ADVENTURE WORKS
Case Study

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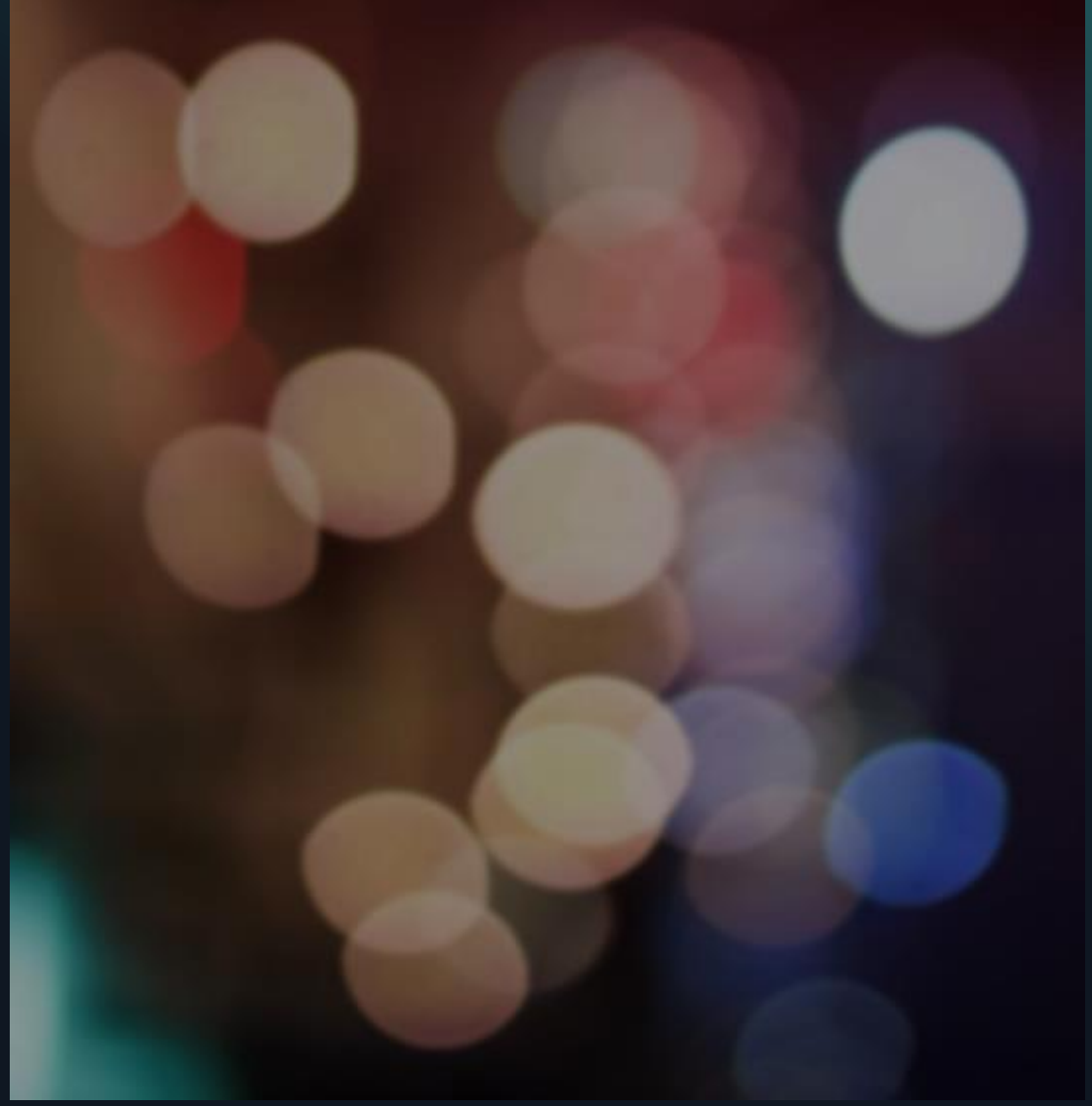
AGENDA

- Methodology & Assumptions
- Highlights of the Adventure works
- Value Chain analysis for planning
- Safety Stock estimation
- Inventory Optimization to increase profit
- Questions & Answers



Methodology & Assumptions

Merging Data Set

Use "Sales Order ID" as a unique Identifier to merge datasets

Estimation

1. Probability estimation for calculating safety stock level
2. 12 days Leadtime for replenishment

Tools used

1. Excel Power Query
2. Microsoft Power Point

Estimation

Cumulative calculation from year 2011 - 2014

Highlights

Industry – Manufacturing & Retail

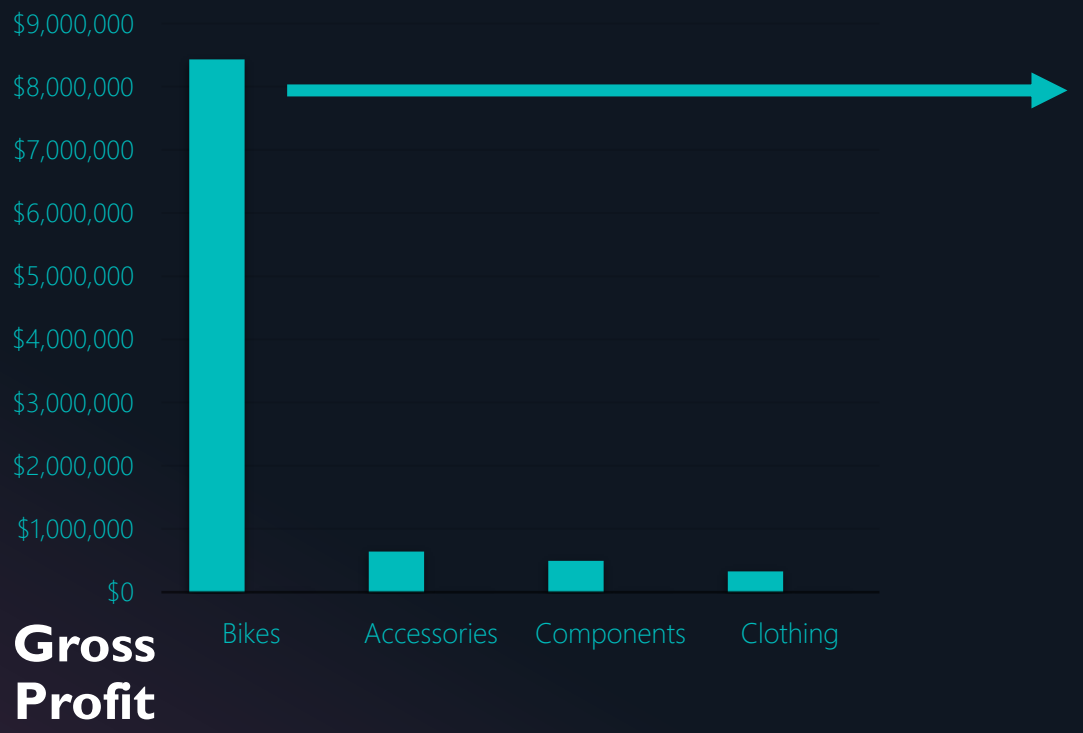
Gross Profit Margin – 9%

Products – Bike, Accessories, Component & Clothing

2011-2014

$110M

274K Units



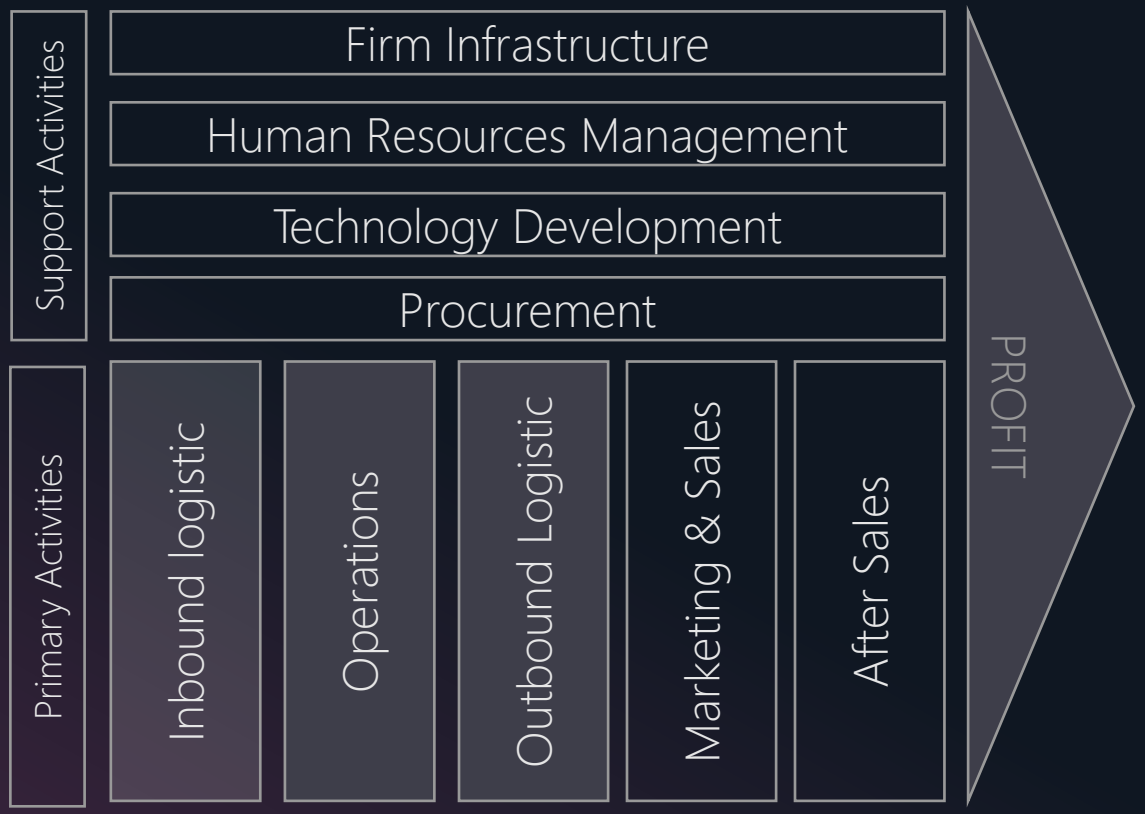
Gross Profit

Mountain-200 Black, 38
$ 679 K
QTY 2977

Mountain-200 Black, 42
$ 678 K
QTY 2664

Mountain-200 Black, 46
$ 668 K
QTY 2394

VALUE CHAIN ANALYSIS



Possible Departments

- Facility
- Inventory Management
- Transportation
- Sourcing
- Pricing
- Information

- Marketing
- After Sales Support

BEST PRODUCTS

ASSUMPTIONS :

1. Cumulative Gross Profit of a product from 2011-2014

FINDINGS

- Top 10 or best-selling products vary over time
- Root Cause :
  - Uncertain demand
  - Changes in Price
  - Changes in the standard cost

Rank	Product Name	Gross Profit (Cumulative)
1	Mountain-200 Black, 38	$ 679,002.94
2	Mountain-200 Black, 42	$ 678,789.62
3	Mountain-200 Black, 46	$ 668,165.91
4	Mountain-200 Silver, 38	$ 666,593.39
5	Mountain-200 Silver, 46	$ 631,477.98
6	Mountain-200 Silver, 42	$ 613,898.58
7	Road-150 Red, 48	$ 470,355.02
8	Road-150 Red, 62	$ 466,320.17
9	Road-150 Red, 52	$ 421,110.87
10	Road-150 Red, 56	$ 406,079.28

BEST PRODUCTS

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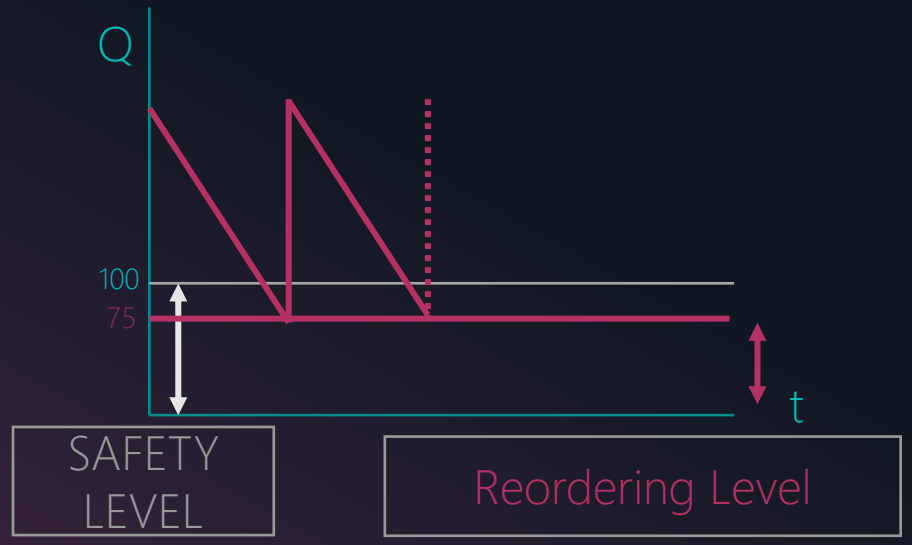
SAFETY STOCK ESTIMATION

AS IS Process

- Safety Stock level is greater than reorder level
- Exhausting **25%** of the safety stock before reordering



To be Process

- Calculating the safety stock for each product category
- Readjusting reordering point based on demand and LT

Probable approach to set a new Safety stock Calculation & Estimation :

- Avg. Demand
- STD of Demand
- Avg. LT
- STD of LT

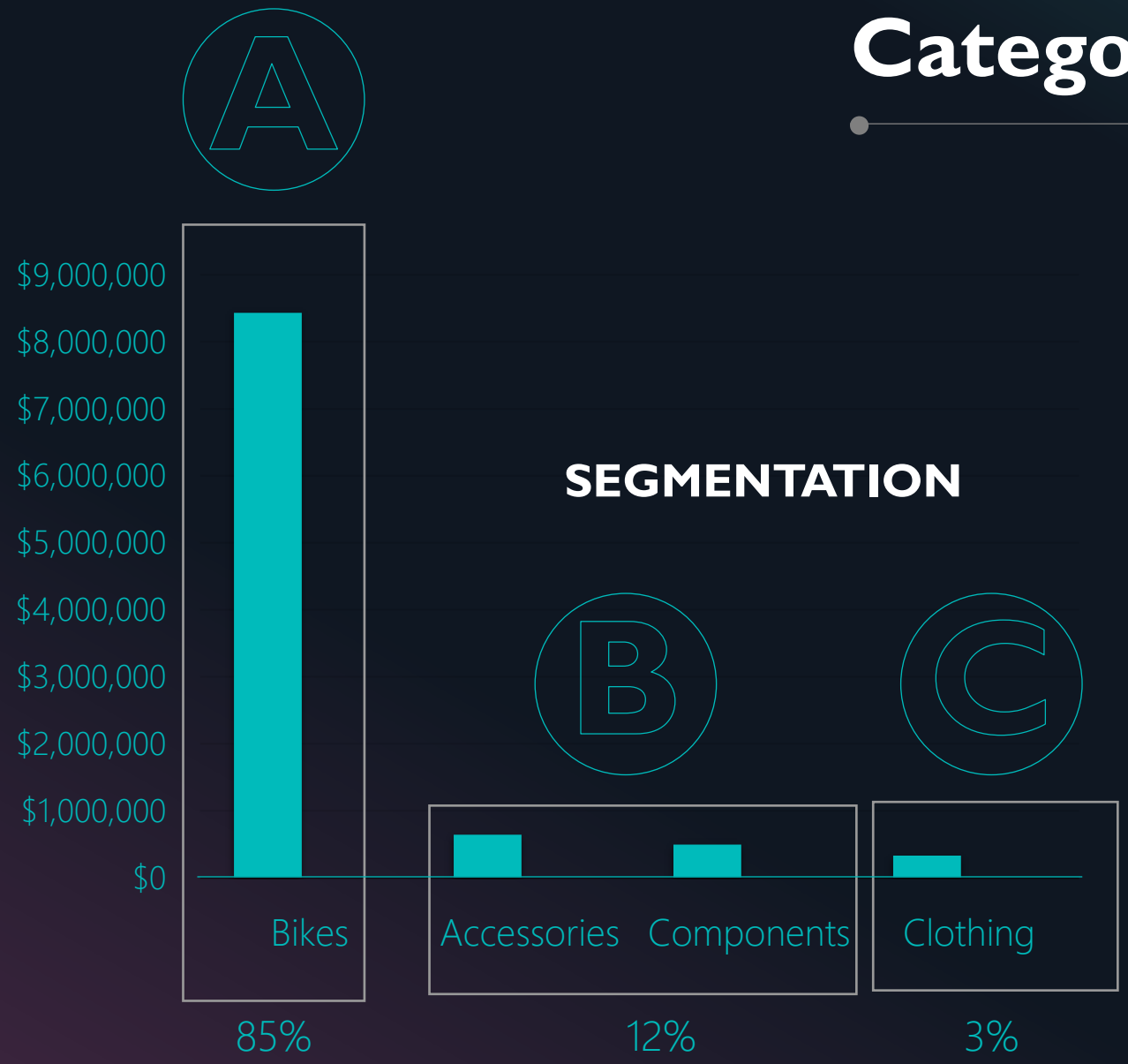
Combined STD: SQRT(LT * STD_D^2 + D^2 * STD_LT)

Service Level : 95%

Service (Zscore): 1.644

SAFETY STOCK = Z * Co. STD

Category Analysis



OPTIMIZE INVETORY LEVELS

- Our goal is to reach optimum safety stock level
- Free up inventory to reduce holding cost and increase profit

STEP -I

Reduce the safety stock same level as reordering point

STEP -II

Reduce the safety stock further from trivial or B and C category

THANK YOU !

QUESTION & ANSWER