

Executive Summary

Project Title: Road Accident Dashboard Analysis

Objective:

This project aims to provide a comprehensive overview of road accident data to identify critical trends, risk factors, and areas requiring safety interventions. The analysis focuses on understanding the distribution of casualties by severity, vehicle type, location, road type, and environmental conditions to support data-driven decision-making for improving road safety.

Key Findings:

1. Total Casualties:

- The total number of casualties recorded is **417,883**, segmented into:
 - **Fatal casualties:** 7,135 (2% of total casualties)
 - **Serious casualties:** 59,312 (14% of total casualties)
 - **Slight casualties:** 351,436 (84% of total casualties)

2. Casualties by Vehicle Type:

- Cars account for the highest number of casualties (**333,485**), representing 80% of all recorded incidents.
- Other vehicles such as bikes (**33,672**) and vans (**33,472**) have significantly lower casualty counts.
- Buses and agricultural vehicles contribute minimally to the overall casualty figures.

3. Casualties by Year and Trends:

- The line graph comparing **2021 and 2022 casualties** reveals a consistent monthly pattern in accident numbers, with slight variances between the two years.
- A sharp decline is observed in December for both years.

4. Casualties by Road Type:

- Single carriageways are the most hazardous road type, accounting for **309.7K casualties**.
- Dual carriageways and roundabouts follow with **67.4K** and **26.8K casualties**, respectively.
- One-way streets and slip roads contribute significantly less to overall incidents.

5. Casualties by Location:

- The majority of casualties occur in **urban areas (255.9K)** compared to **rural areas (162.0K)**.
- Urban settings account for approximately 61% of the total casualties.

6. Casualties by Lighting Conditions:

- Accidents occurring in **daylight** are more frequent, with **305K casualties**, compared to **112.9K casualties** recorded in **darkness**.

7. Casualties by Road Surface Conditions:

- Dry road surfaces contribute to the majority of casualties, with wet conditions accounting for a smaller, but still significant, portion.
- Snow/ice conditions contribute minimally to the total casualty numbers.

Insights and Recommendations:

1. Focus on High-Risk Categories:

- Cars are involved in the majority of accidents. Targeted interventions such as stricter traffic regulations, enhanced vehicle safety standards, and public awareness campaigns could reduce these figures.
- Urban areas require specific attention, as they record the highest casualty rates.

2. Improve Infrastructure and Road Safety:

- Single carriageways present the highest risk. Investments in infrastructure improvement, better signage, and traffic calming measures are recommended.
- Strategies to improve safety on dual carriageways and roundabouts should also be explored.

3. Address Environmental and Time-Specific Risks:

- Although most accidents occur during daylight, darkness-related accidents likely have a higher severity. Improved lighting and reflective signage could mitigate risks.
- Adverse weather conditions (wet roads) highlight the need for public campaigns emphasizing cautious driving during rain and proper road maintenance.

4. Monitor Seasonal Patterns:

- The notable decline in casualties during December across both years suggests potential seasonal impacts. Exploring behavioral changes or reduced traffic during the holiday season could provide actionable insights.

Conclusion:

This dashboard highlights critical areas of concern regarding road accidents. Cars, urban areas, and single carriageways emerge as the primary contributors to road casualties. Targeted safety measures, infrastructure improvements, and public awareness campaigns are essential to reduce accident rates and casualties effectively.