



Data Analytics with Tableau

Project Development report

- **Project Title:**

ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data

- **Team Members:**

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1. INTRODUCTION

1.1 Project Overview :

- This project explores the US toy manufacturing industry using Tableau. It focuses on analyzing patterns, trends, and state-wise performance from the years 2005 to 2016.
- The dashboard and storyboards help stakeholders derive insights for strategic decisions.

1.2 Purpose:

1. Visualize Market Trends

Gain insights into historical toy manufacturing data by analyzing patterns across time and geography. This helps identify growth areas, declines, and key shifts in production trends.

2. Support Strategic Decision-Making

Use data to inform decisions about where and when to produce. Identify

top-performing states, high-index manufacturers, and seasonal demand to optimize operations and investments.

3. Understand Consumer Behavior

Explore toy category popularity, purchasing patterns, and demographic influences. This enables manufacturers to align products with customer preferences and improve market fit.

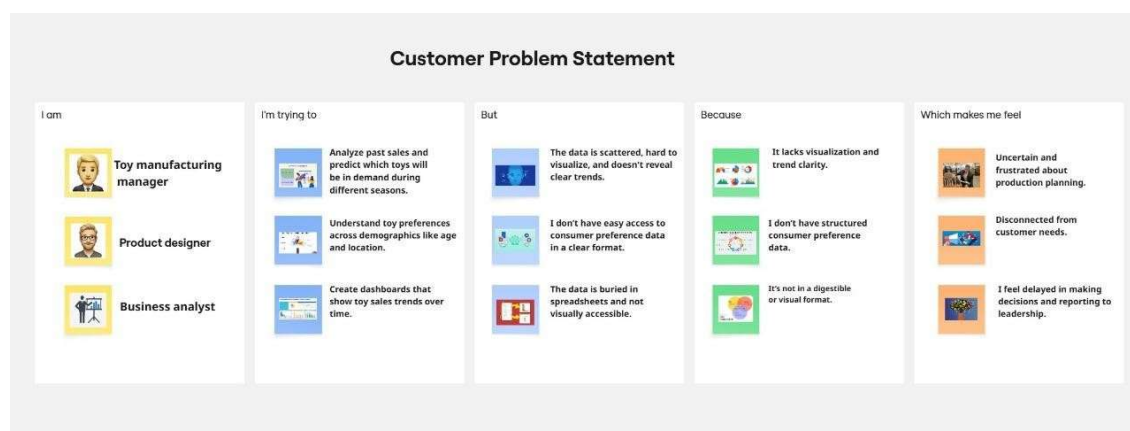
4. Enable Interactive Exploration

Develop dynamic Tableau dashboards that allow users to filter, compare, and interact with the data. This makes analysis more user-friendly and decision-focused.

2. IDEATION PHASE

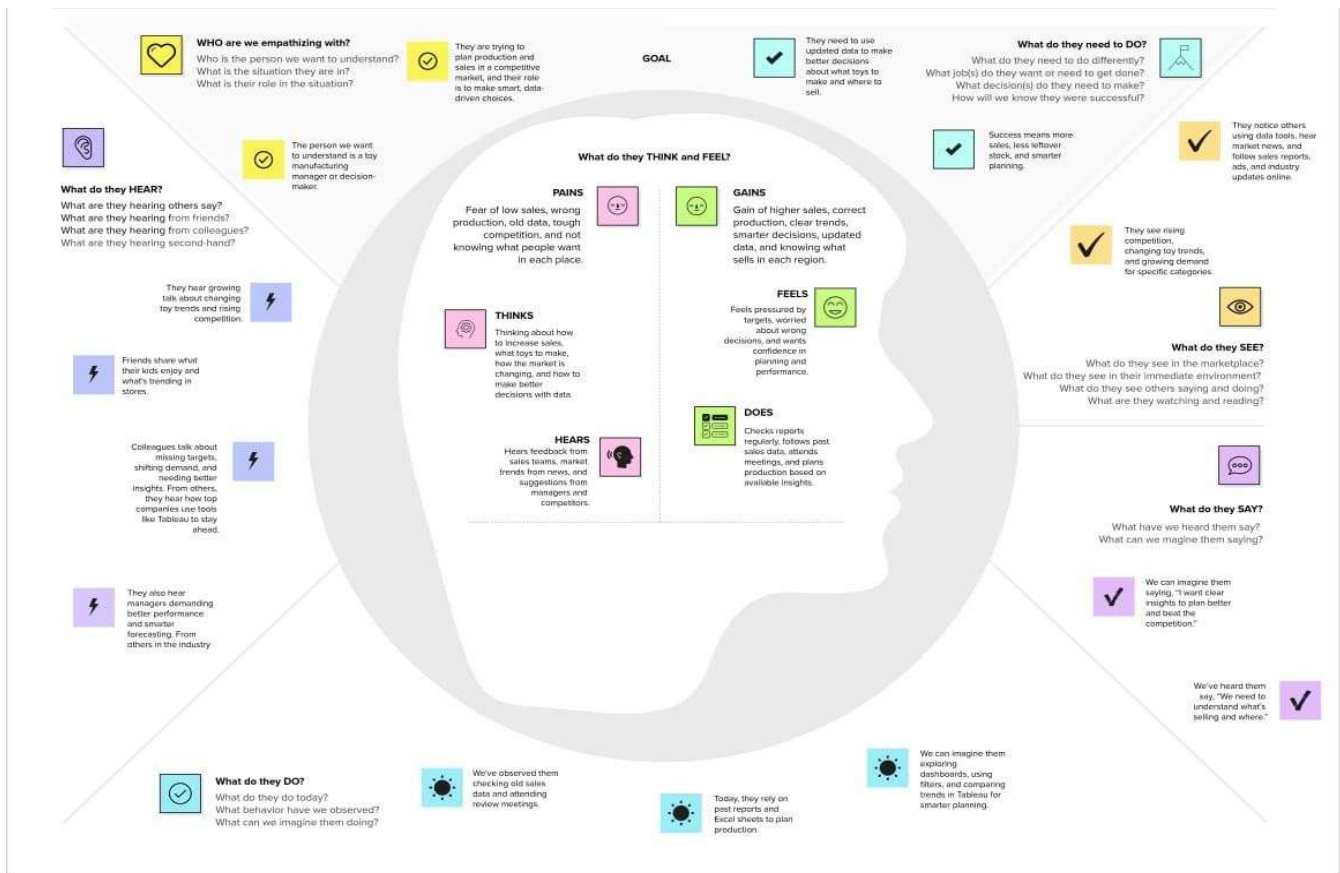
2.1 Problem Statement :

The toy manufacturing industry faces challenges in adapting to dynamic market trends, evolving consumer preferences, and regional demand variations. Despite having access to extensive data, many manufacturers lack actionable insights to make informed strategic decisions. There is a pressing need for a data-driven approach that can reveal production patterns, seasonal sales fluctuations, and demographic-based consumer behavior.

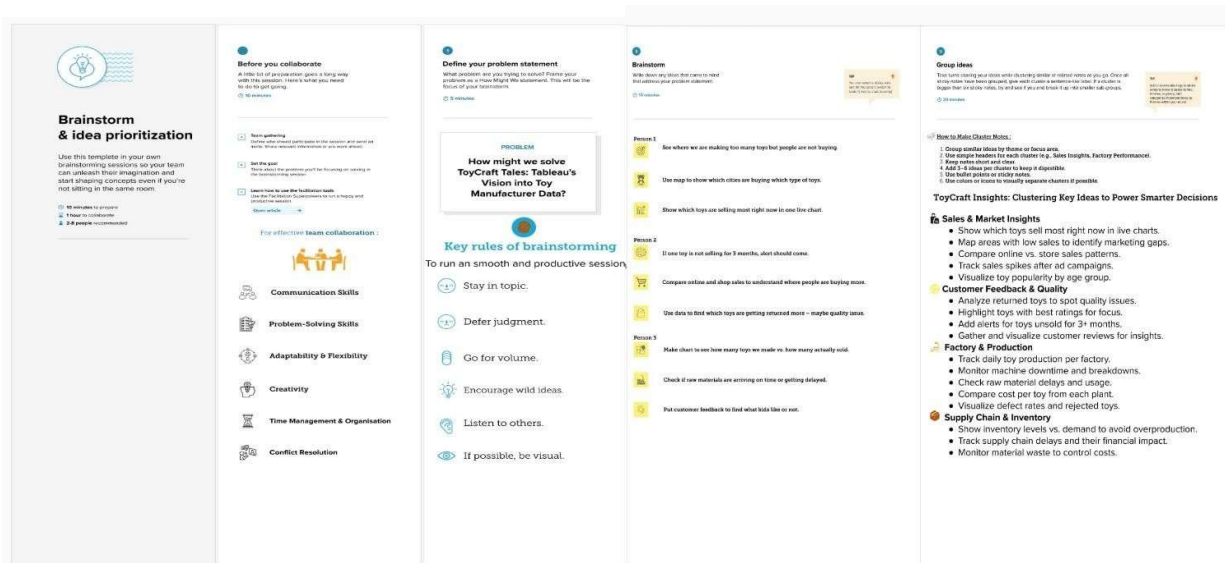


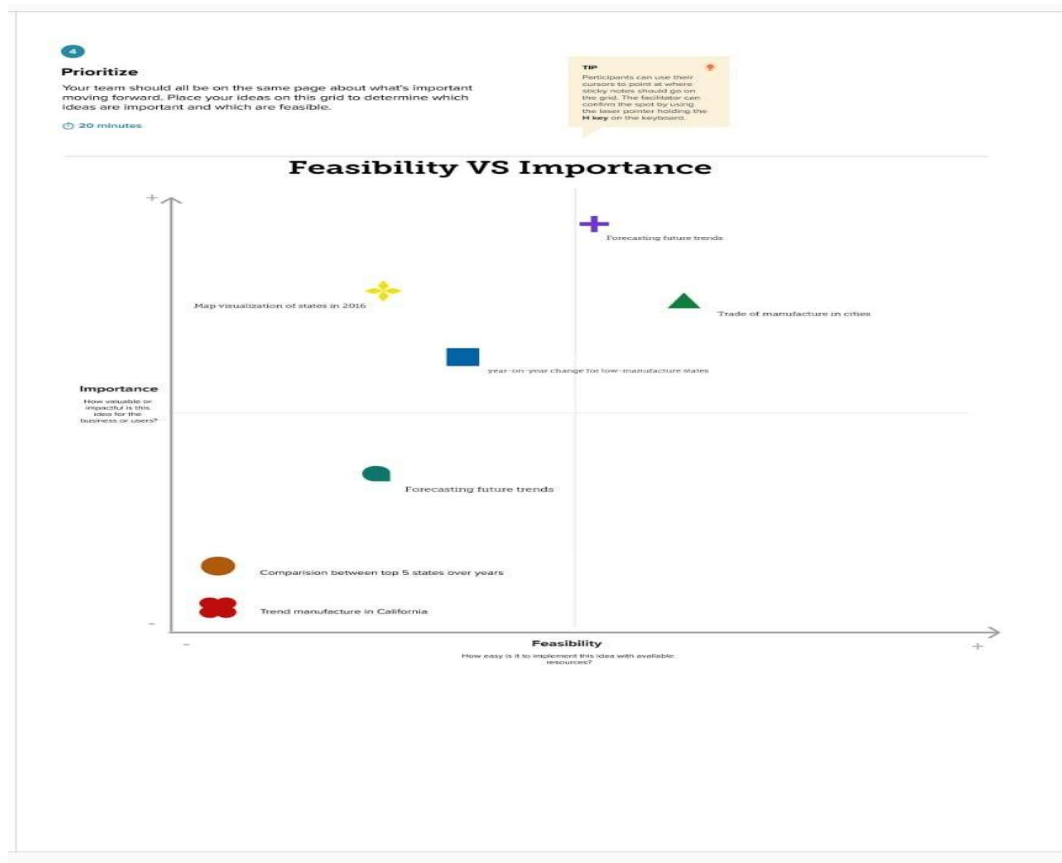
This project addresses the problem by leveraging Tableau to analyze and visualize multi-dimensional toy industry data. It aims to uncover hidden trends, highlight regional and seasonal sales performance, and provide manufacturers with interactive tools to explore consumer preferences. Through insightful visual storytelling, the project empowers stakeholders to optimize production planning, tailor marketing strategies, and enhance competitiveness in a highly seasonal and consumer-driven market.

2.2 Empathy Map Canvas:



2.3 Brainstorming:





3. REQUIREMENT ANALYSIS

The primary objective of this project is to help a toy manufacturing company gain valuable insights into its sales, product performance, and regional distribution through data visualization using Tableau. The stakeholders include business analysts, sales and marketing teams, manufacturing managers, and decision-makers who require clear, interactive, and insightful dashboards to support strategic decisions. The project must handle clean and structured sales data, provide filtering options (e.g., by product, region, or time), and present key metrics in a visually compelling format. Tableau dashboards and stories should load quickly, be responsive, and ensure data security. Data sources include Excel or CSV files containing detailed records of transactions, products, and customer segments. The solution aims to simplify complex data into actionable insights, making data exploration intuitive for all user levels.

3.1 Customer Journey map:

1. **Entice** – People discover the dashboard through social media, websites, or word of mouth.
2. **Enter** – They visit the link and check out the visuals for the first time.
3. **Engage** – Users explore filters, charts, and stories to understand toy sales.
4. **Exit** – After finding insights, they leave or save/download what they need.
5. **Extend** – They return later, share it with others, or use it in team decisions.

Scenario: A toy company uses Tableau to understand and improve its sales.	Entice How does someone become aware of this content?	Enter What do people experience as they begin the process?	Engage This process is about how the Tableau dashboard is used to help the company understand its sales performance.	Exit What do people typically experience as the process finishes?	Extend What happens after the experience is over?
Experience steps What does the person do/people at the center of this scenario typically experience in each step?	Discover a smarter way to explore the sales with stunning visuals. See how data-driven stories can guide better business decisions. Compare features and feel the clarity Tableau brings to your strategy.	They become curious about how data can improve decision-making. They show interest in visual ways to help them understand key sales trends.	Users begin by browsing Tableau dashboard to get an overall view of key sales data. Charts, maps, provide quick insights into performance, key metrics. As they get clarity, users start diving into dashboard for accurate results.	They feel confident making data-driven decisions using Tableau. They gain clear insights into key sales, product performance, and customer trends.	Feedback helps refine dashboard. Users return to check updated data. Smarter, data-driven choices follow.
Interactions What interactions do they have at each step along the way? • People: Who do they see or talk to? • Places: Where are they?	They come across the Tableau dashboard as a word-of-mouth or a shared link or a direct email about its insights on key sales. After using the dashboard, they discuss results with peers, share feedback, and apply insights in their respective business decisions.	Discovery: User learns the Tableau dashboard and its shared link or direct email. First interaction: They explore content and share thoughts with experiences.	People interact with content to explore what their Tableau dashboard shows, by sales trends. People shared company mission or online content, mentioning Tableau's use in the process. People: Contact with sales insights and analytics to understand how they can improve their decision-making. People: Explore Tableau, find a corner, pointed to some engaging sales, dashboard, consistency.	People feel confident after understanding more insights about their business. They gain clear insights into key sales, product performance, and customer trends.	Users apply the insights gained from the Tableau dashboard to inform product focus, pricing, or regional focus. They implement the dashboard in sales reports, leading to better results.
Goals & motivations At each step, what is a person's primary goal or motivation? (Think: "I want..." "I need..." "I should...")	"Help me discover a smarter way to explore the sales with stunning visuals." "Help me avoid using reporting methods." "Help me stay ahead of understanding market trends and customer performance. This is key to my success in my role."	"Help me explore how the Tableau dashboard works for my role." "Help me understand how the dashboard can help me make data-driven decisions." "Help me avoid using reporting methods." "Help me stay ahead of understanding market trends and customer performance. This is key to my success in my role."	"Help me explore how the Tableau dashboard works for my role." "Help me understand how the dashboard can help me make data-driven decisions." "Help me avoid using reporting methods." "Help me stay ahead of understanding market trends and customer performance. This is key to my success in my role."	"Help me explore how the Tableau dashboard works for my role." "Help me understand how the dashboard can help me make data-driven decisions." "Help me avoid using reporting methods." "Help me stay ahead of understanding market trends and customer performance. This is key to my success in my role."	"Help me explore how the Tableau dashboard works for my role." "Help me understand how the dashboard can help me make data-driven decisions." "Help me avoid using reporting methods." "Help me stay ahead of understanding market trends and customer performance. This is key to my success in my role."
Positive moments What goes down a person's list of enjoyable, productive, fun, motivating, delightful, or exciting?	Building a quick story and seeing the results. Feeling inspired by data when exploring - it's easy to understand how the dashboard can help me make data-driven decisions.	Customers learn to use the dashboard and share their insights. Feeling inspired by data when exploring - it's easy to understand how the dashboard can help me make data-driven decisions.	Building a quick story and seeing the results. Feeling inspired by data when exploring - it's easy to understand how the dashboard can help me make data-driven decisions.	Building a quick story and seeing the results. Feeling inspired by data when exploring - it's easy to understand how the dashboard can help me make data-driven decisions.	Building a quick story and seeing the results. Feeling inspired by data when exploring - it's easy to understand how the dashboard can help me make data-driven decisions.
Negative moments What goes down a person's list of frustrating, confusing, angering, costly, or time-consuming?	Too many similar look-alike reports. Lack of awareness about what Tableau can do for my role. Difficultly finding specific insights in the dashboard. Confusion about what Tableau can do for my role.	Overwhelmed by too many reports. Lack of awareness about what Tableau can do for my role. Difficultly finding specific insights in the dashboard. Confusion about what Tableau can do for my role.	Overwhelmed by too many reports. Lack of awareness about what Tableau can do for my role. Difficultly finding specific insights in the dashboard. Confusion about what Tableau can do for my role.	Overwhelmed by too many reports. Lack of awareness about what Tableau can do for my role. Difficultly finding specific insights in the dashboard. Confusion about what Tableau can do for my role.	Overwhelmed by too many reports. Lack of awareness about what Tableau can do for my role. Difficultly finding specific insights in the dashboard. Confusion about what Tableau can do for my role.
Areas of opportunity How might we make each step better? What does it need? What have others suggested?	Provide dashboard with clear, concise, and easy-to-understand insights. Add a clear, concise, and easy-to-understand insights.	Add a clear, concise, and easy-to-understand insights. Add a clear, concise, and easy-to-understand insights.	Add a clear, concise, and easy-to-understand insights. Add a clear, concise, and easy-to-understand insights.	Add a clear, concise, and easy-to-understand insights. Add a clear, concise, and easy-to-understand insights.	Add a clear, concise, and easy-to-understand insights. Add a clear, concise, and easy-to-understand insights.

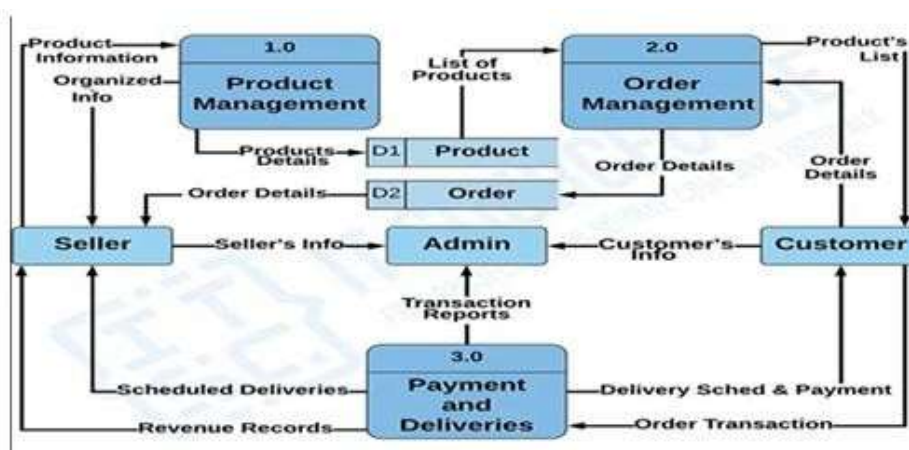
3.2 Solution Requirement:

1. User-Friendly Dashboard
 - Clear visuals and filters to analyze toy sales data.
2. Interactive Storytelling
 - Story feature to guide users through key insights.
3. Responsive Design

- Accessible on desktops, tablets, and mobile devices.
1. Live Data Connectivity (Optional)
 - Option to link real-time or regularly updated datasets.
 2. Data Security & Privacy
 - Ensure shared dashboards protect sensitive info.
 3. Performance & Speed
 - Fast loading and smooth filtering experience.

3.3 Data Flow Diagram:

- Users interact with the ToyCraft Dashboard through a web browser.
- The Dashboard pulls data from a Sales Database that includes product, region, and time-based sales.
- Admin/Analysts upload or update data to the Cloud Data Storage using ETL tools.
- External APIs (e.g., weather or location) may be used to enrich the data before analysis.
- The data flows through Tableau, which processes and presents it visually in dashboards and stories.
- Processed data can also be exported to other tools for reports or shared with management.



3.4 Technology Stack:

1. Frontend

- **HTML/CSS/JavaScript** – For building the interactive landing page and embedding Tableau visualizations.
- **Tableau Public Embed** – To visually present the dashboard and story within the website.

2. Data Visualization

- **Tableau Public** – Main tool used to create dashboards and storyboards for toy sales analysis across products, regions, and time.

3. Backend / Data Handling

- **CSV/Excel Files** – Used for importing cleaned toy sales data into Tableau.
- **ETL (Extract-Transform-Load)** – Performed manually or through Tableau Prep for preprocessing data.

4. Cloud / Hosting

- **Tableau Public Cloud** – Hosts the dashboard and story online for public access.
- **GitHub or Netlify (optional)** – For hosting the static website where Tableau is embedded.

5. External Tools (Optional)

- **Miro/Mural** – For customer journey mapping and planning architecture.
- **Canva** – For banner or UI design.

4. PROJECT DESIGN

4.1 Problem Solution Fit:

Problem:

Toy manufacturing companies often struggle to understand complex sales patterns, regional demand, and product performance due to scattered or unvisualized data.

Solution:

The Tableau dashboard and story provide a centralized, interactive, and visual way to explore toy sales data—helping decision-makers quickly identify trends, compare regions, and make informed business decisions.

Fit:

The solution directly addresses the need for clarity, speed, and accuracy in analyzing sales data. It transforms raw numbers into meaningful insights, enabling better planning and strategy.

Problem-Solution fit canvas 2.0		Purpose / Vision		To help the toy company understand its sales and products better using Tableau dashboards.						
1. CUSTOMER SEGMENT(S) <small>Who is your customer? i.e. working parents of 5-10 y.o. kids</small> CS	2. JOBS-TO-BE-DONE / PROBLEMS <small>Which jobs to be done (or problems) do you address for your customer? There could be more than one, replace different roles</small> JBP	3. TRIGGERS <small>What triggers customers to act? i.e. seeing their neighbour installing solar panels, hearing about a more efficient solution on the news</small> TR	4. EMOTIONS: BEFORE / AFTER <small>How do customers feel when they face a problem or a job to be done? i.e. feel insecure / confused, in control - used in your communication strategy & design</small> EM	6. CUSTOMER CONSTRAINTS <small>What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices</small> CC	9. PROBLEM ROOT CAUSE <small>What is the real reason that this problem exists? What is the back story behind the need to do this job? i.e. customers have to do it because of the change in legislation</small> RC	5. AVAILABLE SOLUTIONS <small>Which solutions are available to the customer when they face the problem, or need to get the job done? What have they tried in the past? What pros & cons do those solutions have? i.e. pen and paper is an alternative to digital toolmaking</small> AS	7. BEHAVIOUR <small>What does your customer do to address the problem and get the job done? i.e. directly related - find the right solar panel installer, substitute usage and benefits, indirectly associated - customer spend less time on customer seg with d.o. (disengagement)</small> BE	10. YOUR SOLUTION <small>If you are working on an existing business, write down your current solution first. Sit at the canvas, and check how much it fits really. If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer legislation, solves a problem and matches customer behaviour</small> SL	8. CHANNELS of BEHAVIOUR 8.1 ONLINE <small>What kind of actions do customers take online? Extract online channels from #7</small> CH	
The toy manufacturing company's management or decision-makers (the people who use my dashboard to gain insights into sales, products, and regions for better decisions).		A need to understand declining sales, shifting market trends, or regional performance gaps prompts customers to explore data insights using the dashboard.		Toy manufacturers lack centralized, user-friendly tools to visualize and analyze data, leading to fragmented insights and delayed decisions. The backstory behind the need to do this job is that traditional sales tracking methods were manual, scattered, and time-consuming—creating a demand for a streamlined solution like Tableau to enable faster, data-driven decisions.		Solutions customers use: 1. Excel Sheets - Easy to use, but slow and not smart enough. 2. ERP Tools - Powerful but costly and hard to customize. 3. Custom Dashboards - Fit well but take time and money to build. 4. BI Tools like Tableau - Fast and clear visuals, but need training.		Customers use tools like Excel or Tableau to understand sales trends and product performance, but without a proper dashboard, it takes time and is hard to get quick insights. Our solution makes it faster and easier with clear visual reports.		Customers search, explore dashboards, watch videos, and engage on platforms like Google, YouTube, LinkedIn, and Tableau Public.
Customers feel uncertain at first, but confident and empowered after gaining insights from the dashboard.						Customers attend meetings, discuss reports, visit stores, and analyze printed dashboards or sales summaries offline.				

Problem-Solution fit canvas is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 license
Created by Denis Appalana / Amaltama.com

AMALTAMA

4.2 Proposed Solution:

We propose implementing an interactive **Tableau Dashboard and Story** that visually represents toy sales data across various regions and products. This solution enables:

- **Real-time insights** into sales performance, top-selling products, and low-performing regions.
- **User-friendly visualizations** for stakeholders to explore trends without deep technical knowledge.
- **Data-driven decisions** through filters, graphs, and KPIs that highlight key metrics.
- **Scalability** to add more data like customer demographics or seasonal trends in future updates.

By using Tableau, the company can convert raw sales data into actionable insights for better planning, marketing, and product decisions.

4.3 Solution Architecture:

The solution architecture for *ToyCraft Tales* integrates data processing, visualization, and user interaction in a streamlined flow:

1. Data Source Layer

- Sales data is collected from spreadsheets, databases, or ERP systems used by the toy manufacturer.

2. Data Preparation Layer

- Data is cleaned, transformed, and formatted using tools like Microsoft Excel or Tableau Prep.

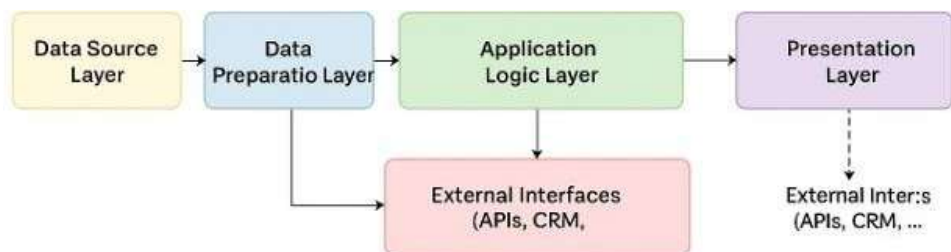
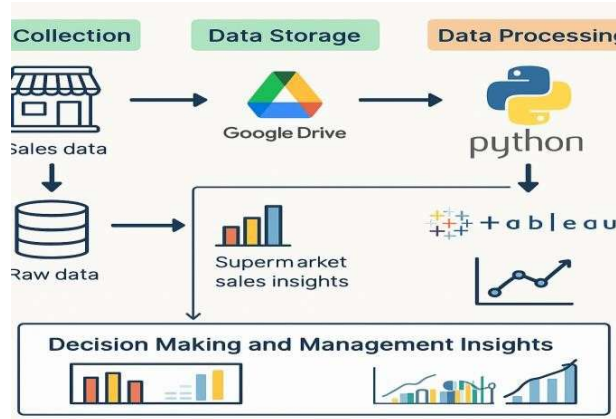
3. Visualization Layer

- Tableau Public is used to build interactive dashboards and stories that visualize sales trends, product performance, and regional analysis.

4. User Interface Layer

- Users access the visualizations via embedded Tableau dashboards in a responsive web page (HTML/CSS/JS).

5. Hosting Layer



5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

1. Objective:

To build an interactive Tableau dashboard and story that helps toy manufacturers analyze sales data across products, regions, and time.

2. Phases & Timeline:

Phase	Description	Duration
1. Requirement Analysis	Understand data needs, audience, and business goals	2 days
2. Data Collection	Gather and clean sales data	2–3 days
3. Data Visualization	Build dashboard and story using Tableau	4–5 days
4. Web Integration	Embed visualizations into a responsive webpage	2 days
5. Testing & Feedback	Test functionality and gather user feedback	1–2 days
6. Final Presentation	Document, present, and deploy final solution	1 day

3. Tools & Technologies:

- Tableau Public
- Excel or CSV data files
- HTML, CSS, JavaScript
- Canva/Miro for diagrams (optional)

6. FUNCTIONAL AND PERFORMANCE TESTING

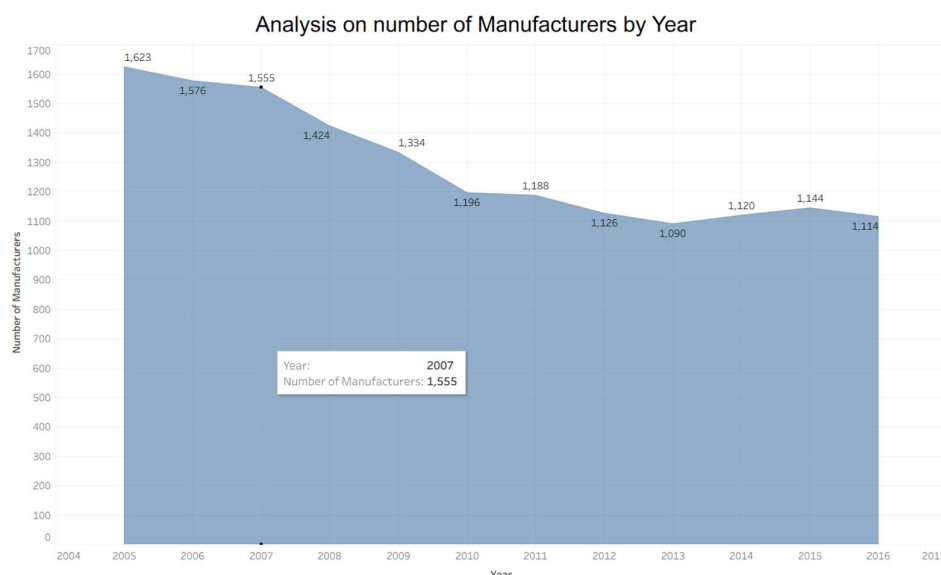
6.1 Performance Testing:

1. Data Rendered Annual number of toy manufacturers from 2005 to 2016, categorized by U.S. states, including a national total for “United States.
2. Data Preprocessing Removed ”index” column, ensured correct data types (“Year” as “int”, “Number of Manufactures” as” int”), checked for and handled missing values.
3. Utilization of Filters Filters for “State”, “Year” (range: 2005 2016), and “Number of Manufactures”, used for interactive selection in visualizations.
4. Calculation fields Used Year-over-Year change, % contribution of each state to the national total, cumulative state trends, and national aggregates.
5. Dashboard design No of Visualizations / Graphs – 6
- 6 Story Design No of Visualizations / Graphs – 7

7. RESULTS

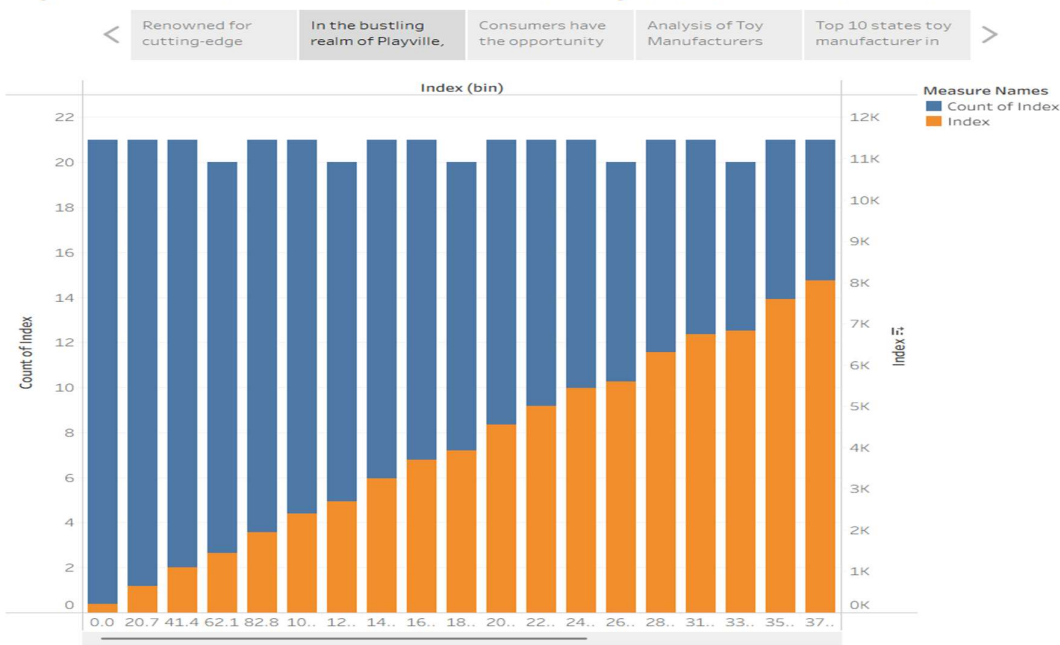
7.1 Output Screenshots

1. AREA CHART showing number of manufacturers by year:

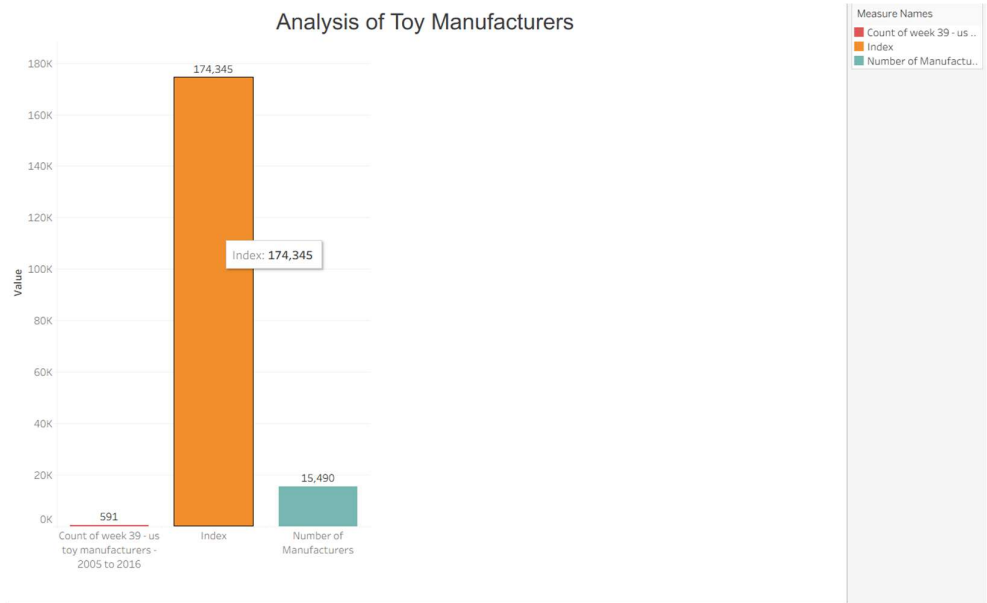


2.BAR CHART showing analysis on Toy manufacturers by

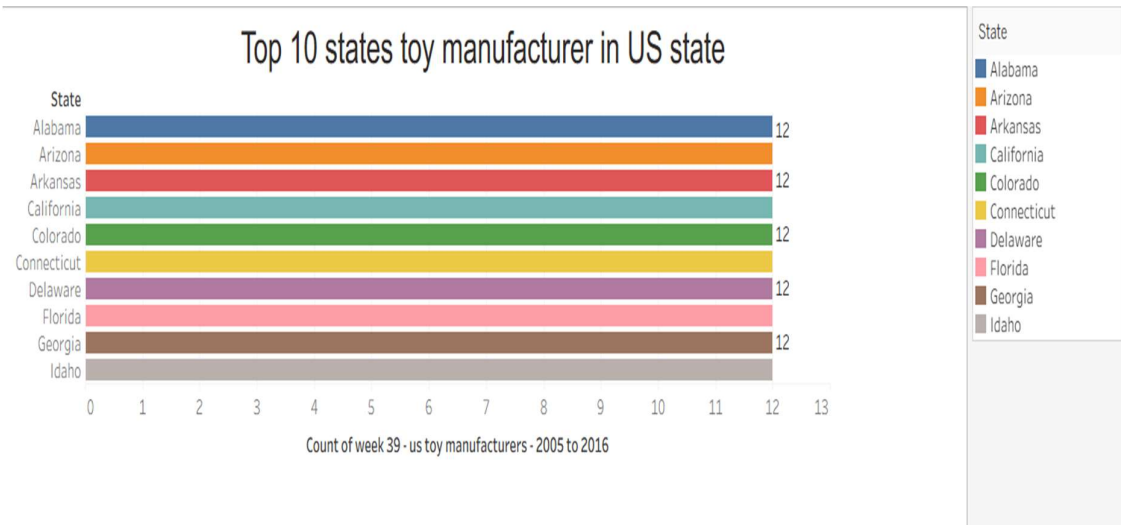
ToyCraft Tales: Tableau’s Vision into Toy Manufacturer Data



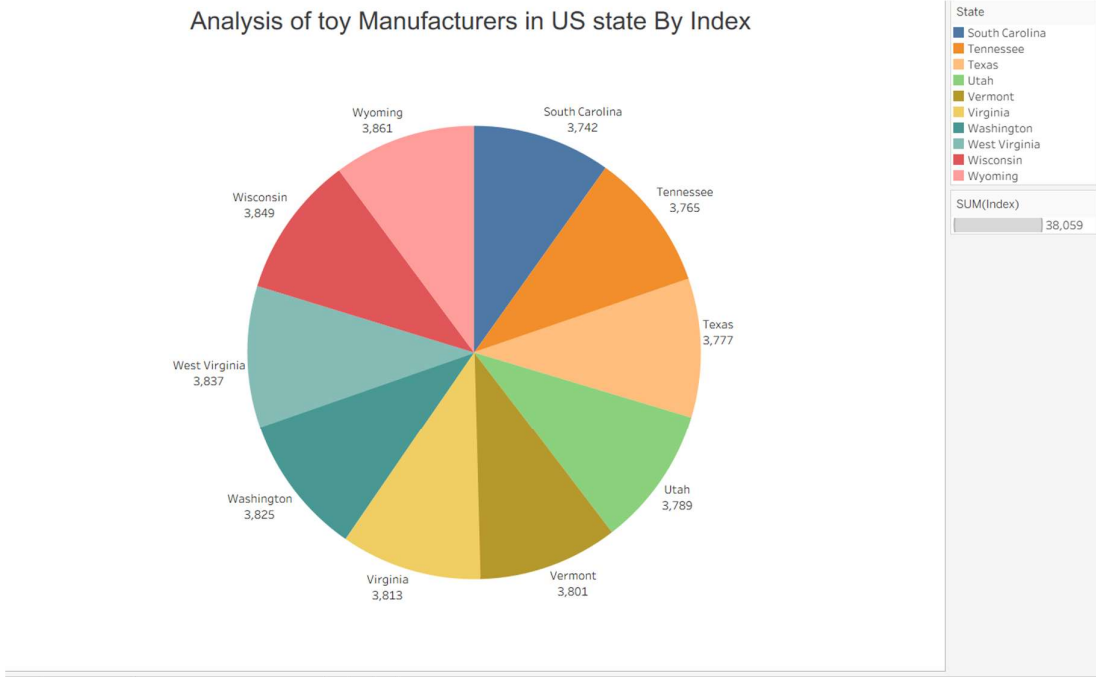
3.BAR CHART showing no.of indexes:



4. Chart showing top 10 toy manufacturers in US



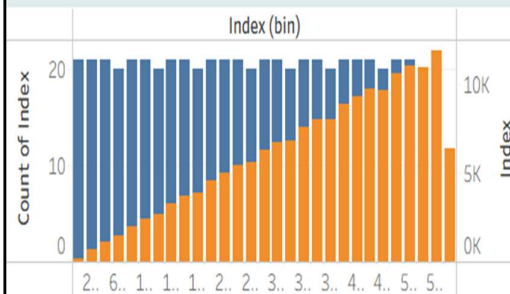
5. PIE CHART showing analysis on toy manufacturers by index:



DASHBOARD

ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data

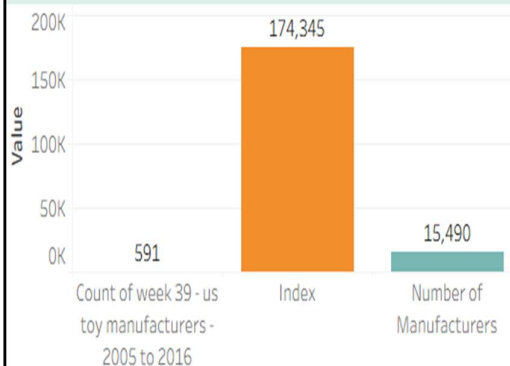
Analysis on Toy Manufacturer by index



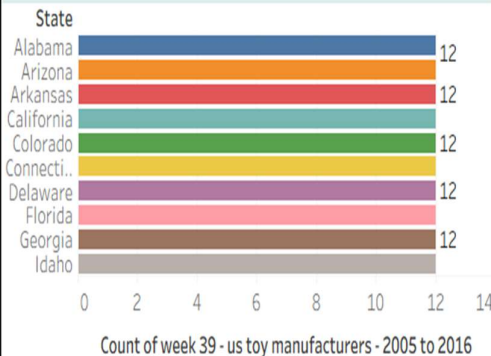
Analysis on number of Manufacturers by Year



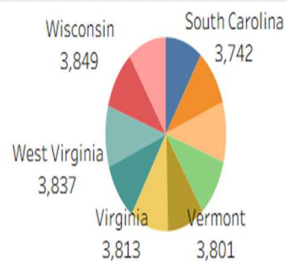
Analysis of Toy Manufacturers



Top 10 states toy manufacturer in US state



Analysis of toy Manufacturers in US state By Index



State

- Alabama
- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- Florida
- Georgia
- Idaho

Measure Names

- Count of Index
- Index

Index

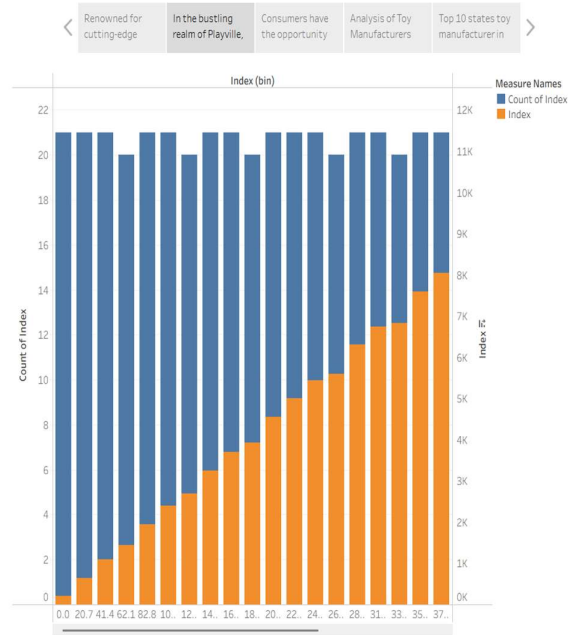
38,059

STORY

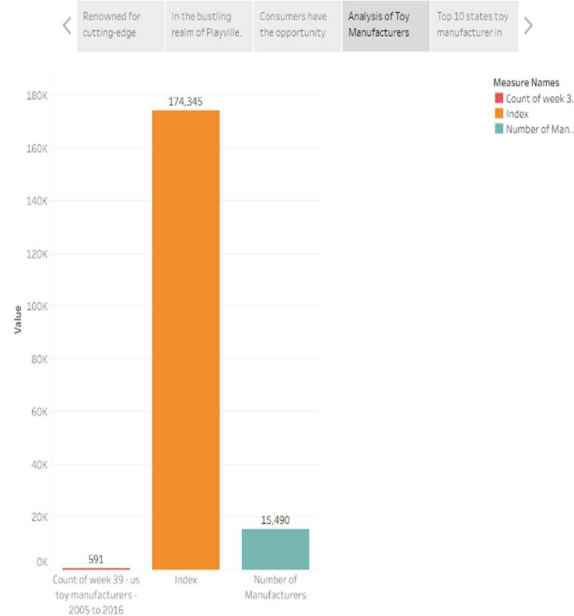
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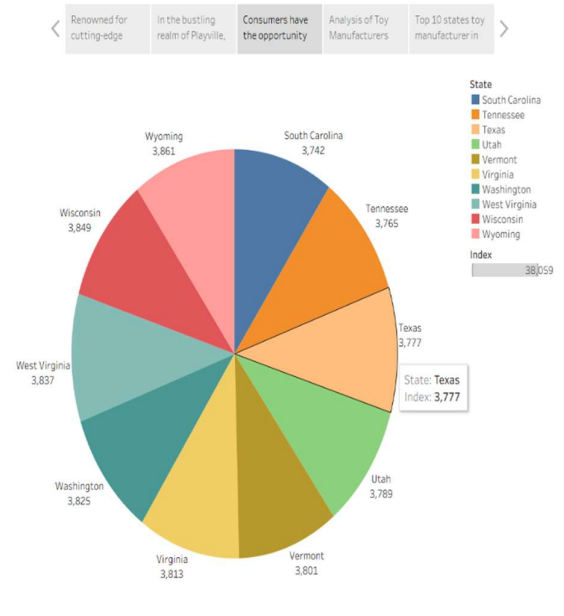
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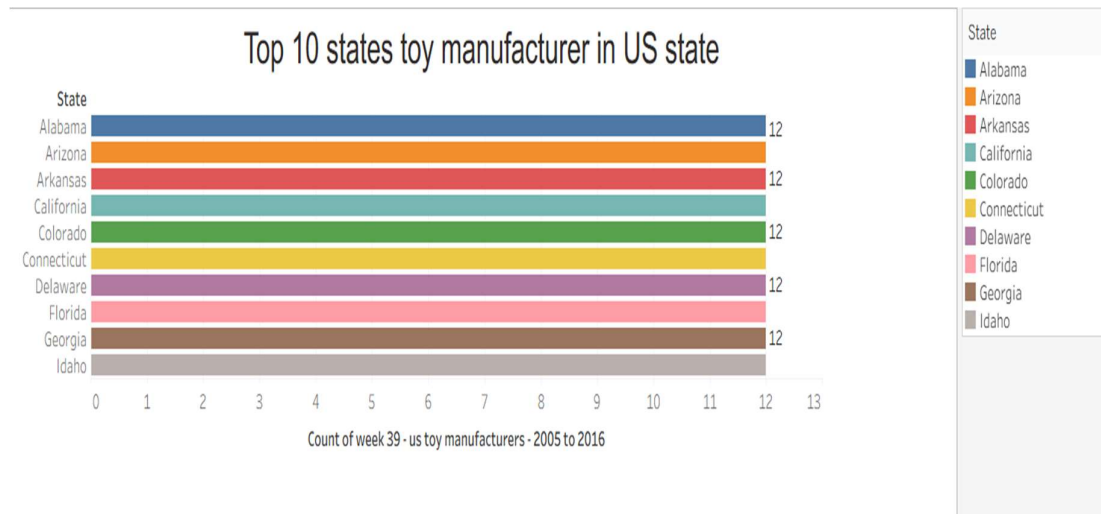


ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data



ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data





8. ADVANTAGES & DISADVANTAGES

Advantages:

1. Improved Decision-Making

Helps toy manufacturers make data-driven decisions using interactive visuals.

2. Visual Insights

Tableau dashboards and stories make complex data easy to understand.

3. User-Friendly Interface

Clean, responsive web integration makes the dashboard accessible on any device.

4. Time-Saving

Reduces manual reporting efforts with real-time visual updates.

5. Scalable Solution

Can be extended with more datasets like inventory, feedback, or seasonal trends.

Disadvantages:

1. Limited to Public Tableau

Free Tableau Public has restrictions (e.g., no data privacy, limited customization).

2. **Static Data (if not automated)**

If data isn't updated regularly, the dashboard becomes outdated.

3. **Internet Dependency**

Requires stable internet to view online dashboards.

4. **Learning Curve**

Some users may need time to understand and interact with Tableau visuals effectively.

5. **Not a Full BI Tool**

This project provides insights but doesn't support advanced forecasting or real-time alerts without additional tools.

9. CONCLUSION

The **ToyCraft Tales** project successfully demonstrates how data visualization tools like **Tableau** can transform raw sales data into meaningful insights for better decision-making in the toy manufacturing industry. By integrating interactive dashboards and stories, this project enhances data accessibility, uncovers key trends across products and regions, and empowers stakeholders with a clear view of performance. It provides a solid foundation for building data-driven strategies and highlights the importance of visual analytics in modern business environments.

10. FUTURE SCOPE:

Future Scope

1. **Real-time Data Integration:** Incorporate live data feeds for dynamic dashboards and up-to-the-minute insights.
2. **Advanced Analytics:** Apply predictive analytics and forecasting models using machine learning for demand prediction.
3. **Mobile Accessibility:** Optimize dashboards for mobile and tablet viewing to enhance usability for on-the-go decision-makers.
4. **User Customization:** Enable role-based dashboards tailored to departments like sales, marketing, or inventory.

5. **Scalability:** Extend the solution to include more regions, product lines, and multi-source data integration for broader insights.

11. APPENDIX

Source Code(if any):

ToyCraft Tales project is based on **Tableau**, there usually isn't "source code" for this project in the traditional sense (like Python, Java, etc.)

Dataset Link:

ToyCraft _Tales : Tableau's Vision into Toy Manufacturer Data

<https://www.kaggle.com/datasets/thedevastator/toy-manufacturers-in-us-states>

GitHub & Project Demo Link

Github repository:

<https://github.com/Venkatesh9143/ToyCraft-Tales-Tableau-s-Vision-into-Toy-Manufacturer-Data>

project demo link:

<https://drive.google.com/file/d/1epBvtg2rjXZlit-yytVIGNwi5socludF/view?usp=sharing>