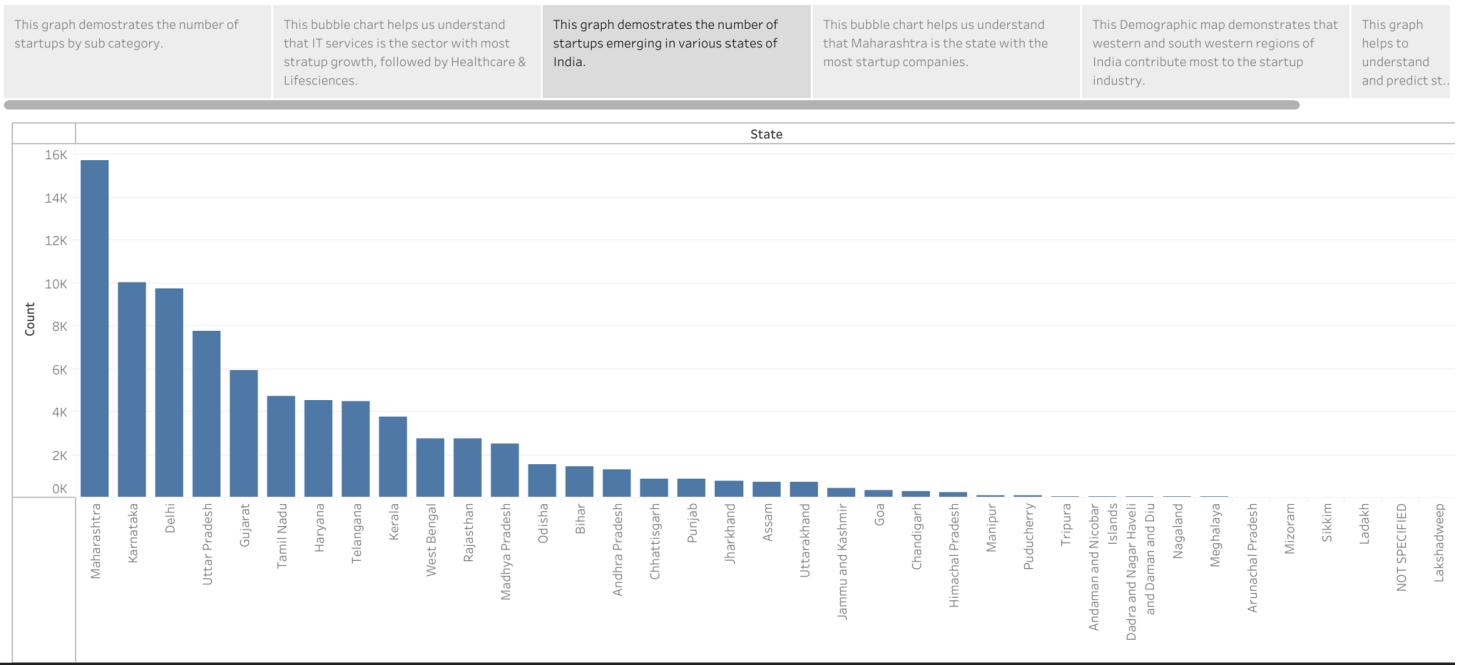
Yearwise growth in Startup subcategory



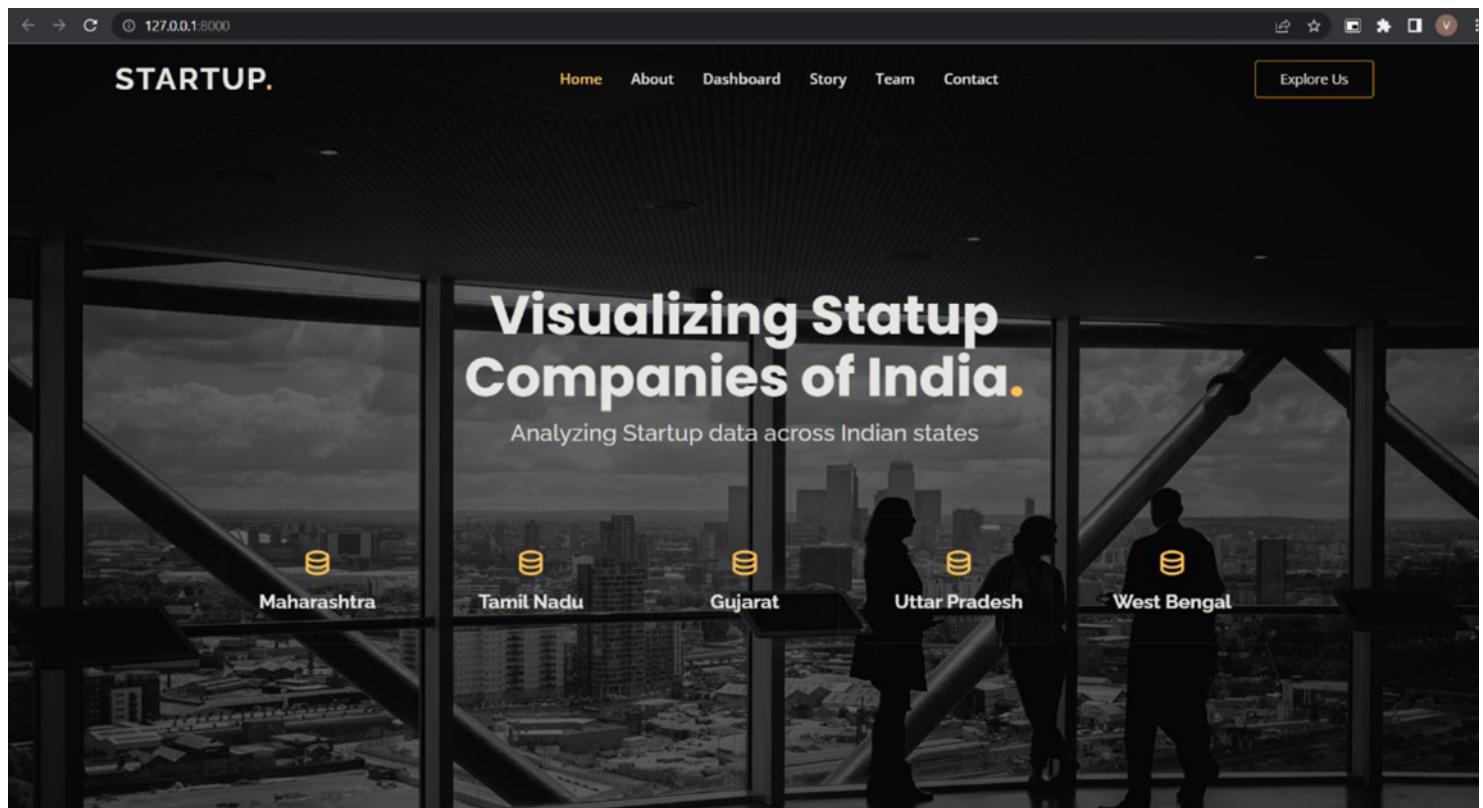
DASHBOARD



STORY



WEBSITE



Visualizing Startup Companies Of India

Starting a new company can be an exciting and rewarding experience, but it also requires careful planning and analysis to ensure that the business is viable and successful. There are several key areas that you should focus on when conducting a startup company analysis. Conducting a thorough analysis of these areas can help you identify potential challenges and opportunities, and develop strategies to address them. It is also important to regularly review and update your analysis as the business progresses, in order to adapt to changing market conditions.

Why are there so many Startups in India

Big enterprises are realizing the potential of startups and are investing or partnering with them.

Indian government understands the value of disruptive innovators across the value chain. More than 26 states have startup policies.

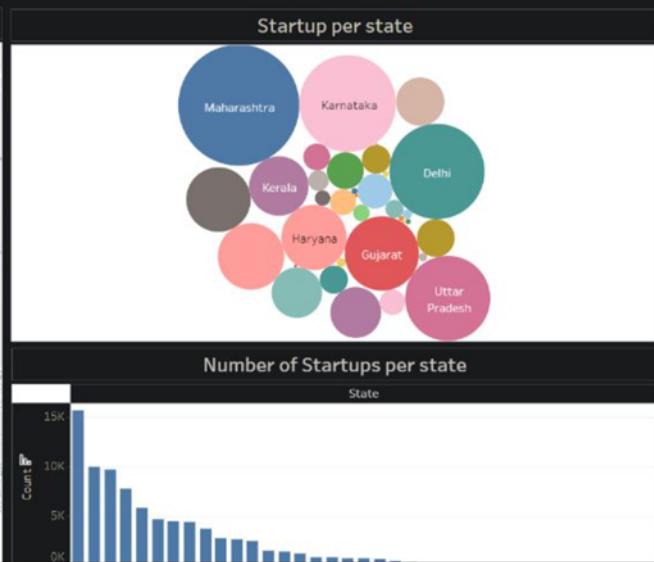
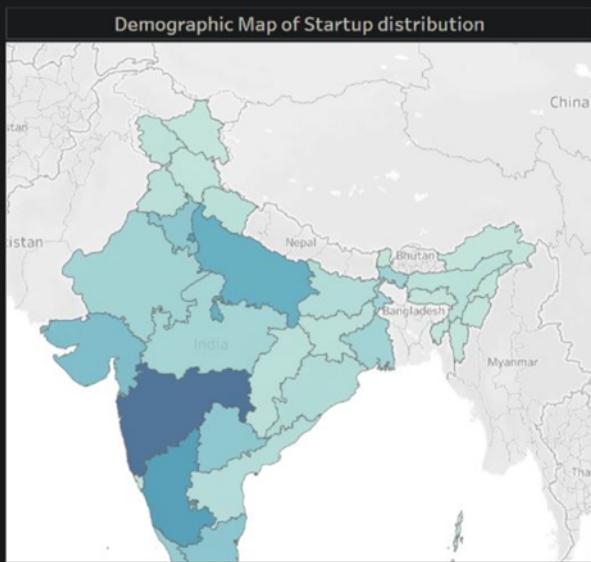
Indian government understands the value of disruptive innovators across the value chain. More than 26 states have startup policies.

First-generation entrepreneurs inspired new ones to start their businesses.



DASHBOARD

UNDERSTANDING THE STARTUP DATA



STORY

A VISUAL NARRATIVE OF DATA

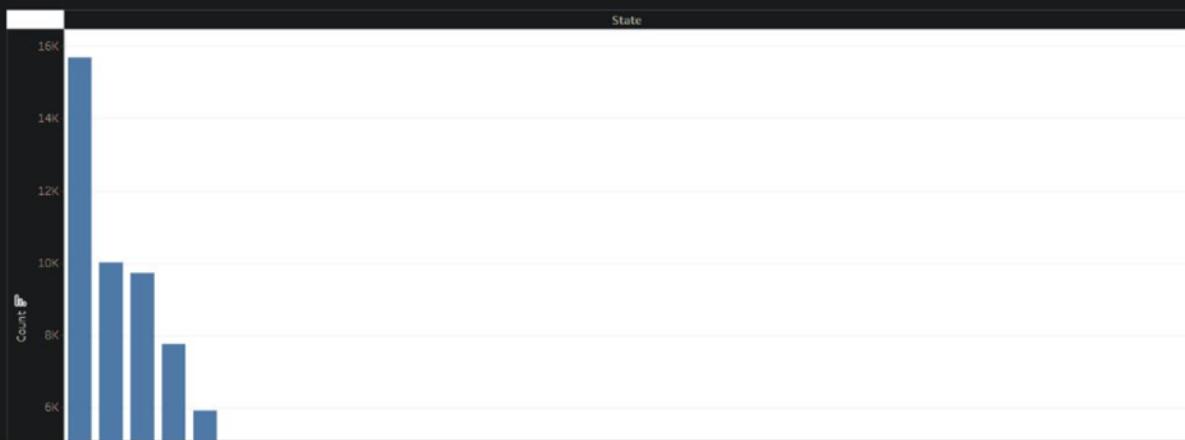
This graph demonstrates the number of startups by sub category.

This bubble chart helps us understand that IT services is the sector with most startup growth, followed by Healthcare & Lifesciences.

This graph demonstrates the number of startups emerging in various states of India.

This bubble chart helps us understand that Maharashtra is the state with the most startup companies.

This Demographic map demonstrates that western and south western regions of India contribute most to the startup industry.

**STARTUP.
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7.

ADVANTAGES

Data analysis using Tableau offers several advantages:

1. **Powerful Data Visualization:** Tableau excels at creating compelling visual representations of data. It offers a wide range of visualization options, including charts, graphs, maps, and dashboards, enabling users to uncover insights and patterns in their data.
2. **Real-time Data Interaction:** With Tableau, users can interact with data in real-time. They can apply filters, drill down into specific data points, and dynamically modify visualizations to explore data from different perspectives.
3. **Data Integration:** Tableau allows users to connect to various data sources, including spreadsheets, databases, and cloud services. It supports data blending and integration, enabling the analysis of multiple data sets to gain comprehensive insights.
4. **Advanced Analytics:** Tableau goes beyond basic data visualization and includes advanced analytics capabilities. Users can perform calculations, create calculated fields, perform statistical analysis, and integrate predictive models within Tableau.

DISADVANTAGES

While Tableau offers numerous benefits for data analysis, there are also some potential disadvantages to consider:

1. **Cost:** Tableau licenses can be costly, especially for enterprise-level deployments. The pricing structure may not be feasible for smaller organizations or individuals with limited budgets.
2. **Data Size Limitations:** Tableau may face challenges in handling extremely large datasets or complex data structures. Performance issues can arise when dealing with millions of rows or extensive data transformations, leading to slower processing times or potential system instability.
3. **Data Storage and Refresh:** Tableau relies on external data sources for analysis, and the data is not stored directly within the software. This dependence on external connections means that analysis and visualizations are reliant on the availability and accessibility of those data sources. Additionally, refreshing data in real-time or near real-time can be challenging, requiring extra effort and potential delays.
4. **Security and Privacy Concerns:** Sharing Tableau visualizations and dashboards externally may raise security and privacy concerns. Organizations need to ensure proper access controls and encryption measures are in place to protect sensitive data when publishing and sharing dashboards.

8. APPLICATION

1. **Investment and Funding Analysis:** Visualizations can help investors and venture capitalists analyze the startup ecosystem in India. They can identify trends, growth sectors, and potential investment opportunities by visualizing funding rounds, valuation trends, and the distribution of investments across different sectors and regions.
2. **Market Research and Competitive Analysis:** Visualizing startup companies can provide insights into market dynamics, competitive landscape, and emerging trends. By visualizing the distribution of startups in different industries, their market share, and growth rates, businesses can make informed decisions regarding market entry, partnerships, or product development strategies.
3. **Talent Acquisition and Recruitment:** Startups often face challenges in attracting talent. Visualizing startup companies can help showcase the diversity, growth potential, and innovation within the startup ecosystem. It can serve as a recruitment tool to attract skilled professionals, entrepreneurs, and potential co-founders who are interested in joining and contributing to the startup community.
4. **Business Networking and Collaboration:** Visualizing startups can facilitate networking and collaboration among entrepreneurs, investors, and industry stakeholders. By visualizing key players, events, and industry-specific information, it becomes easier to identify potential partners, mentors, or advisors, fostering collaboration and knowledge sharing within the startup community.

9. CONCLUSION

Some key findings in the analysis are –

1. **Sector Distribution:** The analysis showed the distribution of startups across various sectors. It helps identify the dominant sectors experiencing significant growth and innovation, such as technology, e-commerce, fintech, healthcare, and renewable energy.
2. **Geographical Concentration:** Visualizations can show the geographical concentration of startups in India. They can highlight startup hubs and cities with a high density of entrepreneurial activity, such as Bengaluru, Mumbai, Delhi-NCR, Hyderabad, and Chennai.

10. FUTURE SCOPE

1. **Advanced Data Analytics:** As data analytics techniques continue to evolve, the future of visualizing will likely involve more advanced data analysis methods. This may include predictive analytics, machine learning algorithms, and AI-powered insights to uncover hidden patterns and make accurate predictions about the success or failure of startup ventures.
2. **Interactive and Real-time Visualizations:** The future of visualizing startup companies may involve more interactive and real-time visualizations. Users will be able to manipulate and explore data in real-time, allowing for dynamic insights and personalized analysis. This can lead to more engaging and customized experiences for users.
3. **Virtual and Augmented Reality (VR/AR) Visualization:** Visualizing leverage VR and AR technologies to create immersive and interactive experiences. Users can explore virtual environments, visualize complex data in three dimensions, and interact with visualizations using augmented reality overlays, enhancing the understanding and analysis of data.
4. **Customization and Personalization:** Future developments may focus on providing users with greater customization and personalization options in visualizing . Users will have the ability to tailor visualizations to their specific needs, preferences, and areas of interest, enhancing the relevance and usefulness of the insights generated.

11. BIBLIOGRAPHY

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- Tracxn :Website: <https://tracxn.com> - Tracxn is a platform that provides detailed insights and analysis of startups across various sectors in India. It offers comprehensive data on startup funding, industry trends, market intelligence, and visualizations of startup landscapes.
- Inc42: Website: <https://inc42.com> - Inc42 is a media platform that covers news, analysis, and insights on the Indian startup ecosystem. It provides reports, infographics, and visualizations that offer an overview of the startup ecosystem, funding trends, and emerging sectors.