

Project Report Format

Project Title:

ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data

TeamID: LTVIP2025TMID48331

1. INTRODUCTION

1.1 Project Overview

"ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data" is a project focused on empowering toy manufacturers with data-driven insights. It leverages Tableau to visualize complex manufacturing and sales data, helping companies understand market trends, optimize production, and make informed decisions. The goal is to enhance efficiency, reduce costs, and ultimately drive profitability within the toy industry through powerful data analytics.

1.2 Purpose

- To provide toy manufacturers with clear, visual insights from their data, facilitating informed and strategic business decisions.
- To help identify market trends, streamline production processes, and optimize inventory management for greater efficiency and cost-effectiveness.
- To empower manufacturers to react swiftly to market changes, develop better products, and ultimately enhance their market position and financial success.

2. IDEATION PHASE

2.1 Problem Statement

I am a product manager at a toy manufacturing company trying to identify which toys are performing well across different markets and seasons. I need to understand how product categories, age groups, and regional demand influence sales. But I find it hard to gain these insights from static reports and spreadsheets. Because toy sales data is complex, large-scale, and not visually organized. Which makes me feel uncertain in my planning and less confident in product strategy decisions.

Example:



Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A Product Manager	Identify high-performing toys across markets and seasons	I find it hard to gain insights from static reports	Toy sales data is complex and not visually organized	Uncertain in planning and less confident in strategy decisions

2.2 Empathy Map Canvas

The Empathy Map for “ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data” focuses on toy manufacturer stakeholders, including executives, product managers, sales leads, and supply chain analysts. These individuals need to effectively understand market trends, optimize inventory, identify best-selling products, predict demand, analyze supply chain efficiency, manage supplier performance, and ensure overall profitability. They often say things like, "Where are our sales lagging?" or "How can we reduce waste?" and frequently think about whether their current data is sufficient, if they're missing key insights, or how they can react faster to market changes. In their daily work, they do things like attending numerous meetings, reviewing endless spreadsheets, and making decisions based on gut feelings or limited information.



ToyCraft Tales

Tableau's Vision into Toy Manufacturer Data

SAYS



Explore

Optimizing
production

Thieds slayer
warebating
production.

Identify trends
ausees for the
manufatrens.



THINKS

Identiffy trends
touvatiore ang
Maluation

Exp Drate decisions
Vigulation

Noah stide use
darne undowialle,
cold peat of caply
carrt rarlles.



FEELS



Prebe yochnen
rthet Toy sedois
openess.

Makrichnear
sneeding seers
inton tepo dny
mellous.

Funste the
onyviahals-
torte theene
aves or the
pralige.



Waik better decisions
int ainds tracnlofreres.



Al aname ltracn
clon the tinenlestion
cheete pancrrens
centist whes.



DOES

Tovem better
apy inisturiong

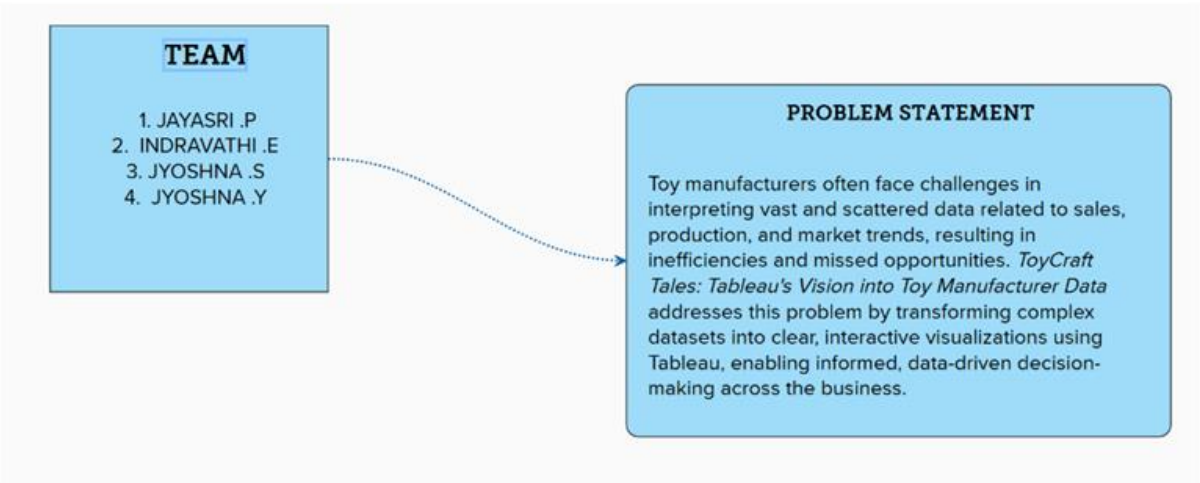
ToyCraft in lecoris/alis
vous at kang and plonids
meads to liachsenionnts
beam data Manuadent
vomghy fipy




2.3 Brainstorming

In the project "ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data," the brainstorming phase focused on identifying the most impactful ways to visualize and interpret data for better business decision-making. Key ideas included tracking sales trends over time, analyzing top-performing toy categories, identifying regional demand patterns, and evaluating seasonal spikes in sales. Additional considerations involved comparing production volumes to actual sales, assessing marketing campaign effectiveness, and monitoring inventory turnover. These ideas were explored with the goal of making complex data more accessible and actionable through intuitive, interactive dashboards.




Step-1: Team Gathering, Collaboration and Select the Problem Statement






Brainstorm & idea prioritization


Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

 10 minutes to prepare
 1 hour to collaborate
 2-8 people recommended


Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.


 10 minutes

 **Team gathering**

Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.


 **Set the goal**

Think about the problem you'll be focusing on solving in the brainstorming session.


 **Learn how to use the facilitation tools**


Use the Facilitation Superpowers to run a happy and productive session.

[Open article](#) →

 **Define your problem statement**


What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

 5 minutes


 **Problem**


How might we [your problem statement]?


Toy manufacturers often face challenges in interpreting large volumes of fragmented data across sales, production, and distribution channels. *ToyCraft Tales* aims to solve this by using Tableau to convert complex data into clear, interactive visualizations that support faster, smarter decision-making.


 **Key rules of brainstorming**


To run an smooth and productive session


 Stay in topic.

 Encourage wild ideas.

 Defer judgment.

 Listen to others.

 Go for volume.

 If possible, be visual.

Step-2: Brainstorm, Idea Listing and Grouping

2

Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

JAYASRI

visualize toy sales by region using maps

Track inventory turnover rate.

Analys seasonal trends in toy demand.

compare product performance across categories.

S. JYOSHNA

Highlight top-performing stories and branches.

Identify bottleneck in manufacturers.

Forecast future sales using historical data.

Monitor supplier performance.

Y. JYOSHNA

predicted analysis for future demand.

Forecasting lines.

Average spending for customer.

Promotion planning effectiveness.

INDRAVATHI

Customer purchase journey visualization.

Control Charts

Raw material usage patterns.

Bullet Graphs

TIP
You can select a sticky note and hit the pencil (switch to sketch) icon to start drawing!

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

20 minutes

Cluster-1: Sales Performance & Trends

Line charts showing monthly / Quaterly / Yearly toy sales.

Peak Season sales analysis e.g., holidays

Day-of-the-week or time-of-day sales trends

Comparative analysis: Last year v/s Current year

Cluster-2: Product & Category Insights

Top-10 best-selling toys

Revenue by category

New product launch success rates

Dashboard for low-performing products

Cluster-3: Geographic Regional Analysis

Geo maps showing sales by city, style, or region.

Store performance comparisons

Demand heatmaps

Distribution centre efficiency

Cluster-4: Supply chain & Inventory management

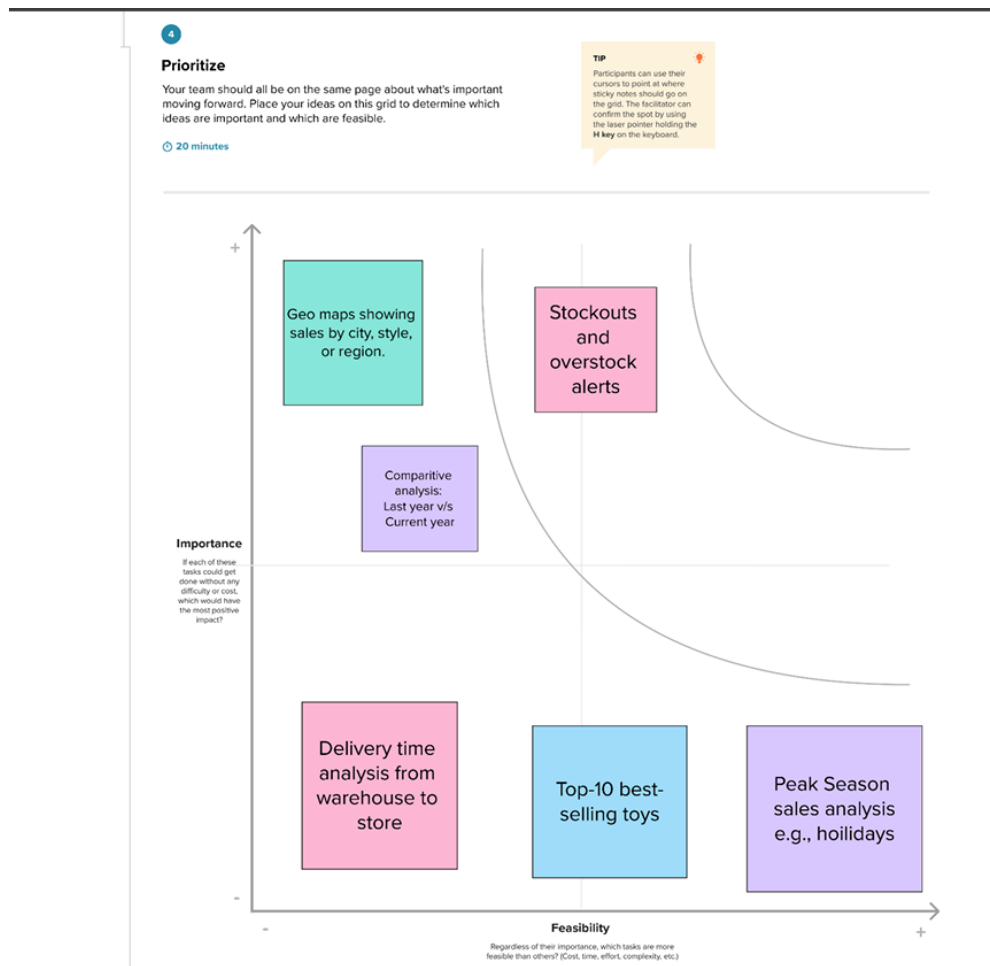
Inventory turnover by product

Stockouts and overstock alerts

Delivery time analysis from warehouse to store

Supply v/s Demand mismatch

TIP
Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.



3. REQUIREMENT ANALYSIS

3.1 Customer Journey map

Stage	Action	Pain Point	Opportunity
Awareness	See dashboard	Data overload	Simple insights
Interest	Explore product sales	No filter options	Interactive filters
Decision	Choose top products	Unclear trends	Category-wise views

3.2 Solution Requirement

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Data Ingestion & Integration	Ingest Sales Data (from ERP)
FR-2	Data Transformation & Modeling	Cleanse and Validate Raw Data
FR-3	Dashboard & Visualization	Develop Sales Performance Dashboard
FR-4	Reporting & Export	Generate Ad-hoc Reports based on User Queries
FR-5	User Access & Security	Authenticate Users (e.g., via company SSO)
FR-6	Data Refresh & Performance	Schedule Automated Data Refreshes
FR-7	Alerting & Notifications	Trigger Alerts for Low Stock Levels
FR-8	Historical Data Analysis	Store Historical Sales Data for trend analysis
FR-9	Predictive Analytics (Basic)	Generate Basic Sales Forecasts
FR-10	Feedback & Enhancement	Provide a mechanism for users to submit feedback on dashboards

Non-functional Requirements:

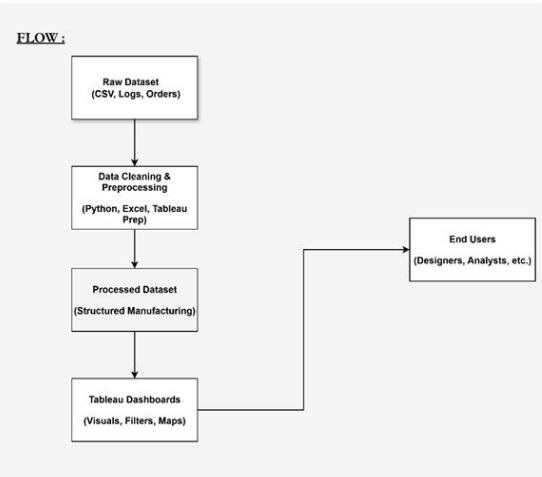
Following are the non-functional requirements of the proposed solution.

NFR No.	Non-functional Requirement	Description
NFR-1	Usability	The Tableau dashboards and reports should be intuitive and easy for various user types (e.g., Sales Analysts, Executives) to navigate and understand.
NFR-2	Security	User access to dashboards and underlying data must be authenticated and authorized based on roles (e.g., row-level security for sensitive data).
NFR-3	Reliability	The data ingestion and transformation processes should reliably complete daily refreshes without errors, ensuring consistent data availability.
NFR-4	Performance	Dashboards should load and render within 5-10 seconds for typical usage, even with large datasets.
NFR-5	Availability	The Tableau Server and underlying data sources should be available 99.5% of the time during business hours (9 AM - 6 PM IST, Monday - Friday).
NFR-6	Scalability	The system must be able to handle a 50% increase in data volume and a 30% increase in concurrent users over the next 2 years without significant performance degradation.
NFR-7	Data Integrity	All data loaded into the system must be accurate, consistent, and complete, matching the source systems after transformation.
NFR-8	Maintainability	The data pipelines, Tableau workbooks, and server configurations should be well-documented and easily maintainable by the IT team.
NFR-9	Extensibility	The system should be capable of integrating new data sources (e.g., social media data, IoT production data) with minimal development effort.
NFR-10	Response Time	Complex data queries and dashboard filter applications should return results within 15 seconds.

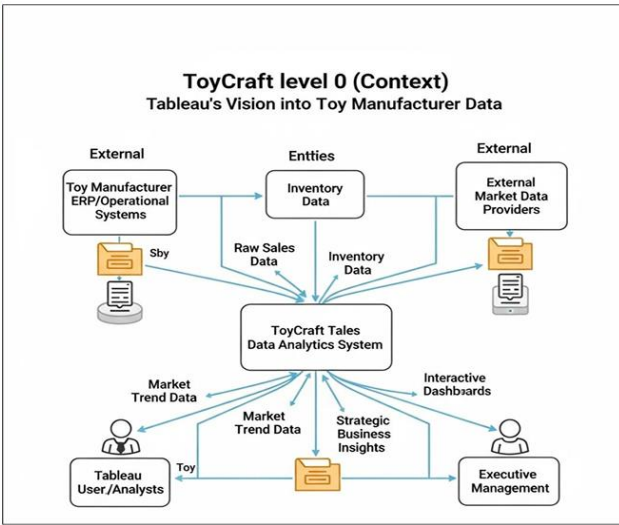
3.3 Data Flow Diagram

A dataflow diagram for "ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data" would illustrate the journey of information from its raw state to actionable insights. Initially, data originates from various source systems within a toy manufacturing company, such as Enterprise Resource Planning (ERP) for production details, Point of Sale (POS) for sales records, and supply chain management systems for inventory levels. This raw data then undergoes an Extract, Transform, Load (ETL) process, where it's meticulously cleaned, standardized, and integrated to ensure consistency and accuracy. Subsequently, this refined data is stored in a centralized data warehouse or a dedicated database, establishing a single, reliable source of truth. Tableau then connects to this robust data repository, serving as the primary tool for visualization and in-depth analysis. Through interactive dashboards and reports, toy manufacturers, as end-users, gain critical insights into production efficiency, evolving sales trends, optimized inventory management, and comprehensive market analysis. Ultimately, these valuable insights directly inform the manufacturer's decision-making processes, enabling them to implement strategic actions like adjusting production schedules or refining product lines to better meet market demands.

Example: [Simplified](#)



Example: DFD Level 0 (Industry Standard)

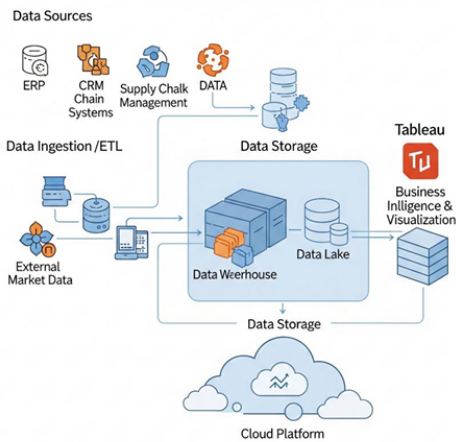


3.4 Technology Stack

The technical architecture for "ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data" involves several key components. At its base, various operational databases (e.g., ERP, CRM, SCM) serve as data sources. A robust ETL (Extract, Transform, Load) pipeline extracts, cleans,

and transforms this raw data into a usable format. This processed data is then loaded into a centralized data warehouse, designed for analytical queries and optimized for performance. Tableau Desktop acts as the primary analytical and visualization tool, connecting directly to the data warehouse. Finally, Tableau Server or Cloud provides the platform for sharing interactive dashboards and reports with various stakeholders across the organization, enabling collaborative data exploration and informed decision-making.

ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data



Guidelines:

- ✓ **Data Integration:** Information is gathered from factory systems (like sales, inventory) and outside market sources. This raw data is then cleaned and organized, ready for use.
- ✓ **Data Storage:** All prepared data is stored in a scalable data warehouse for analyzing past trends. A data lake also holds raw, unprocessed information.
- ✓ **Visualization:** Tableau creates clear, interactive dashboards from this data, letting different company roles easily see important business numbers.
- ✓ **Infrastructure:** The main parts of the system operate on a cloud platform, ensuring it can grow and is always available. It securely connects to the factory's local systems.
- ✓ **Smart Features & Security:** The system uses smart programs (ML) to help predict sales or spot inventory issues. Strong security ensures only approved people can see specific data.

Example: A Sales Analyst can quickly view a dashboard showing how toys are selling in different regions right now.

4. PROJECT DESIGN

4.1 Problem Solution Fit

The Problem-Solution Fit simply means that you have found a problem with your customer and that the solution you have realized for it actually solves the customer's problem. It helps entrepreneurs, marketers and corporate innovators identify behavioral patterns and recognize what would work and why.

Purpose:

- Solve complex problems in a way that fits the state of your customers.
- Succeed faster and increase your solution adoption by tapping into existing mediums and channels of behavior.
- Sharpen your communication and marketing strategy with the right triggers and messaging.

- Increase touch-points with your company by finding the right problem behavior fit and building trust by solving frequent annoyances, or urgent or costly problems.
- Understand the existing situation in order to improve it for your target group.

Template :

ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data		
1 CUSTOMER SEGMENT(S) CS <ul style="list-style-type: none"> • Small to mid-sized toy manufacturers • Data teams in toy manufacturing companies • Product managers, marketing analysts, and executives in toy companies 	6 CUSTOMER CONSTRAINTS CC <ul style="list-style-type: none"> • Limited technical expertise • Budget limitations for BI tools • Resistance to change or new platforms Pros & Cons: <ul style="list-style-type: none"> • Familiarity, low initial cost 	5. AVAILABLE SOLUTIONS AS <ul style="list-style-type: none"> • Excel spreadsheets • In-house ERP or legacy BI tools • Manual tracking and siloed dashboards Pros & Cons: <ul style="list-style-type: none"> • Time-consuming, not scalable
2. JOBS-TO-BE-DONE / PROBLEMS JAP <p>Analyze sales trends and seasonal demand Track inventory and supply chain data; filter Measure marketing campaign effectiveness Predict production needs and optimize manufacturing</p>	7 BEHAVIOUR <p>What does they prize most: the problem?</p> <p>Legacy systems not built for fast, visual insights Lack of awareness of modern data tools like Tableau Procedural to upskilling; can't do it centrally; access</p>	9 PROBLEM ROOT CAUSE RC <p>Legacy systems not built for fast, visual insights Lack of awareness of modern data tools like Tableau Outsourcing analytics occasionally Trying to upskill teams in data analytics</p>
3 TRIGGERS TR <p>Overwhelmed with altered or delayed data Frustrated by slow manual reporting Anxious about decision-making and listens</p>	10 YOUR SOLUTION <p>ToyCraft Tales - A Tableau-powered data storytelling solution tailored for toy manufacturers:</p> <ul style="list-style-type: none"> • Interactive dashboards for real-time visibility across departments • Templates focused on seasonal demand, inventory, and marketing ROI • Easy integration with existing ERP or sales systems 	8 ONLINE of BEHAVIOUR CH <p>Google searches for BI tools for manufacturers Watching YouTube tutorials or webinars on data visualization Participating in LinkedIn forums or Tableau user groups Attending trade shows or manufacturing expos Consulting with data strategy firms</p>
4 EMOTIONS: BEFORE / AFTER EM <p>Confident in data-driven decisions in control of operations and forecasts Excited by uncovering new business insights</p>		

4.2 Proposed Solution

Project team shall fill the following information in the proposed solution template.

S.No.	Parameter	Description
1	Problem Statement (Problem to be solved)	Toy manufacturers face challenges in analyzing sales, inventory, and customer preferences due to fragmented and unstructured data. There is a need for an efficient system to visualize this data for better decision-making and improved market responsiveness.
2	Idea / Solution description	"ToyCraft Tales" is a Tableau-powered data visualization solution tailored for toy manufacturers. It integrates disparate data sources — including production, sales, customer feedback, and supply chain — into a unified dashboard. The interactive visualizations help decision-makers gain real-time insights to optimize operations and tailor products.
3	Novelty / Uniqueness	The solution leverages Tableau's storytelling and interactive dashboard capabilities specifically customized for the toy manufacturing industry — a niche often overlooked in analytics. The blend of analytics, predictive trends, and visual storytelling creates a uniquely engaging decision-support tool.
4	Social Impact / Customer Satisfaction	By understanding customer preferences through visualized feedback and sales data, manufacturers can produce more relevant, safe, and enjoyable toys for children. This improves customer satisfaction and trust in the brand while also reducing overproduction and waste.
5	Business Model (Revenue Model)	The solution can be offered as a subscription-based SaaS product to toy manufacturers, with tiers based on features (e.g., number of dashboards, users, and data integrations). Additional revenue can come from consulting, customization, and training services.

4.3 Solution Architecture

The solution architecture for "ToyCraft Tales" centers on integrating and leveraging data for insights. Raw data from diverse toy manufacturing systems is collected and transformed via an ETL process into a structured data warehouse. Tableau then acts as the central analytics layer, connecting to this warehouse to create interactive dashboards and reports. These visualizations are published on Tableau Server/Cloud, providing secure access and collaborative tools for various stakeholders (e.g., production, sales, marketing). This comprehensive setup empowers toy manufacturers with a unified view of their operations, enabling data-driven decisions for improved efficiency, trend identification, and strategic growth.

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

A Sprint is a fixed period or duration in which a team works to complete a set of tasks. An Epic is a large objective (e.g., full Tableau dashboard) that is broken into smaller, manageable Stories.

Story Points represent the relative effort needed to complete a story, often using Fibonacci sequence (1, 2, 3, 5...).

Sprint 1 (5 Days):

Epic - Data Preparation:

Task	Description	Story Points
Data Collection	Gathering toy manufacturer data from multiple sources (e.g., CSVs, government)	2
Data Cleaning	Removing nulls, duplicates, handling in consistencies.	3
Data Transformation	Formatting, merging, and extracting necessary fields For analysis.	2
Exploratory Analysis	Understanding data distribution and key variables	2

Sprint 1 Total Story Points = 9

Sprint 2 (5 Days):

Epic - Visualization Development:

Task	Description	Story Points
Dashboard Design	Planning layout: map, pie charts, bar charts, timelines.	3
Chart Development	Creating individual visuals in Tableau	5
Interactivity Integration	Adding filters, actions, and tooltips	3
Testing & Refinement	Ensuring responsiveness and accuracy	2

Sprint 2 Total Story Points = 13

Sprint 3 (5 Days):

Epic - Insight Presentation & Deployment Planning Logic for 'ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data':

Task	Description	Story Points
Storyboard Creation	Drafting narrative and insight-based captions	2
User Feedback Review	Gathering feedback from stakeholders	3
Final Revisions	Polishing visuals and story for presentation	3
Tableau Public Deployment	Publishing dashboard online	2

Sprint 3 Total Story Points = 10

Summary & Velocity Calculation:

- Total Story Points = 9 (Sprint 1) + 13 (Sprint 2) + 10 (Sprint 3) = 32
- Total Sprints = 3
- Velocity = $32 / 3 = 10.67$ Story Points per Sprint

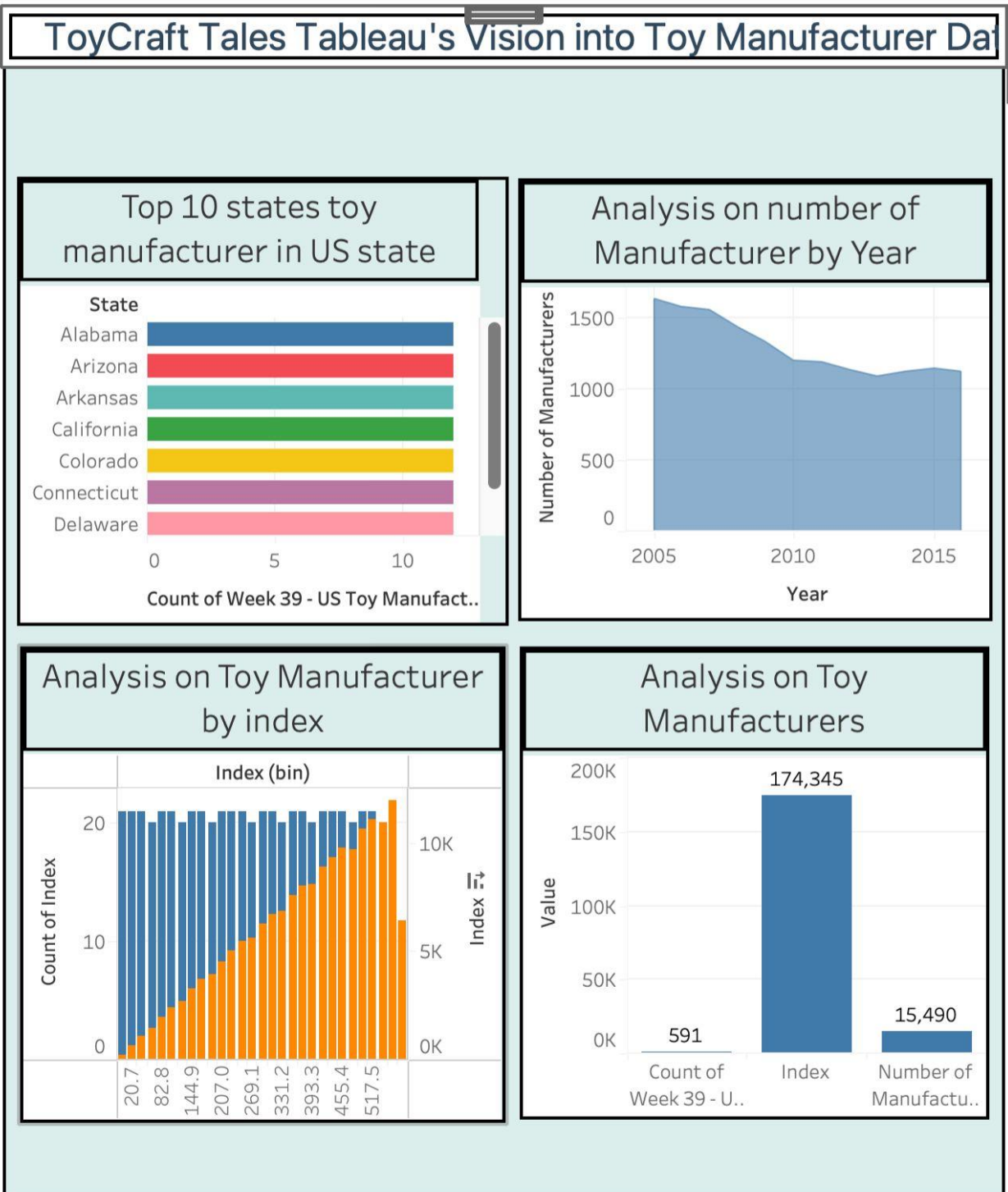
6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

- Simulate many users simultaneously interacting with Tableau dashboards to ensure they remain fast and responsive even under heavy usage.
- Verify how quickly new data is extracted, transformed, and loaded into the data warehouse, ensuring timely availability for analysis.
- Evaluate the speed of complex data queries from Tableau to the database, identifying and fixing any that are slow to retrieve results.
- Determine if the system can handle increasing data volumes and more users without significant slowdowns, ensuring it can grow with the business.
- Measure specific times for dashboard loading and filter application to guarantee a smooth and efficient analytical experience for the end-users.

7. RESULTS

7.1 Output Screenshots



8. ADVANTAGES & DISADVANTAGES

Advantages	Disadvantages
1. Enhanced Data Visualization: Presents complex data in easily digestible visual formats.	1. Initial Setup Complexity: Requires significant effort for data integration and ETL processes.
2. Improved Decision Making: Enables quick, data-driven decisions based on real-time insights.	2. Cost of Licensing: Tableau licenses can be expensive, especially for larger organizations.
3. Operational Efficiency: Helps identify bottlenecks and optimize production and supply chain processes.	3. Data Quality Dependency: Insights are only as good as the underlying data; poor data leads to flawed analysis.
4. Market Trend Identification: Facilitates proactive identification of consumer preferences and market shifts.	4. Learning Curve for Users: Users new to Tableau may require training to fully leverage its capabilities.
5. Increased Profitability: Leads to better inventory management, reduced waste, and optimized sales strategies.	5. Performance with Very Large Datasets: Can experience performance issues with extremely massive, unoptimized datasets.
6. Centralized Data View: Consolidates data from disparate sources into a single, unified analytical platform.	6. Customization Limitations: While flexible, some highly specific custom visualizations might be challenging.

9. CONCLUSION

In conclusion, "ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data" offers a robust solution for toy manufacturers seeking to harness the power of their operational data. By transforming raw information into insightful visualizations through Tableau, this initiative empowers businesses to make smarter, data-driven decisions. While the initial setup and potential licensing costs present some challenges, the overarching advantages—including enhanced operational efficiency, precise market trend identification, and ultimately, increased profitability—make it a valuable strategic asset for thriving in the dynamic toy industry.

10. FUTURE SCOPE

- AI/ML for demand forecasting and proactive inventory.
- Instant data streaming for rapid responses.
- IoT integration for full supply chain visibility and optimization.
- Data-driven personalized marketing and sales insights.
- Incorporating social media and competitor data for holistic market views.
- NLP for easier data querying by all users.
- Data-driven tracking of ethical sourcing and environmental impact.
- Gamified data exploration for better engagement.

11. APPENDIX

11.1 Dataset Link

<https://www.kaggle.com/datasets/thedevastator/toy-manufacturers-in-us-states?select=Week+39+-+US+Toy+Manufacturers+-+2005+to+2016.hyper>

11.2 GitHub & Project Demo Link

https://drive.google.com/file/d/1Qy0xly35Tb7FDMywbApNri0McL5xshf/view?usp=drive_link