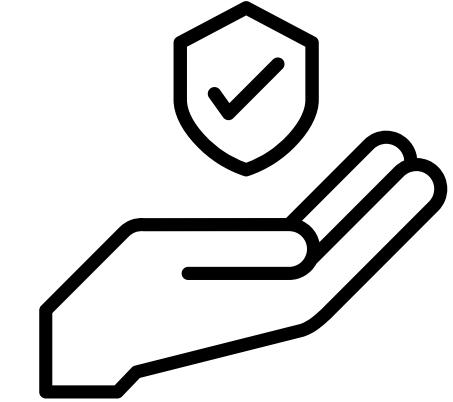


LifeSure

Pierre HOHL – Aron MAAREK – Abdirahman Hassan MAHAMMED – Eva MIRZA – Anton NOMED



LifeSure



- UK-based insurance provider offering a range of coverage
- Operates in a **highly competitive market**, requiring innovation to stay relevant.
- Faces **growing customer demand** for more personalized and flexible policies.
- Increasing pressure from clients and regulators to integrate **sustainability** and **social responsibility**.



Touring
caravan
insurance



Static
caravan
insurance



Motorhome
insurance



Park home
insurance



Residential
home
insurance



Car
insurance



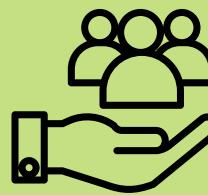
RAC Car
Breakdown
Insurance



Travel
insurance

The Solution

Our Dashboard



- **Customer Insights:** Understand behaviors, needs, and sustainability preferences.



- **Sustainability Metrics:** Identify opportunities for greener policies.



- **Interactive Visualization:** Explore customer trends and impact easily.



- **Decision Support:** Drive policy innovation aligned with expectations.

Phase

01

Datasets selection

Kaggle



Customers & E-commerce

Customer Behavior

Sustainability

Marketing & Policy
Optimization



Car insurance & Car emission

Customer Insights

Risk Assessment & Pricing

Marketing & Conversion

Environmental Impact



Home insurance

Customer Behavior

Risk Assessment

Sustainability & Strategy

Phase

02

Data cleaning

- Standardize data cleaning
- Primary data exploration
- Different datasets

Python Code

```
def process_insurance_files(file_paths: List[str]) -> None:
    log_file = f"data_cleaning_log_{datetime.now().strftime('%Y%m%d_%H%M%S')}.txt"

    if pd.api.types.is_numeric_dtype(cleaned_df[col]):
        if cleaned_df[col].dtype == 'int64':
            fill_val = int(cleaned_df[col].median())
        else:
            fill_val = cleaned_df[col].median()
    else:
        fill_val = cleaned_df[col].mode()[0] if not cleaned_df[col].mode().empty else 'MISSING'

    cleaned_df[col] = cleaned_df[col].fillna(fill_val)

    cleaned_df = cleaned_df.drop_duplicates()
```

Results

Dataset	Missing Values Handled	Duplicates Removed
Home Insurance	Up to 77	0
Car CO2 Emissions	0	1,103
Car Insurance	Up 470,727 116,834 ...	78
Synthetic Customer Data	0	0

Phase

03

Data analyses

- Datasets we used
- Key Metrics
- Main Findings

Phase

Datasets

Dataset

Focus

Car CO2 Emissions

Vehicle emissions and fuel usage

Car Insurance

Claims and vehicle risk

Home Insurance

Property types and claim behavior

Synthetic Customer Data

Simulated profiles and behavior

Phase

Key Metrics

Metric

CO2 Emissions (g/km)

Fuel Consumption Comb
(L/100 km)

Fuel Type

Engine Size (L)

Why it's key

Directly reflects a vehicle's environmental impact → essential for any green strategy

Closely related to emissions and customer cost → indicator of energy efficiency

Helps distinguish electric, hybrid, diesel, gasoline → enables sustainability segmentation

Larger engines typically emit more CO₂ → relevant for both emissions and taxation

Phase

Key Metrics

Metric

Why it's key

Claims Frequency

Identifies high-risk vs. low-risk customer profiles

Total Discounts

Shows promotion sensitivity → useful for campaign targeting

Credit Score

Correlates with reliability and payment behavior

Premium Amount

Measures customer value and revenue potential

Main Findings

Datasets

CO2 emissions

Car insurance

Home insurance

Synthetic data

Main findings

- Gasoline and diesel vehicles are the most common, but also the most polluting
- CO2 emissions increase significantly with engine size
- Certain vehicle classes like SUVs and trucks have the highest environmental impact

- Commercial and utility vehicles have a higher claim rate
- Insurance premiums vary considerably based on vehicle type
- We could potentially adjust premiums based on environmental risk, by combining this with CO2 data

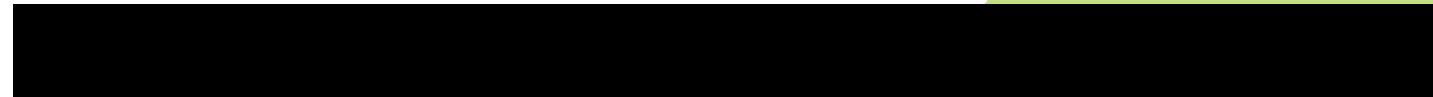
- Multi-family buildings tend to have a higher claim frequency
- Homes with gardens appear to have fewer claims on average
- This could support a strategy of rewarding environmentally friendly home features

- We identified ideal customer profiles with low claim frequency, high discounts, and strong credit scores
- These profiles could be targeted with personalized, sustainable insurance offers

Phase

04 Dashboard

Quick Walkthrough



Phase

05

Proposed strategies

Sustainability

- Eco-friendly products
- Sustainable Premium Adjustments
- Carbon Offset Programs
- Digital-First Strategy

Phase

05

Proposed strategies

Customer satisfaction strategies

- Personalised Products
- Eco-Friendly Rewards

Phase

05

Proposed strategies

Policy innovation

- Personalised Policies
- Eco-Friendly Options
- Flexible Premiums

- Data-Driven Decision-Making
- Eco-Friendly and Customer-Centric Innovation
- Enhanced Risk Management
- Competitive Edge and Regulatory Compliance
- Commitment to Leadership and Innovation

Conclusion

Sources

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**Thank
You**

