

# Data Visualization for Tior Gaming

---

◇ Ng Kai Jie

# Introduction

---

This presentation will share data visualizations using Tior Gaming data, prepared in Tableau to compare and predict trends. The presentation is divided into two sessions.

- Session 1: Showcasing the original Tior Gaming data from the SQL database, followed by visualizations that include additional shadow data from an external Excel file.
- Session 2: Using external gaming data to forecast and compare trends with Tior Gaming data.

Our aim is to familiarize with SQL databases and Tableau, understand the impact of shadow data, and utilize forecasting for strategic insights.



# Tior Gaming Data

The Tior Gaming data set is stored in an SQL database. It includes comprehensive information on gaming activities, sales, and user interactions.

## Key Components:

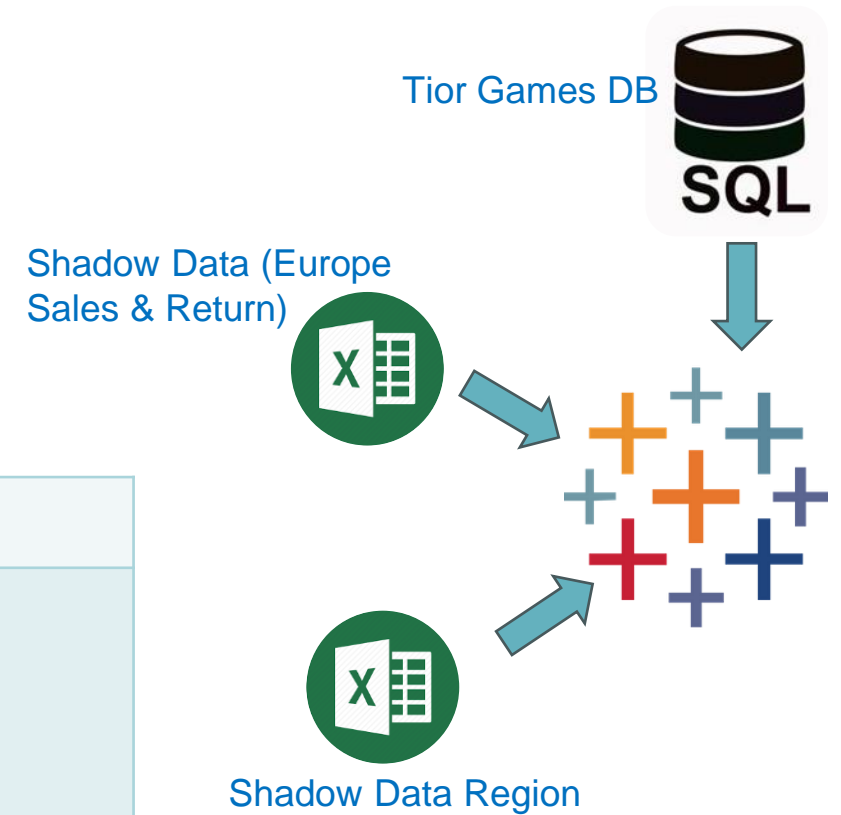
- Sales Data: Detailed records of tickets and merchandise sales, including transaction dates, amounts and refunds.
- Player Data: Information on player, coach, club demographics, activity logs, and engagement metrics.
- Game Data: Data on player in-game performance, and in-game purchases.



# Shadow Data

- ❑ **Shadow Data:** Datasets that are created and maintained outside the formal database.
- ❑ **Context:** A spreadsheet maintained by Tior Games employees detailing merchandise sales and returns data for European countries, along with a separate spreadsheet categorizing countries into different regions.

Pros	Cons
<ul style="list-style-type: none"><li>▪ Flexibility</li><li>▪ Quick Solutions</li><li>▪ Enhanced Productivity and Responsiveness</li></ul>	<ul style="list-style-type: none"><li>▪ Data Inconsistency</li><li>▪ Security Risks</li><li>▪ Integration Challenges</li></ul>



# Source Connection: Shadow Data & Original Data

## Data Source Connection and SQL Query

The screenshot shows the Tableau Desktop interface for a data source named 'TiorGames (EventFact\_r2)'. At the top, there are options for 'Cross database join' (Default join location Edit), 'Connection' (Live, Extract), and 'Filters' (0 Add). Below this, a visual representation shows three tables: 'Sales SQL Query', 'Country\_Continent', and 'Shadow Data', connected by join symbols. An 'Edit Custom SQL' window is open, displaying the following SQL query:

```
SELECT
  md.MerchandiseType,
  loc.Country,
  loc.LocationCity,
  SUM(CAST(ef.MerchandiseSold AS BIGINT)) AS TotalMerchandiseSold,
  SUM(CAST(osf.MerchandiseSold AS BIGINT)) AS TotalOnlineMerchandiseSold,
  SUM(CAST(ef.MerchandiseSoldPND AS BIGINT)) AS TotalMerchandiseSoldPND,
  SUM(CAST(osf.MerchandiseSoldPND AS BIGINT)) AS TotalOnlineMerchandiseSoldPND,
  SUM(CAST(rf.MerchandiseRefunded AS BIGINT)) AS TotalMerchRefunded,
  SUM(CAST(rf.MerchandiseRefundedPND AS BIGINT)) AS TotalMerchRefundedPND,
  SUM(CAST(rf.OnlineMerchandiseRefunded AS BIGINT)) AS TotalOnlineMerchandiseRefunded,
  SUM(CAST(rf.OnlineMerchantiseRefundedPND AS BIGINT)) AS TotalOnlineMerchantiseRefundedPND
FROM
  EventFact ef
INNER JOIN
  MerchandiseDim md ON ef.MerchandiseID = md.MerchandiseID
INNER JOIN
  RefundFact rf ON rf.MerchandiseID = md.MerchandiseID
INNER JOIN
  OnlineSalesFact osf ON osf.MerchandiseID = md.MerchandiseID
INNER JOIN
  ProviderDim pd ON md.MerchandiseProviderID = pd.ProviderID
INNER JOIN
  LocationDim loc ON pd.ProviderLocation = loc.LocationID
GROUP BY
  md.MerchandiseType,
  loc.Country,
  loc.LocationCity
```

The shadow data was missing key attributes, such as the continent, making it difficult to merge with the existing data. We used Tableau's SQL query function to create a new table and join the datasets effectively.

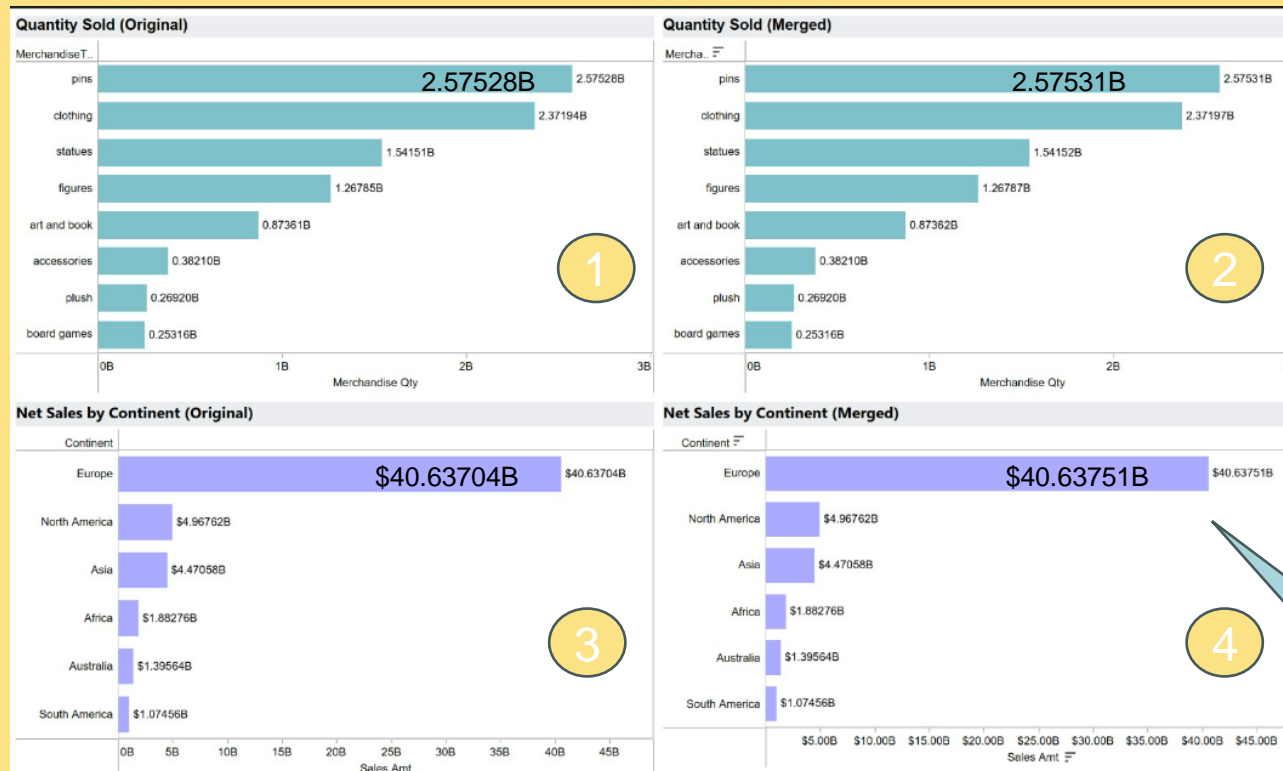
This highlights the major challenges of using external data that does not follow the SQL schema, including data consistency issues and the need for additional data manipulation to ensure compatibility.

# Challenges :

---

1. **Data Accuracy:** The shadow data did not adhere to the SQL table standards. For instance, the SQL database uses "UK" while the shadow data uses "United Kingdom," leading to inconsistencies.
2. **Integration Issues:** The shadow data table lacked a primary key, making integration difficult. We utilized SQL queries to create a new table for effective merging.
3. **Data Inconsistency:** Total sales data was incomplete as only the Europe region used the shadow data, leading to gaps in overall data visibility.
4. **Data Security:** The shadow data was stored in spreadsheets, making it accessible to anyone and posing significant security risks.

# Trends : With and Without Shadow Data



The comparison highlights the overall consistency between the original and merged datasets while also revealing slight variations in quantity sold and total sales for certain items. This analysis underscores the importance of integrating shadow data carefully to maintain data accuracy and reliability.

- 1 : Total Quantity Sold by Merchandise Type from Tior Game Without Shadow Data
- 2 : Total Quantity Sold by Merchandise Type with Shadow Data
- 3 : Total Net Sales by Continent from Tior Game Without Shadow Data
- 4 : Total Net Sales by Continent with Shadow Data

# Forecasting with Tableau

---

In this session we are exploring the forecasting functionality in Tableau using a combination of internal and external data sets.

- ❑ **Online Gaming Market Value (Source: Statista)** : Provides historical data, helping to place the TIOR game data within the context of global market trends.
- ❑ **Online Audience Metrics (Source: Statista)** : Delivers data on worldwide online viewer numbers, categorized by type of content (regular content vs. occasional viewers), crucial for understanding shifts in viewer preferences and engagement strategies.





# Trends : Forecasting



The data highlights a significant decline in Tior game's ticket sales in recent years, with a sharp drop expected in 2022 and 2023. In contrast, the online gaming market value and audience size are showing robust growth, with the market projected to rise continuously. This suggests that while physical ticket sales for Tior game are falling, the broader online gaming market is thriving, likely driven by the convenience and increasing accessibility of digital platforms since COVID-19. This trend reflects a wider industry shift towards online engagement.

- 1 : Total Ticket Sold from Tior Game with Forecasting
- 2 : Online Gaming Market Value
- 3 : Annual Online Audience Size

# Suggestion:

---

To address declining ticket sales for Tior games, we are proposing on enhancing online engagement and diversifying event offerings.

## **Actionable Strategies:**

- Develop exclusive online content and host virtual events.
- Launch hybrid events that combine physical presence with virtual participation.
- Utilize AR and VR technologies to offer immersive experiences accessible remotely.
- Implement targeted marketing to promote the advantages of online participation.

These initiatives are designed to bolster online engagement, broaden audience reach worldwide, and enhance customer satisfaction through innovative experiences. By implementing these measures, we anticipate a positive impact that will increase online participation and revenue, effectively compensating for the downturn in physical ticket sales.



# Conclusion

---

For this Assignment, we utilized the Tior game dataset alongside additional external datasets.

In the first session, we explored shadow data, encountering several challenges that underscored the importance and complexities associated with integrating such data.

In the second session, we employed Tableau's forecasting functionality to analyze Tior game data in conjunction with external datasets. This approach has equipped the team with valuable insights, enabling strategic planning for the upcoming years based on robust data driven forecasts.

# References

---

- ❑ <https://www.statista.com/statistics/292516/pc-online-game-market-value-worldwide/>
- ❑ <https://www.statista.com/statistics/490480/global-esports-audience-size-viewer-type/>

