iNeuron

HIGH LEVEL DESIGN

BUDGET SALES ANALYSIS

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DOCUMENT VERSION CONTROL

Date Issued	Version	Description	Author
26-02-2023	1.0	First Version of Complete HLD	Harsh Pimpalkar

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ABSTRACT

The growth of resell business in most populated cities is increasing and market competitions are also high. The dataset is one of the historical sales of a company named Adventure Works which has records for 3 years. Good data-driven systems for analyzing sales can improve the performance of the company and generate more ROI for the stakeholders.

INTRODUCTION

WHY THIS HIGH-LEVEL DESIGN DOCUMENT?

The purpose of this High-Level Design (HLD) document is to add the necessary detail to the current project description to represent a suitable model for coding.
This document is also intended to help detect contradictions prior to coding and can be used as a reference manual for how the modules interact at a high level.
The HLD will:

- Present all of the design aspects and define them in detail
- Describe the user interface being implemented
- Describe the hardware and software interfaces
- Describe the performance requirements
- Include design features and the architecture of the project
- List and describe the non-functional attributes like:
    - Security
    - Reliability
    - Maintainability
    - Portability
    - Reusability
    - Application compatibility
    - Resource utilization
    - Serviceability

SCOPE

The HLD documentation presents the structure of the system, such as the databasearchitecture, application architecture (layers), application flow (Navigation), and technology architecture. The HLD uses non-technical to mildly-technical terms which should be understandable to the administrators of the system.

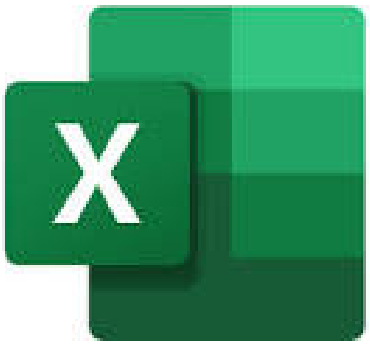
GENERAL DESCRIPTION

PRODUCT PERSPECTIVE AND PROBLEM STATEMENT

The goal of this project is to analyze sales and evaluate the performance of the sales team against its target. It provides insights into the top-performing and underperforming products/services, the problems faced to meet the target, and market opportunities and sales activities that generate revenue.

TOOLS USED

Business Intelligence tools and MS - Excel , MS - Power BI , Snowfalke (cloud Computing) and MS-SQL are used to build the whole framework.



DESIGN DETAILS

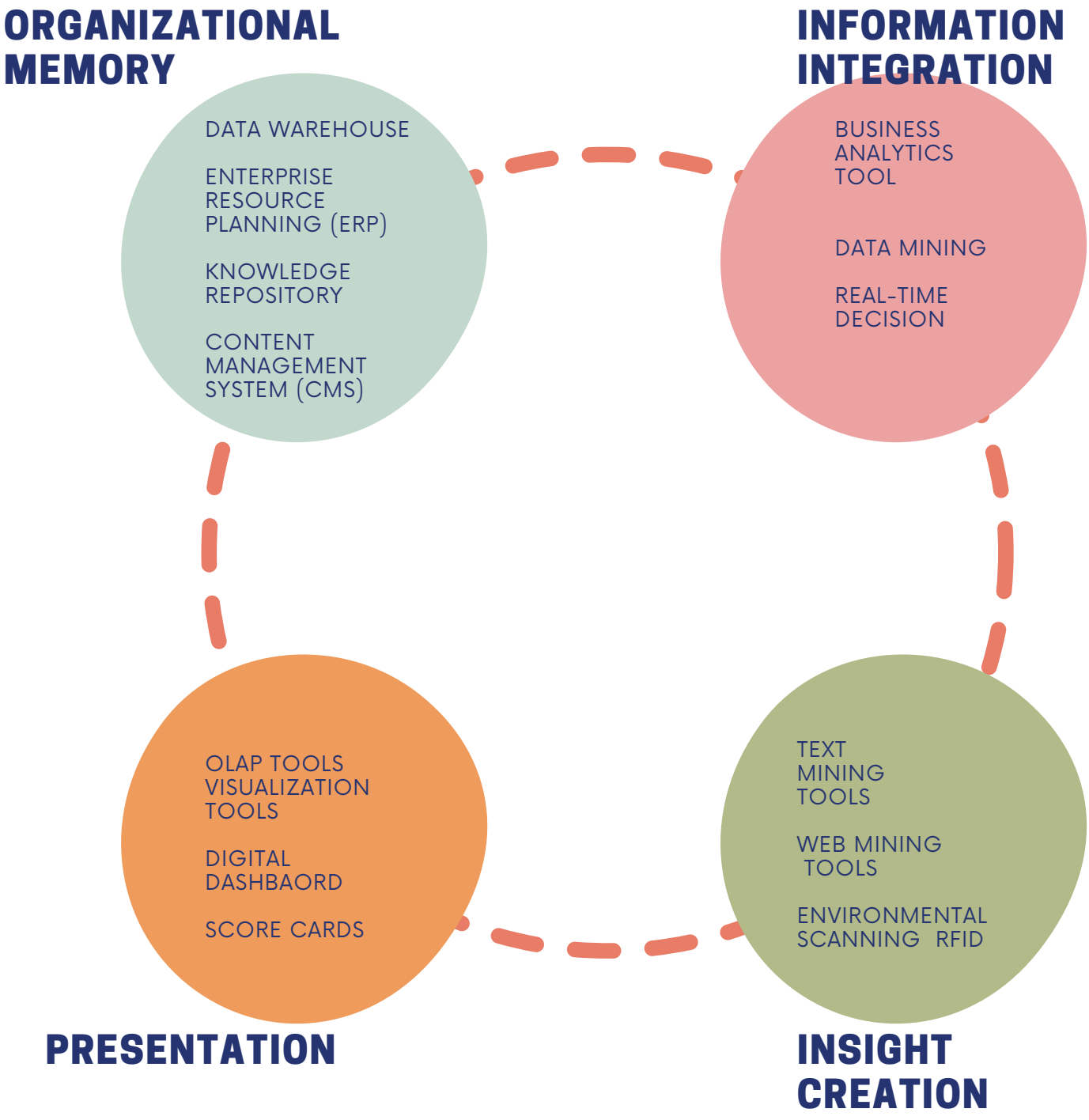
FUNCTIONAL ARCHITECTURE





STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
Data from source system is integrated and loaded into a data warehouse of another analytics repository	Data sets are organized into analytics data models or OLAP cubes to prepare them for analysis	BI analysts, other analytics professionals and business users run analytical queries against the data	The query results are built into data visualizations, dashboards, Reports and online portals.	Business executives and workers use the information for decision-making and strategic planning

HOW BI WORKS


ORGANIZATIONAL MEMORY
DATA WAREHOUSE
ENTERPRISE RESOURCE PLANNING (ERP)
KNOWLEDGE REPOSITORY
CONTENT MANAGEMENT SYSTEM (CMS)
INFORMATION INTEGRATION
BUSINESS ANALYTICS TOOL
DATA MINING
REAL-TIME DECISION
PRESENTATION
OLAP TOOLS VISUALIZATION TOOLS
DIGITAL DASHBAORD
SCORE CARDS
INSIGHT CREATION
TEXT MINING TOOLS
WEB MINING TOOLS
ENVIRONMENTAL SCANNING RFID

OPTIMIZATION

YOUR DATA STRATEGY DRIVES PERFORMANCE

- MINIMIZE THE NUMBER OF FIELDS.
- MINIMIZE THE NUMBER OF RECORDS.
- OPTIMIZE EXTRACTS TO SPEED UP FUTURE QUERIES BY MATERIALIZING CALCULATIONS, REMOVING COLUMNS, AND THE USE OF ACCELERATED VIEWS.

REDUCE THE MARKS (DATA POINTS) IN YOUR VIEW

- PRACTICE GUIDED ANALYTICS. THERE'S NO NEED TO FIT EVERYTHING YOU PLAN TO SHOW IN A SINGLE VIEW. COMPILE RELATED VIEWS AND CONNECT THEM WITH ACTION FILTERS TO TRAVEL FROM OVERVIEW TO HIGHLY GRANULAR VIEWS AT THE SPEED OF THOUGHT.
- REMOVE UNNEEDED DIMENSIONS FROM THE DETAIL SHELF.
- EXPLORE. TRY DISPLAYING YOUR DATA IN DIFFERENT TYPES OF VIEWS.

LIMIT YOUR FILTERS BY NUMBER AND TYPE

- REDUCE THE NUMBER OF FILTERS IN USE. EXCESSIVE FILTERS ON A VIEW WILL CREATE A MORE COMPLEX QUERY, WHICH TAKES LONGER TO RETURN RESULTS. DOUBLE-CHECK YOUR FILTERS AND REMOVE ANY THAT AREN'T NECESSARY.
- USE AN INCLUDED FILTER. EXCLUDE FILTERS LOAD THE ENTIRE DOMAIN OF A DIMENSION WHILE INCLUDING FILTERS DOES NOT. AN INCLUDE FILTER RUNS MUCH FASTER THAN AN EXCLUDE FILTER, ESPECIALLY FOR DIMENSIONS WITH MANY MEMBERS

- USE A CONTINUOUS DATE FILTER. CONTINUOUS DATE FILTERS (RELATIVE AND RANGE-OF-DATE FILTERS)CAN TAKE ADVANTAGE OF THE INDEXING PROPERTIES IN YOUR DATABASE AND ARE FASTER THAN DISCRETE DATA FILTERS
- USE BOOLEAN OR NUMERIC FILTERS. COMPUTERS PROCESS INTEGERS AND BOOLEANS (T/F) MUCH FASTER THAN STRINGS
- USE PARAMETERS AND ACTION FILTERS. THESE REDUCE THE QUERY LOAD (AND WORK ACROSS DATA SOURCES).

OPTIMIZE AND MATERIALIZE YOUR CALCULATIONS

- PERFORM CALCULATIONS IN THE DATABASE
- REDUCE THE NUMBER OF NESTED CALCULATIONS
- REDUCE THE GRANULARITY OF LOD (LEVEL OF DETAIL)OR TABLE CALCULATIONS IN THE VIEW. THE MORE GRANULAR THE CALCULATION, THE LONGER IT TAKES.
- LODS - LOOK AT THE NUMBER OF UNIQUE DIMENSION MEMBERS IN THE CALCULATION
- TABLE CALCULATIONS - THE MORE MARKS IN THE VIEW, THE LONGER IT WILL TAKE TO CALCULATE.
- WHERE POSSIBLE, USE MIN OR MAX INSTEAD OF AVG. AVG REQUIRES MORE PROCESSING THAN MIN OR MAX. OFTEN ROWS WILL BE DUPLICATED AND DISPLAY THE SAME RESULT WITH MIN, MAX, OR AVG
- MAKE GROUPS WITH CALCULATIONS. LIKE INCLUDING FILTERS, CALCULATED GROUPS LOAD ONLY NAMED MEMBERS OF THE DOMAIN, WHEREASTABLEAU'S GROUP FUNCTION LOADS THE ENTIRE DOMAIN
- USE BOOLEANS OR NUMERIC CALCULATIONS INSTEAD OF STRING CALCULATIONS. COMPUTERS CAN PROCESS INTEGERS AND BOOLEANS (T/F) MUCH FASTER THAN STRINGS.
  BOOLEAN>INT>FLOAT>DATE>DATETIME>STRING

KPI

DASHBOARDS WILL BE IMPLEMENTED TO DISPLAY AND INDICATE CERTAIN KPIS AND RELEVANT INDICATORS FOR THE SALES

AS AND WHEN THE SYSTEM STARTSTO CAPTURE THE HISTORICAL/PERIODIC DATA FOR A USER, THE DASHBOARDS WILL BE INCLUDED TO DISPLAY CHARTS OVER TIME WITH PROGRESS ON VARIOUS INDICATORS OR FACTORS

KPI (KEY PERFORMANCE INDICATORS)

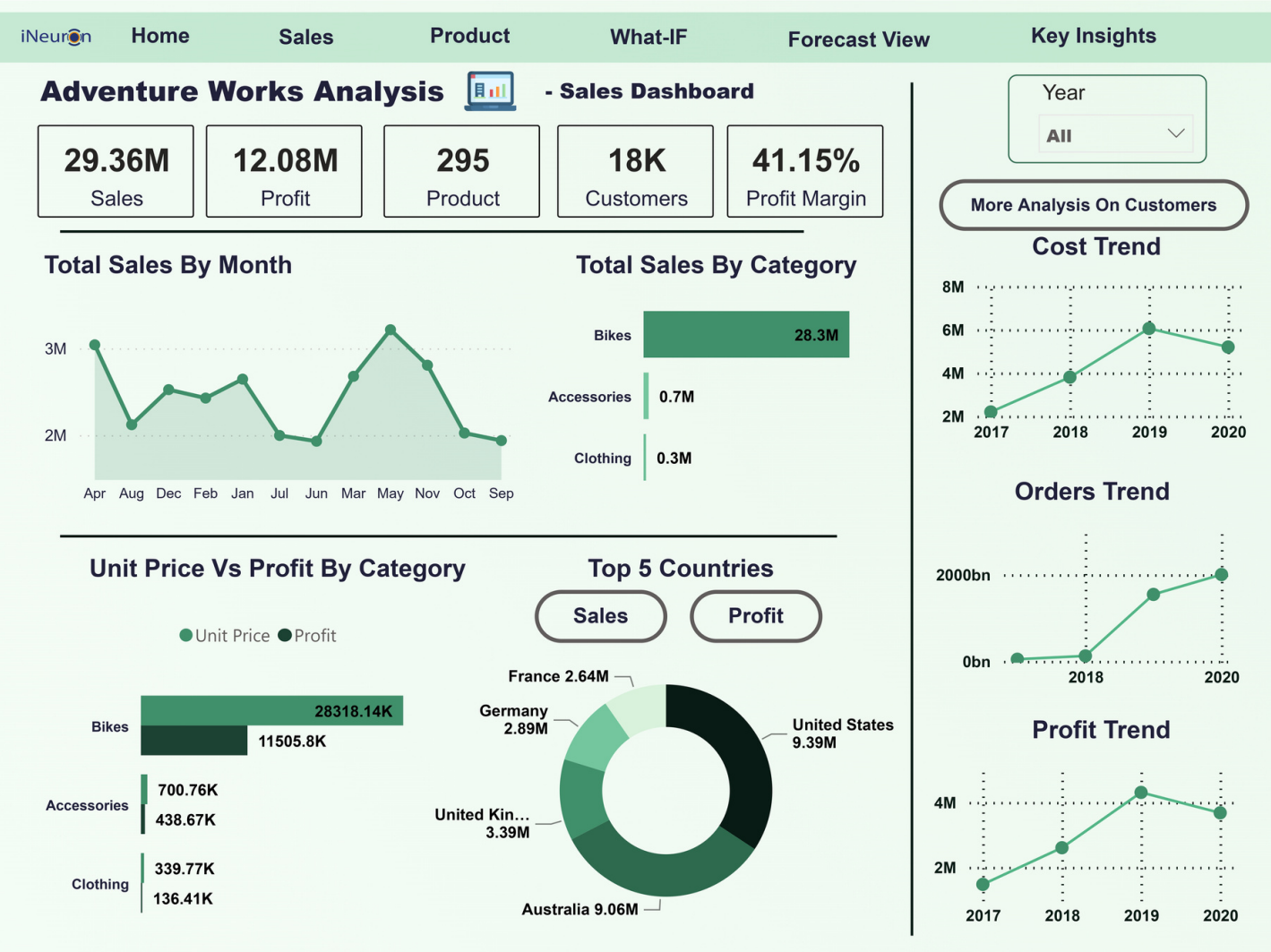
KEY INDICATORS DISPLAYING A SUMMARY OF THE SALES GENERATION AND ITS RELATIONSHIP WITH DIFFERENT METRICS

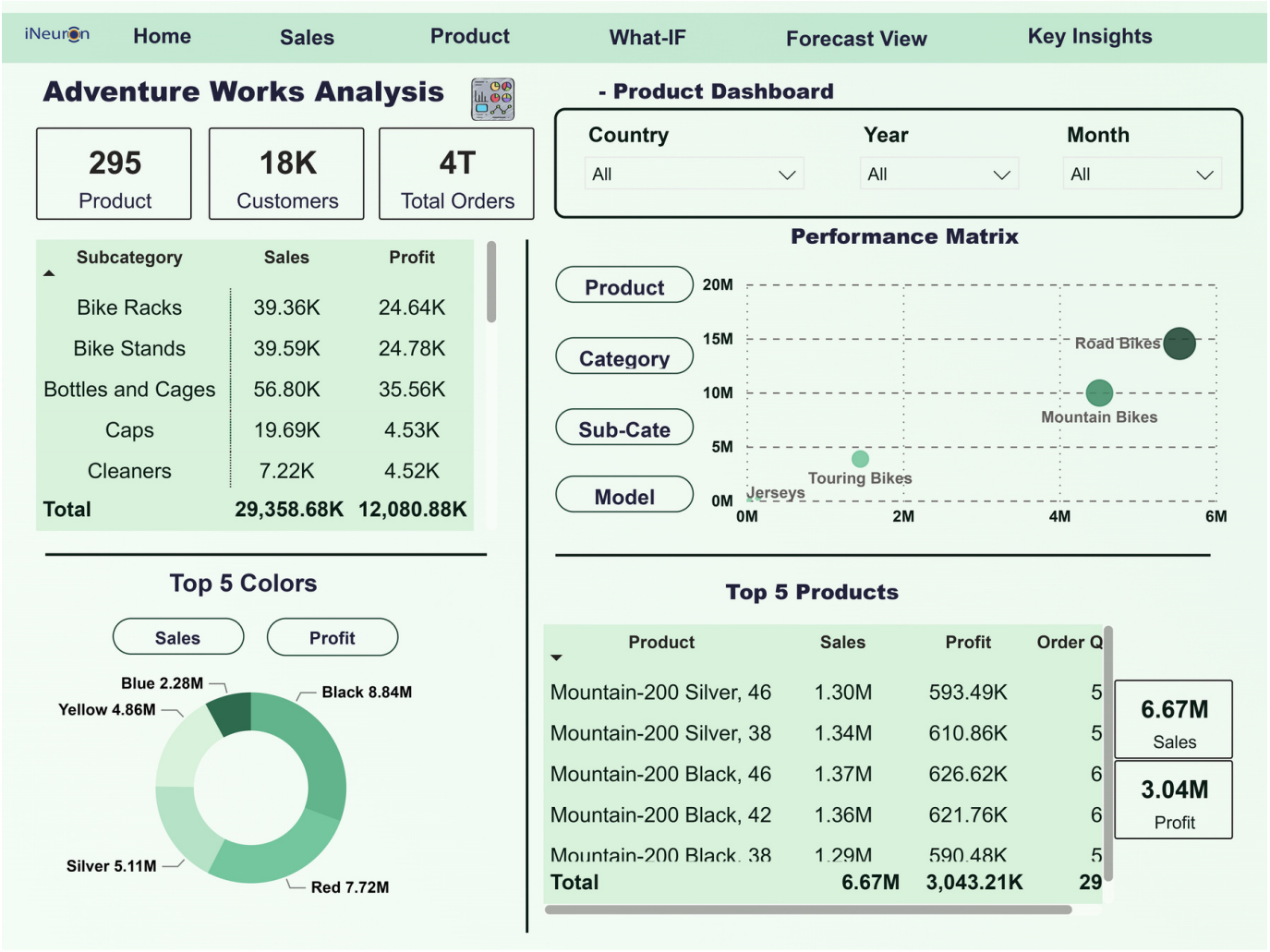
- TOTAL SALES
- TOTAL PROFIT
- PROFIT MARGIN
- SALES BY CATEGORY
- UNIT PRICE VS PROFIT BY CATEGORY
- COST TREND LINE
- ORDERS TREND LINE
- PROFIT TREND LINE
- CUSTOMER MATRIX
- PERFORMANCE MATRIX
- TOP 5 PRODUCTS
- SALES BY TOP 5 COUNTRIES
- PROFIT BY TOP 5 COUNTRIES

DEPLOYMENT

- ·PRIORITIZING DATA AND ANALYTICS COULDN'T COME AT A BETTER TIME. YOUR COMPANY, NO MATTER WHAT SIZE, IS ALREADY COLLECTING DATA AND MOST LIKELY ANALYZING JUST A PORTION OF IT TO SOLVE BUSINESS PROBLEMS, GAIN COMPETITIVE ADVANTAGES, AND DRIVE ENTERPRISE TRANSFORMATION.
- ·WITH THE EXPLOSIVE GROWTH OF ENTERPRISE DATA, DATABASE TECHNOLOGIES, AND THE HIGH DEMAND FOR ANALYTICAL SKILLS, TODAY'S MOST EFFECTIVE IT ORGANIZATIONS HAVE SHIFTED THEIR FOCUS TO ENABLING SELF-SERVICE BY DEPLOYING AND OPERATING POWER BI AT SCALE, AS WELL AS ORGANIZING, ORCHESTRATING, AND UNIFYING DISPARATE SOURCES OF DATA FOR BUSINESS USERS AND EXPERTS ALIKE TO AUTHOR AND CONSUME CONTENT.
- ·POWER BI DESKTOP AND POWER BI SERVICE LEVERAGE YOUR EXISTING TECHNOLOGY INVESTMENTS AND INTEGRATE THEM INTO YOUR IT INFRASTRUCTURE TO PROVIDE A SELF-SERVICE, MODERN ANALYTICS PLATFORM FOR YOUR USERS. WITH ON-PREMISES, CLOUD, AND HOSTED OPTIONS, THERE IS A VERSION OF POWER BI TO MATCH YOUR REQUIREMENTS.

POWER BI REPORT



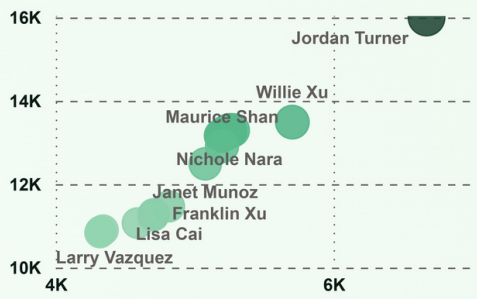

iNeuron
Home
Sales
Product
What-IF
Forecast View
Key Insights
Adventure Works Analysis
- Product Dashboard
295
Product
18K
Customers
4T
Total Orders
Country
All
Year
All
Month
All
Subcategory
Sales
Profit
Bike Racks
39.36K
24.64K
Bike Stands
39.59K
24.78K
Bottles and Cages
56.80K
35.56K
Caps
19.69K
4.53K
Cleaners
7.22K
4.52K
Total
29,358.68K
12,080.88K
Performance Matrix
Product
Category
Sub-Cate
Model
20M
15M
10M
5M
0M
0M
2M
4M
6M
Road Bikes
Mountain Bikes
Touring Bikes
Jerseys
Top 5 Colors
Sales
Profit
Blue 2.28M
Black 8.84M
Yellow 4.86M
Silver 5.11M
Red 7.72M
Top 5 Products
Product
Sales
Profit
Order Q
Mountain-200 Silver, 46
1.30M
593.49K
5
Mountain-200 Silver, 38
1.34M
610.86K
5
Mountain-200 Black, 46
1.37M
626.62K
6
Mountain-200 Black, 42
1.36M
621.76K
6
Mountain-200 Black, 38
1.29M
590.48K
5
Total
6.67M
3,043.21K
29
6.67M
Sales
3.04M
Profit

Adventure Works Customer Analysis

Month: All

Year: All

Customer Matrix



Top 5 Customers

69.35K	28.15K
Sales	Profit

Analysis On Customers

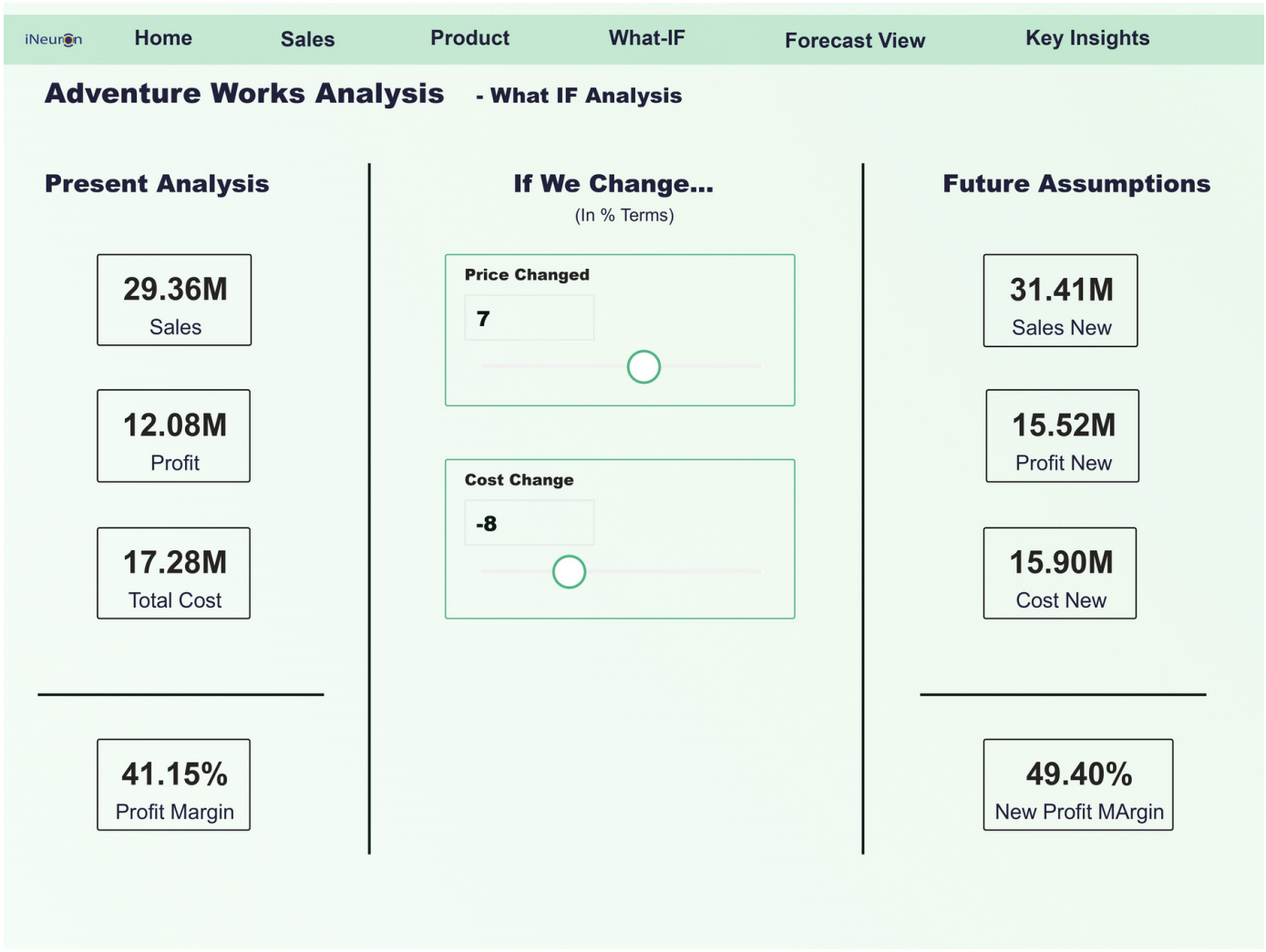
Customer	Sales	Avg Sales	Profit	Profit Margin
Jordan Turner	16.00K	799.95	6.67K	41.68%
Willie Xu	13.49K	1,498.90	5.70K	42.27%
Nichole Nara	13.30K	1,022.72	5.25K	39.49%
Kaitlyn Hend...	13.29K	949.59	5.27K	39.67%
Margaret He	13.27K	947.81	5.25K	39.60%
Randall Domi...	13.27K	1,206.00	5.23K	39.44%
Total	**29,358.68K**	**486.09**	**12,080.88K**	**41.15%**

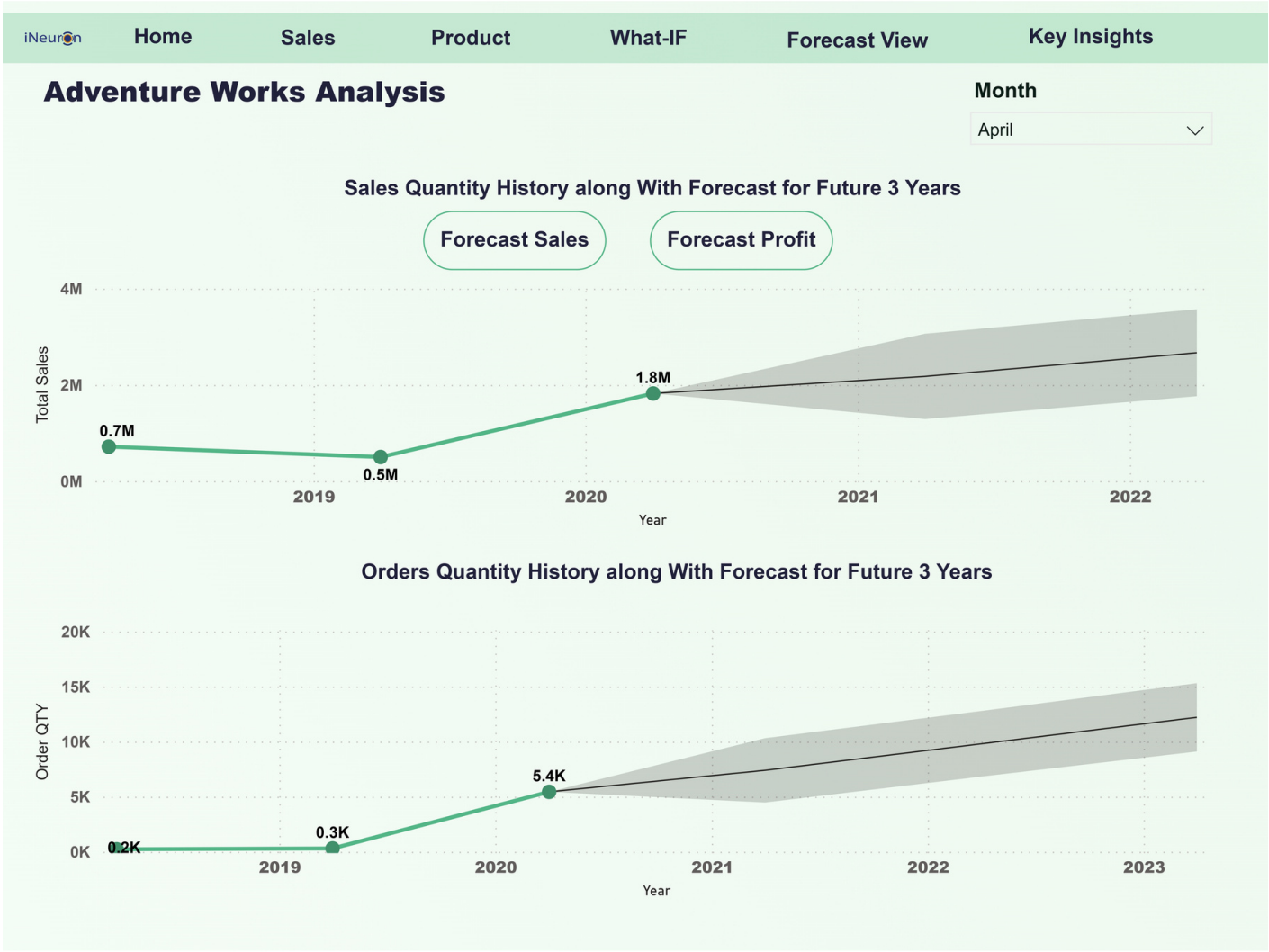
Sales By Various Dimensions

Primary Dimensions: Country, Category

Secondary Dimensions: State, Product

Product	Sales	Avg Sales	Profit	Profit M
Mountain-200 Black, 46	1,373.47K	2,215.27	626.62K	45
Mountain-200 Black, 42	1,363.14K	2,220.10	621.76K	45
Mountain-200 Silver, 38	1,339.46K	2,247.42	610.86K	45
Mountain-200 Silver, 46	1,301.10K	2,243.28	593.49K	45
Mountain-200 Black, 38	1,294.87K	2,224.86	590.48K	45
Total	**29,358.68K**	**486.09**	**12,080.88K**	**41**


iNeuron
Home
Sales
Product
What-IF
Forecast View
Key Insights
Adventure Works Analysis
- What IF Analysis
Present Analysis
29.36M
Sales
12.08M
Profit
17.28M
Total Cost
41.15%
Profit Margin
If We Change...
(In % Terms)
Price Changed
7
Cost Change
-8
Future Assumptions
31.41M
Sales New
15.52M
Profit New
15.90M
Cost New
49.40%
New Profit MArgin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Home
Sales
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Forecast View
Key Insights
Adventure Works Analysis
Month
April
Sales Quantity History along With Forecast for Future 3 Years
Forecast Sales
Forecast Profit
4M
2M
0M
Total Sales
0.7M
0.5M
1.8M
2019
2020
2021
2022
Year
Orders Quantity History along With Forecast for Future 3 Years
20K
15K
10K
5K
0K
Order QTY
0.2K
0.3K
5.4K
2019
2020
2021
2022
2023
Year