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INTRODUCTION

Project Overview

This project delves into the realm of business formation trends in the United States, leveraging a rich dataset of quarterly business formation applications, namely Employee Identification Numbers (EINs) issued by the Internal Revenue Service (IRS). Harnessing the power of Tableau, a versatile data visualization tool, we aim to transform this raw data into actionable insights that can guide strategic decision-making for businesses and policymakers alike.

Purpose

The core objectives of this project are threefold:

Unearth patterns and trends in business formation across the United States. To achieve this, we will meticulously map out the geographical distribution of new businesses, identifying emerging hotspots and areas that demand further exploration. Additionally, we will delve into the industries represented by these newly formed enterprises, gaining insights into the dynamic composition of the U.S. business landscape. Moreover, we will examine the broader economic climate, analyzing factors such as GDP growth, unemployment rates, and interest rates to understand their influence on business formation rates.

Uncover the driving forces behind business formation trends. This aspect of the project involves conducting a comprehensive analysis of demographic data, economic indicators, and regulatory changes. By unraveling the motivations behind individuals and entities starting new businesses, we aim to identify the key factors that influence the entrepreneurial spirit in the United States.

Provide actionable insights for businesses and policymakers. The findings from this project will not only enhance our understanding of business formation trends but also translate into practical recommendations for businesses and policymakers. Businesses can utilize these insights to identify potential markets for expansion, tailor their products and services to specific regions, and make informed decisions regarding resource allocation. Policymakers, on the other hand, can leverage these insights to develop policies that support entrepreneurship, foster economic growth, and promote job creation.

In essence, this project embarks on a data-driven journey to uncover the dynamics of business formation in the United States. By utilizing Tableau's visualization prowess, we transform raw data into a tapestry of insights, empowering businesses and policymakers to make informed decisions that shape the entrepreneurial landscape of the nation.

LITERATURE SURVEY

Existing problem

The United States Census Bureau collects data on business formations every quarter. However, this data is not always accessible to businesses and entrepreneurs. This can make it difficult for businesses to track trends and make informed decisions about their own growth.

References

The United States Census Bureau: https://www.census.gov/

The Business Formation Statistics (BFS) dataset: https://www.census.gov/econ/bfs/index.html

Problem Statement Definition

How can we make business formation data more accessible to businesses and entrepreneurs?

Proposed Solution

We can use Tableau to create visualizations of business formation data. This will make it easier for businesses to see trends and make informed decisions about their own growth.

Benefits of the Proposed Solution

Businesses will be able to track trends in business formation.

Businesses will be able to make informed decisions about their own growth.

Businesses will be able to better understand the business landscape in their area.

Challenges of the Proposed Solution

Collecting and cleaning the data can be time-consuming.

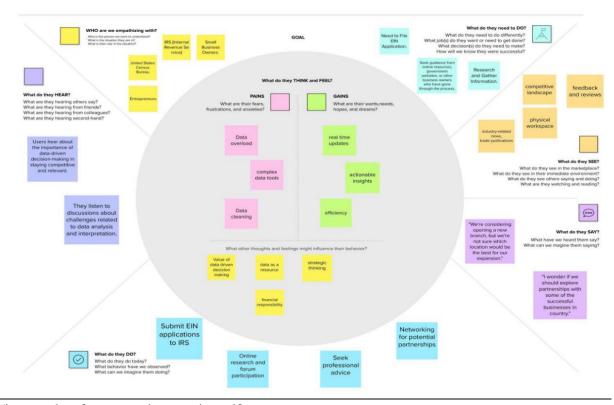
Creating visualizations that are easy to understand can be challenging.

Making the visualizations accessible to businesses can be difficult.

Overall, the proposed solution has the potential to make business formation data more accessible to businesses and entrepreneurs. This could have a significant impact on the growth of the U.S. economy.

IDEATION & PROPOSED SOLUTION

Empathy Mapping:



(image taken from empathy mapping pdf)

Scenario planning is a valuable strategic technique for understanding business formation insights in the U.S. The process involves these key steps:

Identifying Driving Forces and Uncertainties: The first step is to identify the driving forces and uncertainties that significantly affect business formation. This may include economic conditions, regulatory changes, demographic trends, and technological advancements.

Developing Plausible Scenarios: With these driving forces in mind, businesses create plausible scenarios representing different potential futures. Scenarios could range from a surge in new businesses due to favorable policies to a decline in startups due to economic challenges.

Assessing Implications: Data analysis tools like Tableau can be used to evaluate the implications of each scenario. By understanding how changes in business formation rates might impact markets, customer behavior, and revenue, companies can gain valuable insights into their future prospects.

Formulating Contingency Plans: Using the insights gained from scenario planning, businesses create contingency plans for each scenario. For instance, they might prepare marketing strategies to target new entrepreneurs in a scenario of business growth, or they might

develop cost-cutting measures in anticipation of a decline.

Regular Review and Update: Scenario planning is an ongoing process. Companies should regularly review and update their scenarios and contingency plans as new data becomes available and market conditions evolve. This flexibility ensures their strategies remain relevant and effective.

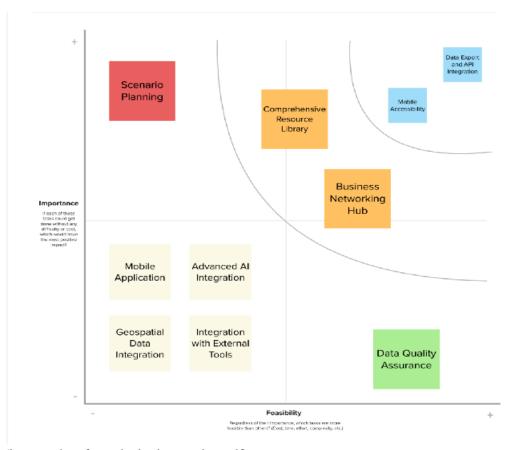
By integrating scenario planning into their strategic decision-making, businesses can enhance their adaptability and resilience. This approach equips them with the means to navigate the unpredictable business formation landscape in the U.S., seize opportunities, and manage risks effectively. It fosters a proactive culture that aligns business strategies with potential future market developments.

Brainstorming:



(image taken from brainstorming pdf)

The group of yellow sticky notes on a white background with text related to business ideas and strategies suggests that individuals or teams are brainstorming and generating ideas for business formation and development. This could include concepts like "User-Generated Content," "Interactive Dashboards," "Small Business Education," and "Competitor Analysis." These ideas may be relevant for strategic decision-making in the context of business formation and growth in the U.S.



(image taken from the brainstorming pdf)

The diagram outlining the scenario planning process provides a structured approach for developing and evaluating potential future scenarios for a business or organization. Scenario planning is a valuable technique for addressing critical uncertainties, which is essential when considering business formation. It encourages businesses to consider factors like "Historical Trend Analysis," "Integration with External Tools," and "Investor Attraction Metrics" to adapt their strategies to different possible futures. This method aligns with the goal of using data-driven insights to make informed decisions related to business formation in the U.S.

SUMMARY:

In summary, the sticky notes represent the ideation and strategy generation phase, while the scenario planning diagram illustrates a method for translating these ideas into actionable plans that consider various factors and uncertainties, which is relevant for strategic decision-making in business formation.

REQUIREMENT ANALYSIS

"Charting America's Business Tale with Tableau"

In a data-rich landscape, we harnessed the United States Census Bureau's quarterly dataset capturing applications for EINs, the business equivalent of SSNs. Using Tableau's magic, we visualized these applications, mapping their geographical distribution, analyzing trends over time, enabling comparisons between states and industries, and even forecasting future patterns.

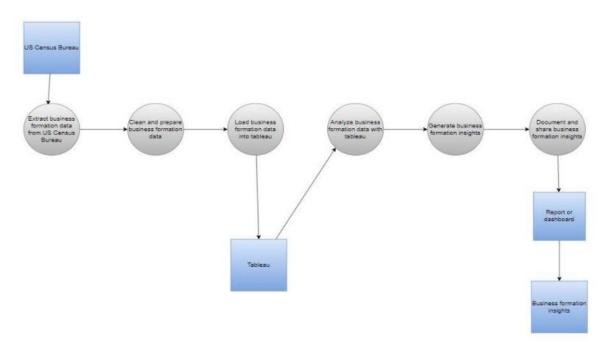
Our requirements? Functionality to collect, integrate, visualize, and analyze data. Non-functional needs included smooth performance, scalability, security, user-friendliness, compatibility, reliability, and compliance.

The result? A dynamic, secure, and user-friendly tableau-driven platform offering deep insights into the pulse of U.S. business formation. It's a map to navigate the dreams and decisions shaping America's entrepreneurial spirit.

PROJECT DESIGN

Data Flow Diagrams & User Stories

A Data Flow Diagram (DFD) for this project visually depicts how information flows within the system. It includes external entities like the Census Bureau, internal processes for data collection, processing, and Tableau visualization, and data stores for storage. Data flows within the diagram illustrate the movement of information through the system, showcasing its path from input to output.



(image taken from data flow diagrams pdf)

User Stories

User stories are brief descriptions of user needs that serve as valuable tools for gathering user input, defining project scope, and prioritizing development tasks. In the context of uncovering business formation insights using Tableau, user stories can help ensure that the developed visualizations align with the specific needs of business analysts, entrepreneurs, and policymakers, enabling them to make informed decisions and gain valuable insights from the data.

Step	Task	Description	Inputs	Outputs	Difficulty/C omplexity
1	Extract business formation data from US Census Bureau	Download the business formation data from the US Census Bureau website.	None	Business formation data in CSV, XLS, or XML format	Low
2	Clean and prepare business formation data	Remove duplicate records, correct errors, and convert the data to a consistent format.	Business formation data in CSV, XLS, or XML format.	Cleaned and prepared business formation data	Medium
3	Load business formation data into Tableau	Connect Tableau to the business formation data source and import the data into a Tableau workbook.	Cleaned and prepared business formation data	Tableau workbook containing the business formation data	Low
4	Analyze business formation data with Tableau	Create visualizations and dashboards to explore the data and identify patterns and trends.	Tableau workbook containing the business formation data	Tableau visualizations and dashboards	Medium
5	Generate insights from business formation data	Interpret the results of the analysis and draw conclusions.	Tableau visualizations and dashboards	Business formation insights	High

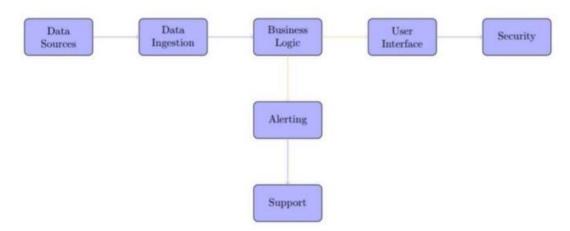
(image taken from data flow diagrams pdf)

Solution Architecture:

Solution architecture encompasses the high-level design and organization of the system components required to address the problem statement. It outlines the overall structure, interfaces, and interactions between the various components, ensuring that the system effectively fulfills the identified business requirements. In this context, the solution architecture would define the data acquisition, processing, visualization, and reporting components, ensuring seamless data flow and efficient utilization of Tableau for business insights generation.

Key components:

- Data Collection
- Data Processing
- Analysis and Visualization
- Scalability
- Performance Optimization
- Feedback Loop



(image taken from solution architecture pdf)

PROJECT PLANNING & SCHEDULING

Sprint	Sprint Names	Goal	Tasks	Story Points	Done By	Start Date	End Date
Sprint 1	Ideation	Empathy & Brainstorming Ideas	Task 1: Define the problem statement	4	Aalla Srideep	12-10-2023	13-10-2023
Sprint 1	Ideation	Empathy & Brainstorming Ideas	Task 2: Brainstorming Ideas	6	Atharv Kulkarni	12-10-2023	13-10-2023
Sprint 2	Project Design	Proposed Solution, Solution Architecture, Data Flow Diagram.	Task 3: Proposed Solution	2	Aalla Srideep	14-10-2023	18-10-2023
Sprint 2	Project Design	Proposed Solution, Solution Architecture, Data Flow Diagram.	Task 4: Solution Architecture	4	Jayishnu Agarwal	14-10-2023	18-10-2023
Sprint 2	Project Design	Proposed Solution, Solution Architecture, Data Flow Diagram.	Task 5: Data Flow Diagram	4	Lokesh Donthi	14-10-2023	18-10-2023
Sprint 3	Project Planning	Technology Stack , Project Planning Details.	Task 6: Technology Stack	4	Atharv Kulkarni	19-10-2023	25-10-2023
Sprint 3	Project Planning	Technology Stack , Project Planning Details.	Task 7: Project Planning Details	6	Aalla Srideep	19-10-2023	25-10-2023
Sprint 4	Project Development	Design Visualization , Dashboards , Stories.	Task 8: Design Visualization	3	TBD	25-10-2023	30-10-2023
Sprint 4	Project Development	Design Visualization , Dashboards , Stories.	Task 9: Dashboards	3	TBD	25-10-2023	30-10-2023
Sprint 4	Project Development	Design Visualization , Dashboards , Stories.	Task 10: Stories	4	TBD	25-10-2023	30-10-2023
Sprint 5	Performance & Testing	Test the website integration with Project development Goals.	Task 11: Test the website integration	10	TBD	01-10-2023	03-10-2023

(image taken form project planning pdf)

The project is divided into five sprints, each with distinct goals and tasks aimed at progressing through various project stages. Sprint 1, focused on ideation and brainstorming, involves defining the problem statement and generating ideas. Sprint 2 concentrates on project design elements such as proposed solutions, solution architecture, and data flow diagrams, each handled by different team members. Sprint 3 delves into project planning, detailing the technology stack and planning specifics, while Sprint 4 shifts towards project development, covering design visualization, dashboards, and stories. Lastly, Sprint 5 centers on performance and testing, particularly testing the website integration with project development goals. Each sprint delineates specific tasks with assigned team members, ensuring a structured and phased approach to the project's execution, leading to a comprehensive and systematic progression through its various stages.

Sprint 7	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
1	10	2 days	12-10-2023	13-10-2023	10	13-10-2023
2	10	4 days	14-10-2023	18-10-2023	10	18-10-2023
3	10	6 days	19-10-2023	25-10-2023	08	27-10-2023
4	10	5 days	25-10-2023	30-10-2023	-	TBD
5	10	3 days	01-10-2023	03-10-2023	-	TBD

Velocity:

$$AV = \frac{50}{10} = 5$$

The team is able to complete 5 story points per day on average

(image taken form project planning pdf)

CODING & SOLUTIONING

Her is the code snippets:

```
// index.html ×

// comin id="main">

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// comin id="
```

```
div class="section-title">

div class="col-d-flaceholder" data-ass="fade-up" data-ass-delay="200">

div class="col-lg-12 col-md-6 portfolio-item">

div class="tableauPlaceholder" id='viz1699465675204' style='position: relative'><noscript><a href='#'<a href=
```

(Images taken from our website created by us during the Project development phase.)

Our data analytics website is a digital hub meticulously designed to unlock the hidden treasures of the ever-evolving U.S. business landscape. Imagine arriving at our homepage—a captivating visual of our expert team, positioned against a bustling cityscape. This image isn't just a snapshot; it symbolizes our collective prowess and unwavering dedication to comprehending the intricate nuances of

the American business world.

Navigate through our offerings, and you'll discover a treasure trove of functionalities:

Dashboard: It's like a window to a world of insights. Our dashboard meticulously organizes complex data, offering a user-friendly interface to explore key metrics and trends effortlessly.

Visualizations: Complex numbers come alive in this section, transformed into engaging and informative graphics. These visuals serve as powerful tools to communicate intricate information in an easily digestible manner.

Story: In this segment, we're not just crunching numbers; we're crafting narratives. Our storytelling through data breathes life into statistics, translating them into insights that fuel informed decisions and strategic actions

Team: Behind the scenes, our 'Team' section shines a spotlight on the brains and expertise powering our platform. It embodies the collaborative effort and collective expertise driving our success.

Our website isn't just a digital space—it's a testament to our commitment to professionalism, expertise, and data-driven insights. It's an indispensable tool for navigating the dynamic U.S. market, unveiling unexplored business opportunities, and facilitating well-informed decision-making. This platform is more than just data; it's the art of transforming information into action.

PERFORMANCE TESTING

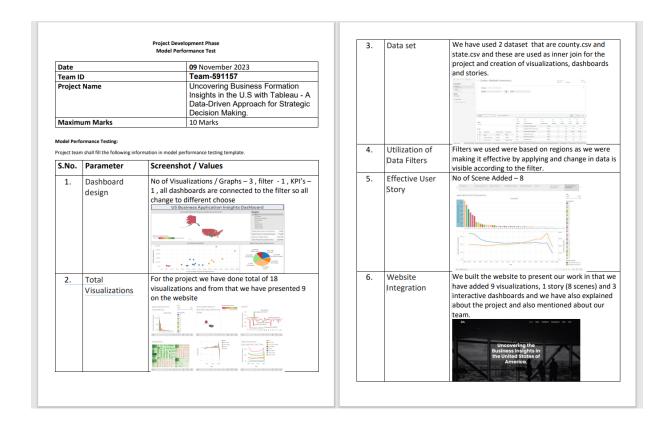
The performance testing framework was structured with a focus on dashboard design and data visualization, comprising three core visualizations/graphs, one filter, and a singular Key Performance Indicator (KPI). All dashboards were dynamically interconnected with the filter, enabling swift transitions between various datasets for efficient comparative analysis.

Throughout the project, a total of 18 visualizations were generated, showcasing the outcomes of comprehensive data analysis. Among these, 9 key visualizations were specifically selected and presented on the project's website, illustrating significant insights derived from the testing process.

The testing procedure revolved around two primary datasets, 'county.csv' and 'state.csv', both strategically integrated through inner joins. These datasets served as the foundational elements for the development of visual representations, dashboards, and data stories, facilitating a detailed performance evaluation.

Data filters played a pivotal role in the analysis, primarily focusing on regional parameters. This approach ensured the accuracy and effectiveness of the performance evaluation by allowing real-time alterations in data visualization based on filter selections, enhancing the depth of insights gleaned from the datasets.

Additionally, a comprehensive user story comprising 8 scenes was constructed to contextualize the performance data effectively. These scenes were designed to present a coherent narrative around the performance metrics, aiding in a more profound understanding of the testing outcomes.



In terms of presentation and dissemination, a dedicated project website was developed, serving as a centralized platform to showcase the findings. The website prominently displayed 9 key visualizations, 3 interactive dashboards, and an elaborate story with 8 scenes. Furthermore, the website provided contextual information about the project, team details, and methodologies used, offering a comprehensive overview of the performance testing process.

RESULTS





The Data Analytics Project

We're here to uncover insights into business formation in the United States using data analysis. Each year, thousands apply for Employee Identification Numbers (EINs), the first step in starting a business. Our mission is to:

Uncover trends in EIN applications.

Provide insights for informed decisions.

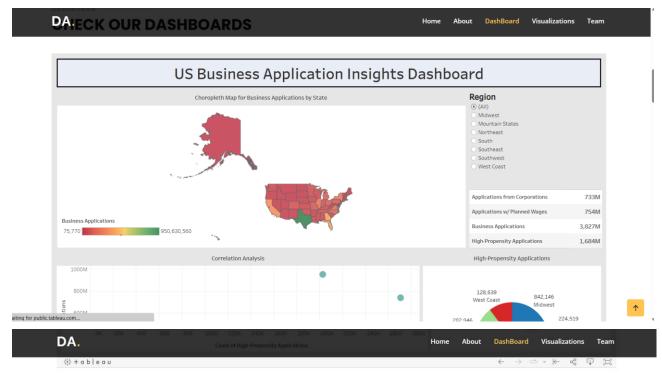
Support policymakers, business owners, and researchers.

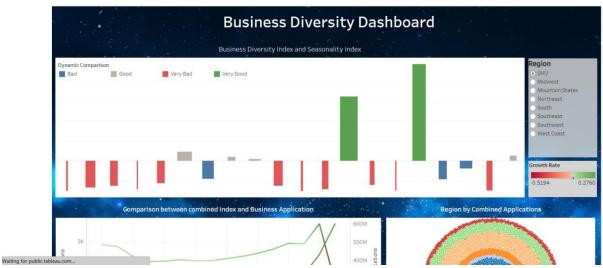
Our data-driven approach uses tools like Tableau to transform data into actionable insights. Explore our visualizations and discover how business formation can shape the future.



DASHBOARD

CHECK OUR DASHBOARDS



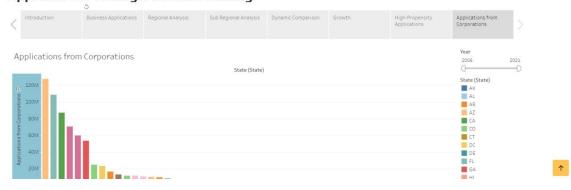


DA. Home About DashBoard Visualizations Story Team

CHECK OUR STORY

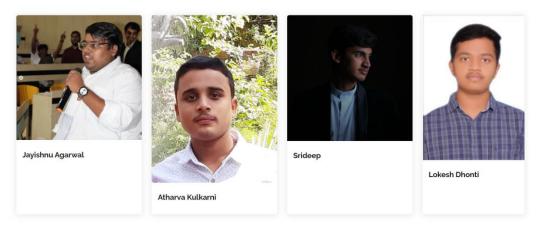
STORY

Uncovering Business Formation Insights In The U.S With Tableau-A Data Driven Approach For Strategic Decision Making.



DA. Home About DashBoard Visualizations Story Team

CHECK OUR TEAM



ADVANTAGES AND DISADVANTAGES

Advantages:

- 1. **Improved understanding of business formation trends:** The dataset can be used to identify trends in business formation across different states, counties, industries, and demographics. This information can be used to inform decisions about where to locate new businesses, which industries to target, and how to reach potential customers.
- 2. **Identification of new business opportunities:** The dataset can be used to identify areas where there is a high demand for new businesses. This information can be used to guide business development efforts and identify potential partnerships with other businesses.
- 3. **Informed policy decisions:** The dataset can be used to inform policy decisions related to business formation, such as tax incentives, regulatory reform, and economic development programs.
- 4. **Enhanced marketing and sales strategies:** The dataset can be used to develop targeted marketing and sales strategies for businesses. This information can be used to identify potential customers, understand their needs, and develop messaging that resonates with them.
- 5. **Improved risk assessment:** The dataset can be used to assess the risk of business failure in different states, counties, and industries. This information can be used to make informed decisions about lending, investment, and insurance.

In addition to these specific advantages, using data-driven insights from the business formation dataset can also lead to:

- Increased profitability
- Improved customer satisfaction
- Increased market share
- Reduced operational costs
- Enhanced competitive advantage

Overall, using data-driven insights from the business formation dataset can be a powerful tool for informing strategic decision-making and achieving business success.

Disadvantages:

Potential disadvantages of using data-driven insights from the business formation dataset to inform strategic decision-making:

- **Data quality:** The quality of the data in the business formation dataset can vary depending on the source and the accuracy of the reporting. This could lead to inaccurate or misleading insights if not carefully considered.
- **Data completeness:** The data in the business formation dataset may not be complete, and there may be missing data for certain states, counties, or industries. This could limit the scope of analysis and make it difficult to draw broad conclusions.
- **Data interpretation:** The interpretation of the data in the business formation dataset can be subjective, and different analysts may come to different conclusions based on the same data. This could lead to conflicting recommendations and make it difficult to reach consensus.
- **Data limitations:** The business formation dataset is just one source of information about business formation trends. There are other factors that can influence business formation, such as economic conditions, government policies, and demographic trends. Not considering these factors could lead to incomplete or inaccurate insights.
- Over reliance on data: Data-driven decision-making should not be a substitute for human judgment and experience. While data can be a valuable tool, it is important to consider other factors and make informed decisions based on a holistic understanding of the situation.

Despite these potential disadvantages, data-driven insights from the business formation dataset can be a valuable tool for informing strategic decision-making. By carefully considering the limitations of the data and using it in conjunction with other sources of information, businesses can gain valuable insights that can lead to improved decision-making and increased success.

CONCLUSION

The business formation dataset from the U.S. Census Bureau can be a valuable source of data for businesses and organizations that are interested in understanding business formation trends and making informed strategic decisions. However, it is important to be aware of the limitations of the data and to use it in conjunction with other sources of information. When used carefully, data-driven insights from the business formation dataset can lead to improved profitability, customer satisfaction, market share, operational efficiency, and competitive advantage.

Here are some key takeaways from the above discussion:

- Data-driven insights can be a powerful tool for informing strategic decision-making.
- The business formation dataset can be a valuable source of data for understanding business formation trends.
- It is important to be aware of the limitations of the data and to use it in conjunction with other sources of information.
- Data-driven decision-making should not be a substitute for human judgment and experience.

FUTURE SCOPE

The future scope for analyzing the business formation dataset from the U.S. Census Bureau is vast and promising. As technology advances and data collection methods evolve, opportunities to uncover deeper insights and expand the applications of this data are emerging. Here are some potential directions for future exploration:

- **Deeper temporal analysis:** Analyze data spanning decades to identify long-term patterns, cyclical fluctuations, and historical events that have influenced business formation trends.
- **Geospatial visualization and analysis:** Visualize EIN applications on maps and analyze spatial correlations to identify clusters of entrepreneurial activity, identify underserved areas, and understand the impact of regional factors on business formation.
- Industry-specific insights and automation: Develop automated tools to extract and analyze trends within specific industries, identifying emerging sectors, tracking market growth, and predicting potential disruptions.
- Integration with social media and economic data: Integrate the business formation dataset with social media data and economic indicators to gain a more holistic understanding of the factors influencing business creation.
- Applications in policymaking and community development: Use insights to inform policymaking and community development initiatives, identifying areas with potential for economic growth, assessing the impact of government policies on business creation, and guiding strategies for promoting entrepreneurship in underserved communities.
- Predictive modeling and risk assessment: Develop predictive models using machine learning algorithms for business survival rates, industry growth potential, and risk assessment of new ventures.
- **Real-time monitoring and alerts:** Generate near-real-time insights by integrating the business formation dataset with real-time data streams such as economic indicators or social media sentiment.

In conclusion, the future of analyzing the business formation dataset is filled with exciting possibilities. As technology advances, data availability expands, and research methods mature, the insights derived from this dataset will continue to inform business strategies, policymaking, and economic development initiatives.