**Power BI Case Study: Inventory Analysis for WarmeHands Incorporated**

Description

This case study demonstrates the application of Power BI for inventory analysis in a fictional company, WarmeHands Incorporated. As a consultant, you are tasked with analyzing inventory data and recommending optimal inventory levels for specific items.

Data and Methodology

* Fictitious Dataset**:** Inventory data from WarmeHands Incorporated was utilized for analysis.
* Data Cleaning and Integration**:** The data was cleaned and merged for a centralized and reliable source.
* Snowflake Model Design**:** A snowflake schema was implemented to optimize data organization and performance.
* DAX Calculations**:** Calculated columns and tables were created using DAX formulas for detailed analysis.

Objectives

WarmeHands Incorporated sought to:

* Identify the most suitable items for inventory restocking or increase.
* Understand the influence of product categories and countries on inventory management.

These objectives were addressed through analysis by category and country.

Key Metrics

* COGS (Cost of Goods Sold)
* Gross Profit
* Revenue
* Inventory Turnover
* ABC Classification

Key Insights

* Category Insights:
  + Decoration and Jewelry categories have the highest average COGS per item (around $5).
  + Home & Accessories achieved the largest profit in 2020 ($110,000).
  + Decoration, Toys & Edibles, and Home Accessories experienced sales increases in Q4 and early 2021.
  + Only Toys & Edibles saw a sales increase in 2021 (7%).
* Product Insights:
  + "Grow a Flytrap or Sunflower" was a top seller in 2021 (16,000+ units sold, representing 10.85% of total inventory).
  + "Advertisement" had the highest cost across all categories.
  + "Doughnut Lip Gloss" has the highest inventory turnover, indicating faster sales.
  + "Set of 6 Soldier Skittles" exhibited the largest sales growth between 2020 and 2021.
  + All three top-performing items ("Grow a Flytrap," "Doughnut Lip Gloss," and "Set of 6 Soldier Skittles") belong to Class A according to ABC analysis, indicating significant contribution to total revenue.
* Inventory Turnover: Office & School category has the highest average turnover (1.45).
* Profit Analysis: Jewelry has the lowest average profit margin (36%).
* Item-Level Analysis (Examples):
  + "Grow a Flytrap" had high sales volume.
  + "Doughnut Lip Gloss" had a faster inventory turnover (sells faster).
  + "Set of 6 Soldier Skittles" saw the highest sales increase from 2020 to 2021.
  + All three items belonged to ABC Class A, indicating high revenue contribution despite their differences.

Conclusion

This Power BI case study demonstrates valuable insights gained through comprehensive inventory analysis. WarmeHands Incorporated can leverage these insights to optimize inventory management by prioritizing high-demand items, identifying potential overstock, and understanding seasonal trends. This project exemplifies the effectiveness of Power BI in data visualization and exploration for informed business decisions.