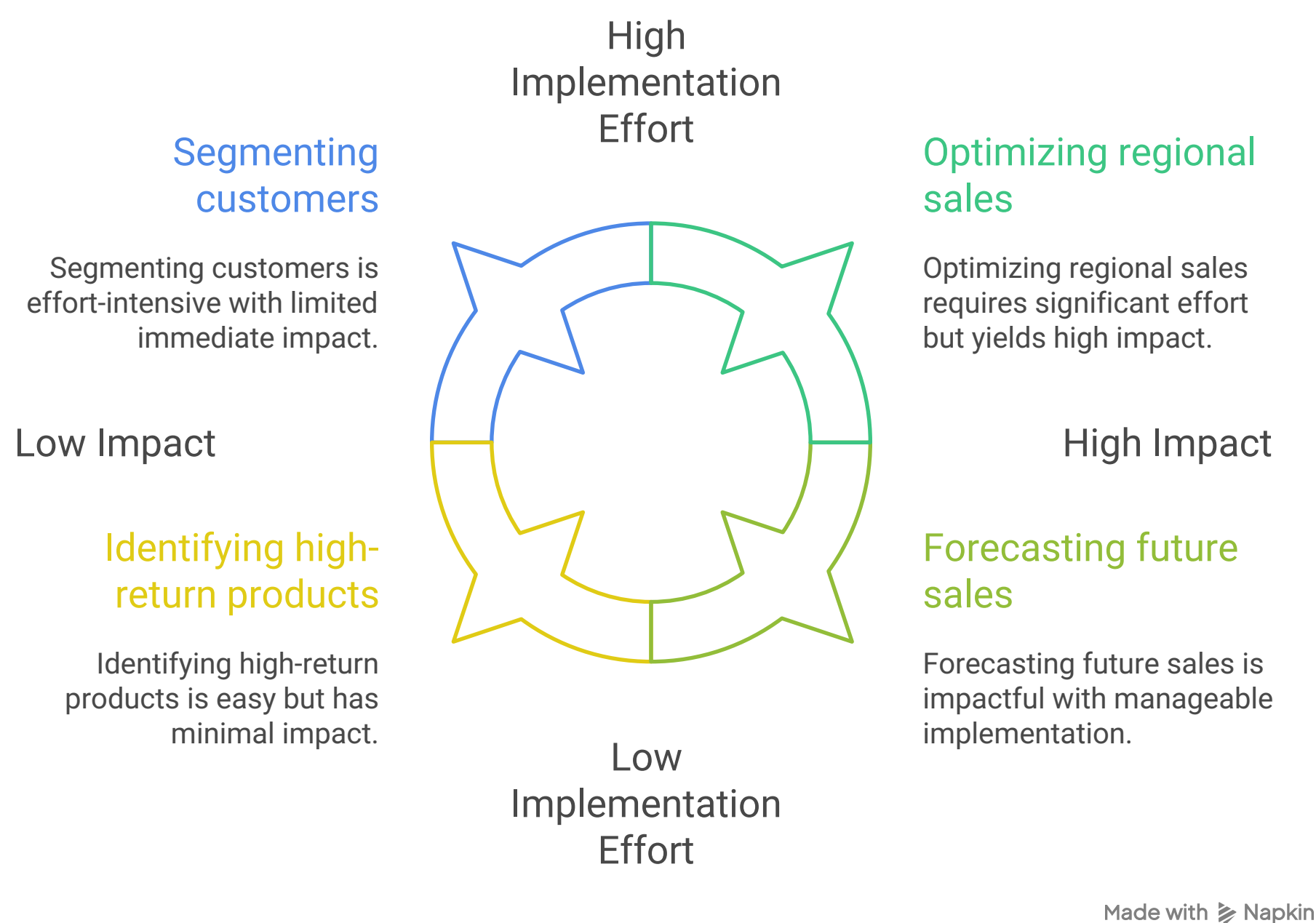




AdventureWorks: Data-Driven Strategies for Competitive Advantage in the Cycling Industry

This document outlines the challenges faced by AdventureWorks, a company operating in the competitive cycling industry, and proposes a solution leveraging Power BI to address these challenges. The company has experienced revenue growth but faces issues such as fluctuating sales, increasing product returns, regional disparities, and economic pressures impacting profit margins. The proposed solution involves using Power BI to analyze trends, identify high-return products, optimize regional sales, segment customers, and forecast future sales. Implementing these insights is expected to boost net profit, lower returns, and enhance customer retention, enabling AdventureWorks to maintain a competitive edge.

Strategic Impact of Power BI Insights



Business Context

AdventureWorks operates in the global cycling industry, with a presence in North America, Europe, and the Pacific. From 2015 to 2017, the company saw steady revenue growth, totaling approximately \$29 million, primarily driven by sales of bikes and accessories. However, this growth was accompanied by several challenges that threaten the company's profitability and market position.

Challenges

1. **Fluctuating Quarterly Sales Peaks:** The company experiences significant variations in sales across different quarters, with Q4 typically being the highest due to holiday sales. This seasonality creates challenges in inventory management and resource allocation.
2. **Increasing Product Returns:** The company has seen a rise in product returns, totaling over 1,000 units. These returns are primarily concentrated in accessories such as helmets and tires, indicating potential issues with product quality or customer satisfaction.
3. **Customer Demographics and Churn:** AdventureWorks' core customer base consists of middle-aged professionals (ages 40-60) with an average income of \$70,000. However, younger customer segments (born in the 1970s) exhibit higher churn rates, suggesting a need for targeted retention strategies.
4. **Regional Disparities:** North America accounts for approximately 70% of AdventureWorks' sales, while Europe lags behind at around 20%, despite similar product offerings. This disparity indicates untapped potential in the European market.
5. **Economic Pressures:** In the context of post-pandemic supply chain issues (e.g., 2025), AdventureWorks faces economic pressures that are eroding profit margins, which currently average between 35-40%. Executives suspect inefficiencies in inventory management, marketing, and product quality are contributing to this decline.

Business Problem

AdventureWorks risks losing market share to competitors if it fails to address the high return rates and uneven regional performance. Without data-driven insights, decisions on promotions, inventory allocation, and customer targeting remain speculative, leading to overstocked low-performing products and missed opportunities in high-growth areas. Specifically, the high return rates (up to 5% in subcategories like Tires and Tubes) suggest potential issues with product quality or mismatched customer needs. The uneven regional performance indicates a need for tailored marketing and sales strategies to better cater to local market preferences.

Data-Driven Insights Improve Performance



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Problem Statements :

1. What is the total revenue generated from sales across all years?
2. Which product category has the highest sales quantity?
3. What is the profit margin by region?
4. How many unique customers are there, and what's their average annual income?
5. Visualize sales trends by month and year.
6. Calculate Year-over-Year (YoY) revenue growth and visualize it.
7. What is the return rate by product subcategory, and which items have high return rates?
8. What is the net profit after accounting for returns (assuming returns refund full price)?
9. How does sales performance vary by continent and country?
10. How can customers be segmented by demographics (e.g., income brackets and marital status)?
11. What are the top 10 products by profit, filtered by year?
12. How does customer age affect purchasing behavior?
13. Can we forecast future sales using time series analysis?
14. What is the impact of discounts on profit margins using a what-if analysis?
15. How can we perform a cohort analysis of customers by birth year and first purchase year?