# HIGH LEVEL DESIGN

# ANALYZING AMAZON SALES DATA

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# DOCUMENT VERSION CONTROL

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# ABSTRACT

The Amazon Food Sales Report Is A Comprehensive Analysis That Delves Into The Sales Performance Of A Wide Range Of Products Across Both Domestic And International Markets. The Primary Objective Of This Report Is To Provide Key Insights And Analysis That Can Aid In Making Informed Decisions And Taking Necessary Actions To Enhance Sales Performance.

The Report Focuses On The Sales Data For The Years 2017 To 2019 And Utilizes The Power BI Tool To Present A Detailed Analysis Of Amazon's Food Sales. Power BI Is A Powerful Data Visualization Tool That Enables The Visualization And Interpretation Of Complex Data Sets, Making It An Ideal Choice For Showcasing Key Insights And Trends From The Given Data.

The Analysis Starts By Examining The Sales Performance Of Various Food Products, Including Perishables, Non-Perishables, And Other Related Items. The Report Further Categorizes The Data Based On The Geographic Regions, Classifying Sales Figures For Domestic And International Markets Separately.

Key Insights Are Derived Through The Identification Of Best-Selling Products, Peak Sales Periods, And Trends In Consumer Preferences. The Report Also Analyses The Impact Of Seasonality, Marketing Campaigns, And External Factors On Sales Performance. Additionally, It Explores Patterns Of Customer Behaviour And Purchase Trends To Highlight Potential Growth Opportunities And Areas For Improvement.

The Report Aims To Empower Decision-Makers Within Amazon And Related Stakeholders With Valuable Information That Can Help Optimize Product Assortments, Refine Marketing Strategies, And Improve Overall Sales Efficiency. By Leveraging The Insights Gained From The Analysis, Amazon Can Make Data-Driven Decisions That Have A Positive Impact On Their Food Sales Performance.

In Conclusion, The Amazon Food Sales Report Provides A Detailed And In-Depth Analysis Of Sales Data Spanning Three Years, Utilizing The Power BI Tool To Present Key Insights. This Report Serves As A Valuable Resource For Amazon To Make Strategic And Informed Decisions, Enhance Their Market Presence, And Continue Their Growth Trajectory In The Competitive Food Industry.

# 1. Introduction

## 1.1 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:
    - o Security
    - o Reliability
    - o Maintainability
    - o Portability
    - o Reusability
    - o Application compatibility
    - o Resource utilization o Serviceability

## 1.2 Scope

The HLD documentation presents the structure of the system, such as the database architecture, 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.

## 2. General Description

### 2.1 Product Perspective & Problem Statement

Over The Years, The Significance Of Sales Management Has Grown Exponentially, Primarily Driven By The Relentless Rise In Market Competition And The Critical Demand For Streamlined Distribution Channels That Not Only Minimize Costs But Also Maximize Profits. In The Current Landscape, Sales Management Has Emerged As The Single Most Vital Function Within Commercial And Business Enterprises.

Now, Let's Delve Into The Realm Of Data Analytics And Conduct An Extract-Transform-Load (ETL) Process On An Extensive Amazon Dataset. By Doing So, We Aim To Uncover Valuable Insights Into The Sales Trends That Occur On Multiple Time Scales, Including A Month-Wise Analysis, A Year-Wise Examination, And Even A Detailed Yearly Month-Wise Breakdown. This Comprehensive Analysis Will Enable Us To Discern Patterns, Identify Growth Opportunities, And Make Informed Strategic Decisions That Can Potentially Propel Your Business To Greater Heights.

### 2.2 Tools Used

Microsoft Power BI, The Business Intelligence Tool Of Choice For Organizations Of All Sizes, Is Used To Build The Whole Framework.

## 2. Design Details

### 3.1 Functional Architecture

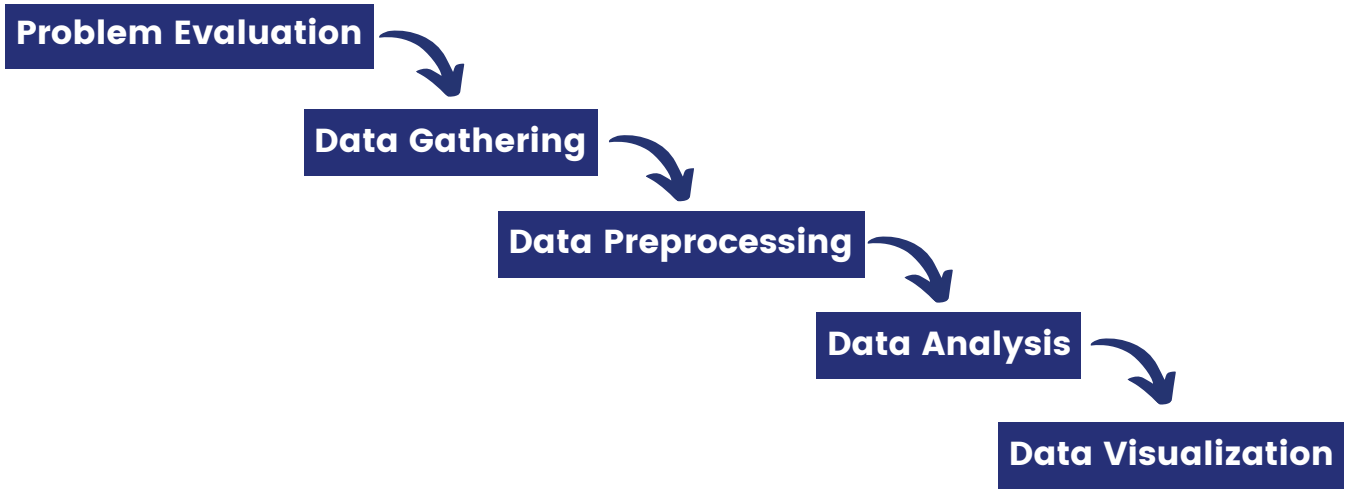
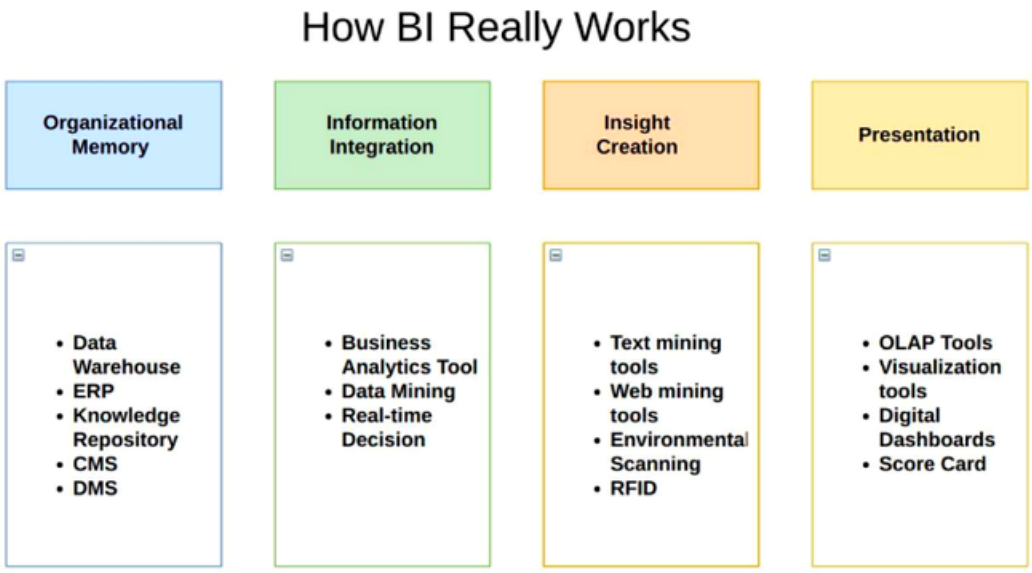



**Figure 1: Functional Architecture of Business Intelligence**



## 3.2 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 include filter. Exclude filters load the entire domain of a dimension, while include filters do 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 date 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 or table calculations in the view. The more granular the calculation, the longer it takes.
  1. LODs - Look at the number of unique dimension members in the calculation.
  2. 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 include filters, calculated groups load only named members of the domain, whereas Tableau'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>Date Time>String

## 4. KPIs & Charts

The Forthcoming Strategy Involves The Strategic Implementation Of Comprehensive Dashboards, Meticulously Tailored To Showcase And Elucidate A Specific Set Of Pivotal Key Performance Indicators (KPI's) Alongside Pertinent And Contextually Significant Indicators That Play A Crucial Role In The Realm Of Food Sales. These Thoughtfully Curated Dashboards Will Be Seamlessly Integrated Into The Operational Framework, Serving As A Visually Engaging Medium Through Which A Dynamic Array Of Charts And Graphical Representations Will Vividly Illustrate The Evolution And Trajectory Of A Multitude Of Critical Indicators And Influential Factors Over The Course Of Time. This Sophisticated Visual Depiction Is Poised Not Only To Enhance The Accessibility And Comprehensibility Of Intricate Data But Also To Empower Stakeholders With A Holistic Perspective That Can Significantly Inform Strategic Deliberations And Facilitate Well-Informed Decision-Making Processes. Through This Judicious Amalgamation Of Cutting-Edge Dashboard Technology And Data Visualization Prowess, A New Echelon Of Understanding And Insight Is Set To Be Unlocked, Ultimately Propelling The Optimization Of Food Sales Strategies Into A Realm Of Unprecedented Effectiveness And Informed Acumen.

### 4.1 KPIs (Key Performance Indicators)

Certainly, Here's An Expanded Version Highlighting The Key Indicators That Succinctly Encapsulate And Illuminate The Intricate Tapestry Of Amazon Food Sales Data, Underscoring Their Multifaceted Relationships With Various Pivotal Metrics. Key Indicators Unveiling The Amazon Food Sales Data Landscape And Its Multivariate Metric Associations

1) Total Revenue
2) Total Revenue Last Year
3) Total Profit Margin
4) Total Profit Last Year
5) Customers Last Purchase Date
6) YOY Sales Growth
7) Revenue Contribution %
8) Profit Contribution %

These Meticulously Selected Indicators Collectively Form A Mosaic Of Insights, Unveiling The Nuanced Interplay Between Amazon's Food Sales Data And A Spectrum Of Pertinent Metrics. Their Analysis Empowers Decision-Makers To Discern Trends, Make Informed Choices, And Architect Strategies That Harness The Full Potential Of Amazon's Food Sales Domain. By Delving Into These Indicators, Amazon Can Optimize Operational Paradigms, Elevate Customer Experiences, And Chart A Course Toward Sustained Growth And Prosperity.

## 4.2 Charts

A Comprehensive Array Of Illustrative Charts Meticulously Designed To Unravel The Intricate Nuances Enshrined Within The Realm Of Amazon Food Sales Data, Elucidating An Unparalleled Understanding Of Its Multifaceted Dimensions. Charting Insights: Illuminating The Landscape Of Amazon Food Sales Data

1) Revenue by Country (Pie Chart)
2) Revenue by Region (Pie Chart)
3) Top 20 Products
4) Top Customers (Matrix Table)
5) Product Overall Sales Trend (Waterfall Chart)

These Exquisitely Crafted Charts Transcend Mere Visuals, Transforming Data Into Narratives That Resonate With Depth And Meaning. As These Charts Unfurl Their Insights, Decision-Makers And Analysts Are Empowered To Glean Strategic Revelations, Make Informed Choices, And Steer Amazon's Food Sales Enterprise Toward The Zenith Of Success. With These Graphical Elucidations At Hand, Amazon Navigates The Seas Of Culinary Commerce Armed With A Profound Understanding, Poised To Chart A Course Of Innovation, Efficiency, And Resounding Triumph.

## 5. Deployment

In The Current Landscape, The Strategic Imperative Of Harnessing The Potential Of Data And Analytics Has Never Been More Pronounced. Irrespective Of The Scale Of Your Organization, The Treasure Trove Of Data Being Amassed Holds Untold Value, A Fraction Of Which Is Likely Being Harnessed For Addressing Business Challenges, Gaining Competitive Edges, And Propelling Comprehensive Enterprise Metamorphosis. Against The Backdrop Of A Veritable Explosion In Enterprise Data, A Proliferation Of Database Technologies, And An Insatiable Appetite For Analytical Prowess, The Vanguard Of Contemporary IT Organizations Is Pivoting Towards The Facilitation Of Self-Service Paradigms. This Is Achieved Through The Systematic Deployment And Seamless Operation Of Power BI At An Expansive Scale, Concurrently With The Meticulous Orchestration, Consolidation, And Harmonization Of Diverse Fountains Of Data. This Harmonious Symphony Is Orchestrated To Empower Both Business Users And Domain Experts, Granting Them The Agency To Craft And Imbibe Content That Is Truly Insightful.

Within This Mosaic, The Amazon Food Sales Dataset Emerges As A Prime Exemplar. Its Traversal Through The Crucible Of Data Refinement Is Facilitated By The Adept Utilization Of The Power Query ETL Tool, Unfurling A Process Of Meticulous Data Cleansing And Standardization. Subsequently, This Refined Corpus Is Embraced By The Wings Of Power BI, Where Its Transformation Into A Narrative Imbued With Key Insights Occurs. This Narrative Is More Than Just Numbers; It Weaves Together A Compelling Chronicle That Transforms Raw Data Into A Saga Of Informed Decision-Making.

The Culmination Of This Transformative Journey Finds Its Embodiment In A Power BI Report, Meticulously Crafted To Deliver An Immersive Experience. This Report Finds Its Residence Within A Dedicated Workspace, Serving As An Interactive Playground Wherein The Alchemy Of Data Unfolds. Herein, You Are Afforded The Ability To Seamlessly Navigate, Manipulate, And Dissect The Data, Effectively Distilling It Into The Quintessence Of Meaningful Insights.

In Essence, This Narrative Underscores A Powerful Synergy Of Technology, Methodology, And Insights, Where Data Metamorphoses Into A Strategic Asset. It's A Testament To The Pivotal Role That Power BI Assumes In Reshaping The Contours Of Data-Driven Decision-Making, Ultimately Propelling Your Organization To Navigate The Currents Of Business With Acumen, Agility, And Unparalleled Foresight.