Business Requirement Document (BRD) for Road Accident Dashboard

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Project Overview

Develop a Road Accident Dashboard for 2021 and 2022 using Microsoft Excel. The dashboard will provide detailed insights into road safety, helping stakeholders make informed decisions, improve safety measures, and identify trends in accident casualties.

Stakeholders

- **Ministry of Transport**: Oversees transport policies and road safety regulations.
- **Road Transport Department:** Manages vehicle registrations and road safety enforcement.
- **Police Force:** Enforces road laws and responds to accidents.
- **Emergency Services Department:** Provides emergency responses to accidents.
- **Road Safety Corps:** Implements road safety campaigns and strategies.
- **Transport Operators:** Ensures vehicle safety and compliance.
- **Public:** General road users interested in safety measures.
- **Media:** Reports on road safety and accidents.

Business Objectives

- **Primary Objective:** Provide a comprehensive analysis of road accident casualties to support decision-making, improve safety measures.
- **Secondary Objective:** Identify high-risk areas, times, and conditions to focus preventive measures.

Key Performance Indicators (KPIs)

- **Primary KPIs:**
    - **Total Casualties:** Overall count of casualties resulting from accidents.
    - **Casualties by Accident Severity:** Breakdown of casualties by the severity of the accident (e.g., minor, serious, fatal).
    - **Casualties by Vehicle Type:** Identify vehicle types associated with the highest number of casualties.
- **Secondary KPIs:**
    - **Casualties by Vehicle Type:** Detailed analysis of casualties across different vehicle types.
    - **Monthly Comparison:** Track and compare monthly casualties between 2021 and 2022.

- **Casualties by Road Type:** Analyse which road types (e.g., highways, urban roads) have the most casualties.
- **Casualties by Road Surface:** Assess the impact of road surface conditions (e.g., wet, dry, icy) on casualty numbers.
- **Casualties by Area and Time:** Explore the correlation between casualties by location and time of day (day/night).

Data Requirements

- **Data Source:** Excel file (.xlsx) containing 3.07 million rows and 21 fields, including details such as date, time, location, vehicle type, accident severity, and road conditions.

Dashboard Requirements

- **Platform:**
  - The dashboard will be developed using Microsoft Excel, leveraging its data visualization features.
- **Visualizations:**
  - **Overview:** Total casualties with drill-down capabilities by severity, vehicle type, and other criteria.
  - **Trend Analysis:** Monthly line charts comparing casualties across 2021 and 2022.
  - **Distribution Charts:** Bar and pie charts showing casualty distribution by vehicle type, road type, and road surface.
  - **Comparison:** Dual visuals to highlight differences in casualties by country and gender or other significant factors.
- **Filters:**
  - Year, accident severity, vehicle type, road type, road surface condition, and time of day.
- **Performance:** Dashboard optimized to handle large datasets efficiently, ensuring quick load times and responsive interactions.

Risk Management

- **Data Quality:** Implement validation checks during ETL processes to ensure data accuracy and consistency.
- **Performance:** Optimize Excel queries and visualizations to handle the large dataset effectively, reducing the risk of slow performance.
- **User Adoption:** Provide training for stakeholders to ensure they can effectively use the dashboard and interpret the data.