



Data Analysis of Uisce Éireann Customer Survey Data

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Introduction

Overview

This report presents the analysis of the Irish Water Customer Survey Data. The primary goal of this project was to preprocess and analyze the survey responses to uncover valuable insights related to customer satisfaction and service quality. This involved a detailed data preprocessing phase, exploratory data analysis (EDA), and the extraction of key insights using both Python and Tableau for visualization.

Context and Importance

Customer feedback is a crucial element for any service-oriented organization. For Uisce Éireann, understanding customer experiences and satisfaction levels can significantly influence service improvements, operational efficiency, and overall customer retention. This analysis seeks to explore these aspects by examining survey responses from Irish Water customers. By systematically preprocessing and analyzing this data, we aim to uncover insights that can guide strategic decisions and enhance service delivery.

Aim of the Analysis

The primary aim of this analysis is to transform raw survey data into actionable insights that can help Uisce Éireann improve its services. Specifically, the analysis seeks to:

Data Preprocessing

- **Clean and Prepare the Data:** Ensure that the dataset is accurate, complete, and formatted correctly for analysis. This includes handling missing values, correcting data types, and removing irrelevant information.

Exploratory Data Analysis (EDA)

- **Understand Data Distribution:** Examine the distribution of satisfaction scores and other key metrics to get a sense of overall trends and variations.
- **Visualize Relationships:** Explore relationships between different variables, such as customer queries and overall satisfaction, through various visualizations.

Insights Extraction

- **Identify Key Patterns:** Uncover patterns and trends in customer feedback that indicate strengths and areas for improvement.
- **Formulate Recommendations:** Provide actionable recommendations based on the analysis to enhance customer satisfaction and service quality.

Questions we want to answer

Through this analysis, we aim to answer the following key questions:

- **What actionable insights can be derived to help Uisce Éireann enhance its services and address customer concerns?**
- **How can the findings from this analysis inform improvements in service delivery?**
- **Are there any notable patterns or trends in the survey data over the given time frame?**
- **How does overall satisfaction vary across different types of customer queries?**
- **Are there specific types of queries that tend to result in higher or lower satisfaction scores?**

Limitations

Data Volume

The dataset comprises only around 838 rows of information. While this sample size provides useful insights, it may not fully represent the broader customer base or capture all potential variations in customer experiences.

Time Frame

The survey data is limited to responses collected from May 8, 2024, to June 30, 2024. This time frame may not capture seasonal variations or long-term trends in customer satisfaction, potentially limiting the scope of the insights.

Data Completeness

The presence of missing values or incomplete responses could impact the accuracy and reliability of the analysis. While efforts were made to handle these issues, they may still influence the results.

Demographic Profiles

No. of Surveys

A total of **838** surveys

Survey Dates

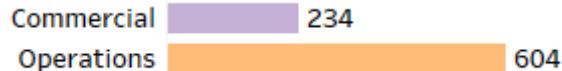
8th May 2024 to

30th June 2024

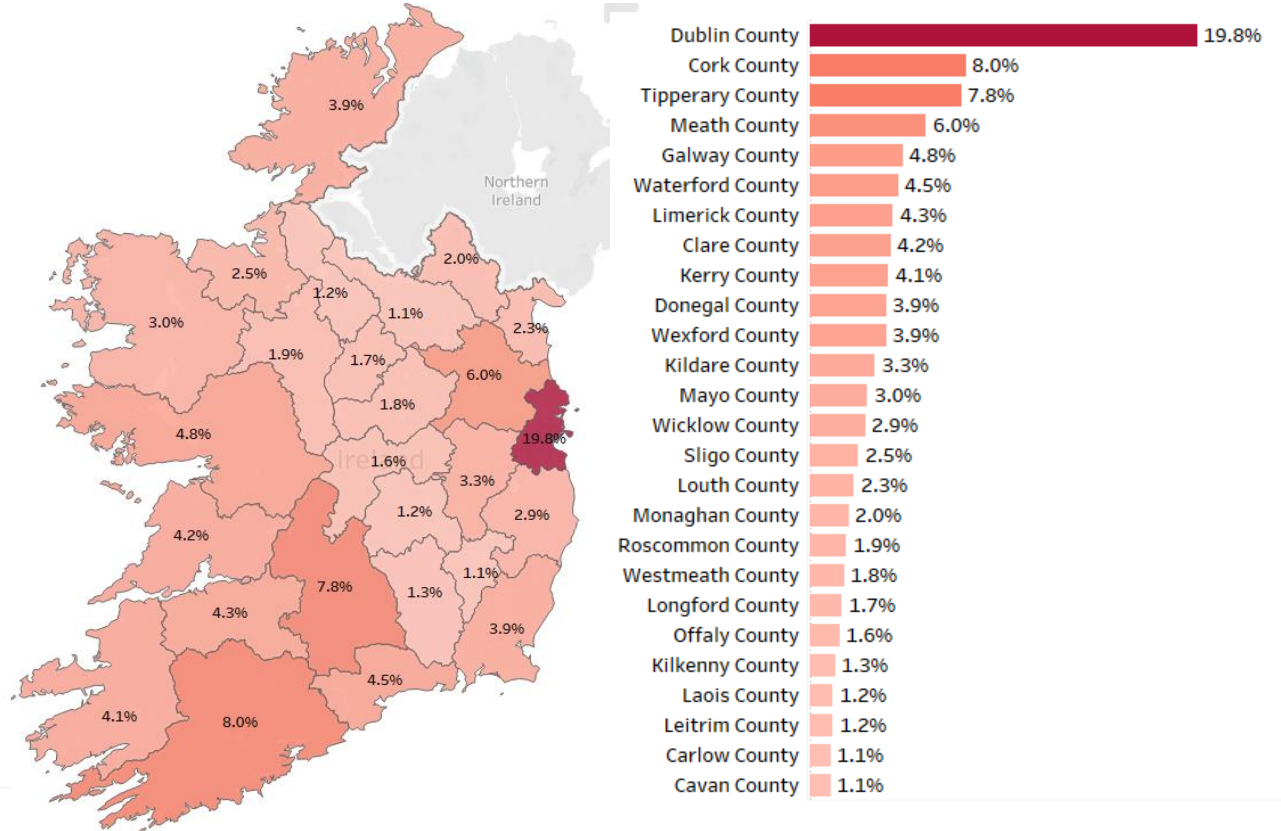
Inferences

Majority of the customer queries **19.8%** from **Dublin** region as it's the highest populated region followed by **Cork** which makes up to **8.0%** in the given timeframe.

Out of 838 surveys, **234** surveys belonged to the **Commercial** which is **28%** of the total surveys and **604** surveys belonged to the **Operations** which is **72%** of the total surveys.



Location of Customer Queries



Average Overall Satisfaction by Local Authority

Inferences

Offaly County has the highest overall satisfaction rating of **8.5**, indicating that residents are very satisfied with the local authority services.

Westmeath County has the lowest overall satisfaction rating of **5.4**. This suggests that residents in this county are generally less satisfied with the services provided by the local authority.

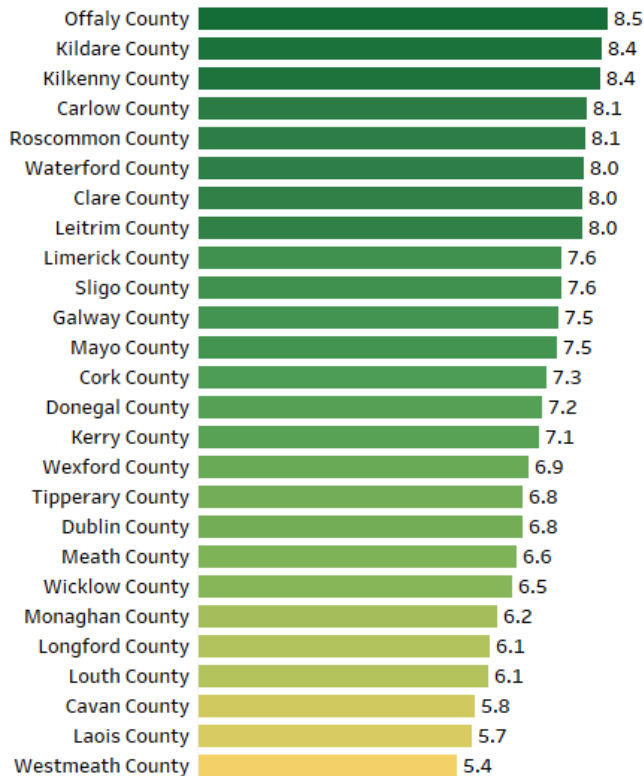
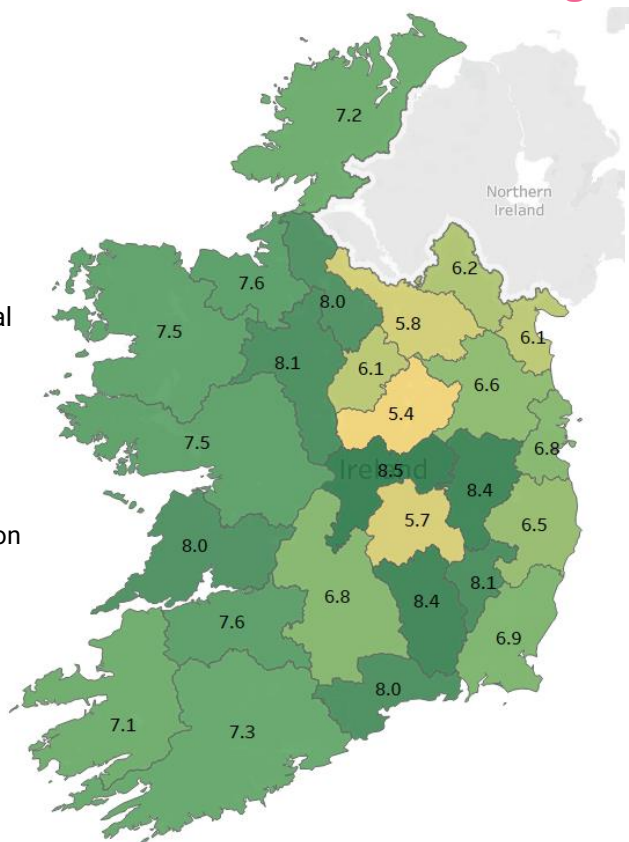
For Low Satisfaction Counties:

- **Implement Improvements:** Develop action plans to address issues, improve communication, and boost service efficiency.
- **Monitor Progress:** Regularly check satisfaction levels to ensure improvements are effective.

For High Satisfaction Counties:

- **Maintain Standards:** Continue successful practices and policies.
- **Share Best Practices:** Help lower-rated counties improve by sharing effective strategies.

Location wise average overall satisfaction ratings



Satisfaction levels – Across types Customer Queries

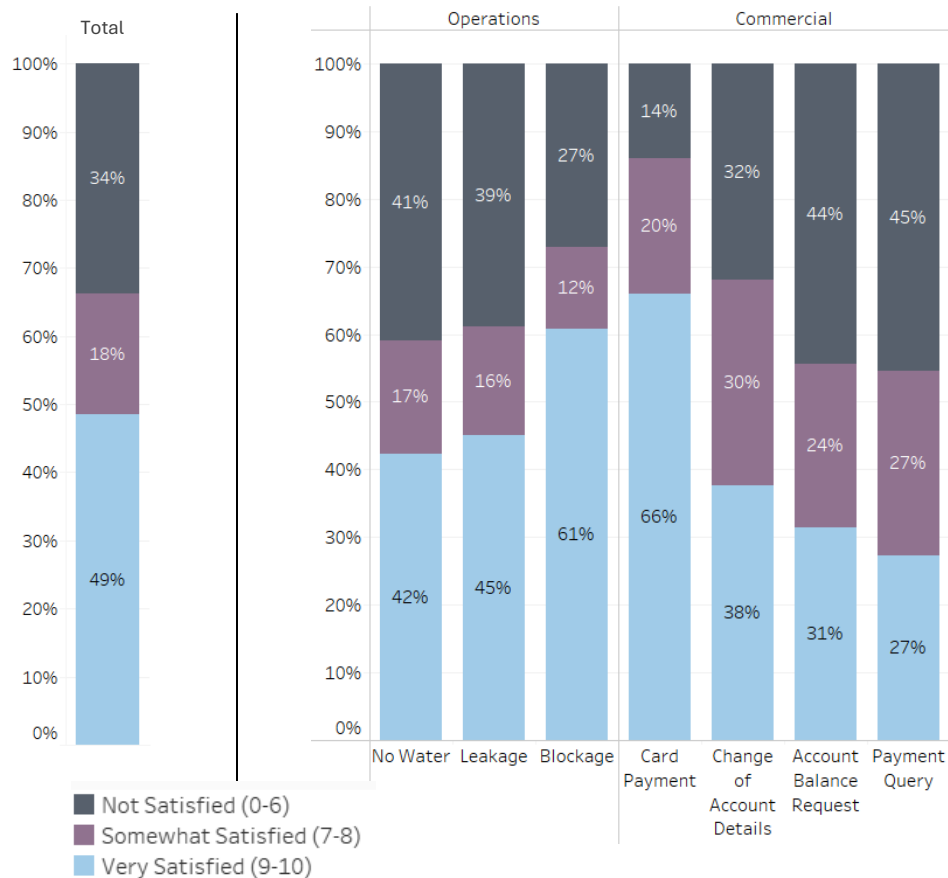
Inferences

Majority of the customers **48%** report being "**Very Satisfied**" with the handling of their queries, indicating a generally positive perception of the service. However, there is still a significant portion (**34%**) who are "**Not Satisfied**", highlighting areas for potential improvement. The "**Somewhat Satisfied**" category (**18%**) represents customers who may have had a mixed experience and could potentially be swayed towards higher satisfaction with slight improvements.

In the Commercial category, **card payment** queries have the **highest satisfaction** rate, with **61%** of customers being "**Very Satisfied**". This suggests that the process and resolution of card payment issues are well-handled.

Conversely, **payment queries** exhibit the **lowest satisfaction**, with only **28%** of customers being "**Very Satisfied**" and a significant **45%** "**Not Satisfied**". This indicates a need for focused improvements in addressing payment queries to enhance customer satisfaction.

In the Operations category, **blockage** issues have the **highest satisfaction**, with **61%** of customers being "Very Satisfied". This reflects effective management and resolution of blockage problems. However, the **no water** category has the **lowest satisfaction**, with only **42%** of customers "**Very Satisfied**" and **41%** "**Not Satisfied**". This suggests a critical need to improve responses and solutions to water supply issues.



Average Ratings for various aspects of Customer interaction

The provided data shows the average ratings for various aspects of customer interaction in both the Commercial and Operations categories. These ratings are on a scale of 1 to 10.

Inference: Commercial

Agents' Ability: The highest rating in the commercial category, at 8.2, indicates that customers are generally pleased with the ability and competence of the agents handling their queries.

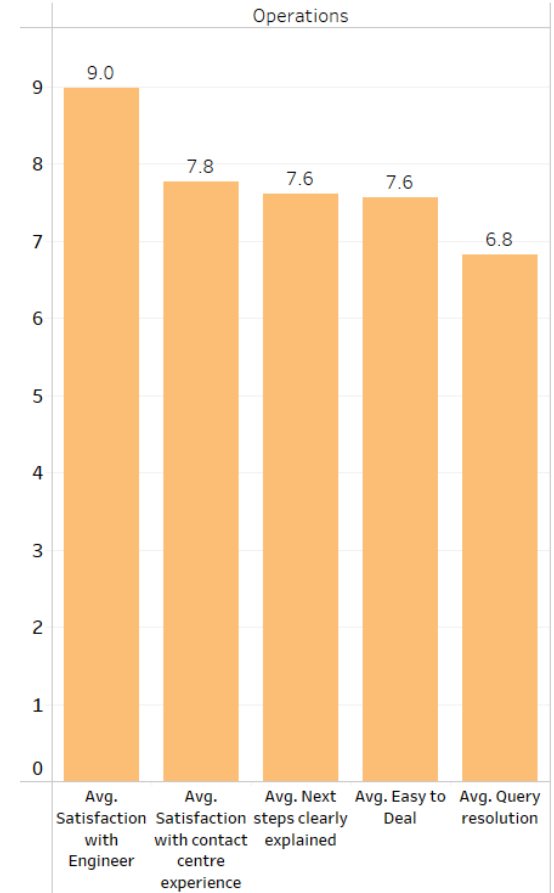
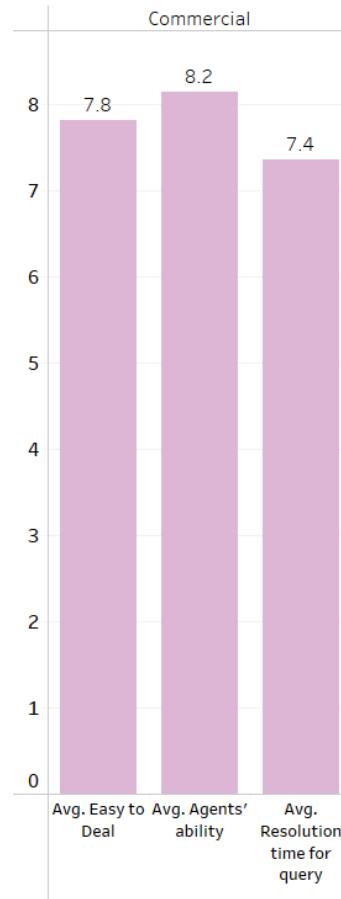
Resolution Time for Query: The lowest rating, 7.4, suggests that while customers are relatively satisfied, there is room for improvement in the speed of query resolution.

Solution: Commercial

Improve Ease of Interaction: Implement user-friendly interfaces and streamlined processes to make it even easier for customers to deal with commercial queries.

Enhance Agent Training: Continue investing in agent training programs to maintain and improve their competence and ability.

Optimize Resolution Time: Identify bottlenecks in the query resolution process and implement strategies to resolve queries faster, such as automation and better resource allocation.



Average Ratings for various aspects of Customer interaction

The provided data shows the average ratings for various aspects of customer interaction in both the Commercial and Operations categories. These ratings are on a scale of 1 to 10.

Inference: Operations

Satisfaction with Engineer: The highest rating, at 9.0, reflects high satisfaction with the engineers, indicating they are well-regarded for their expertise and service.

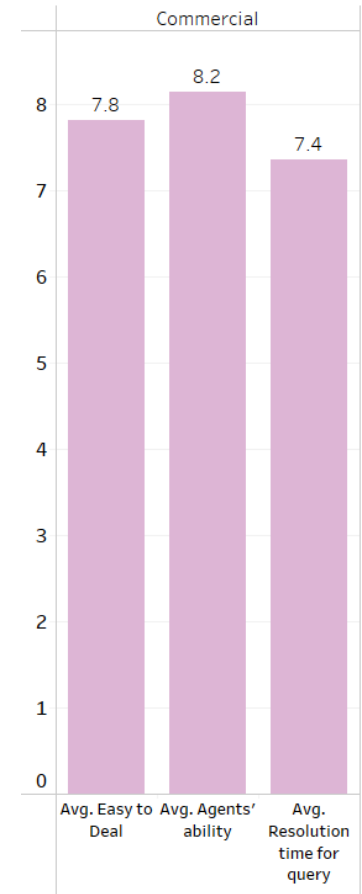
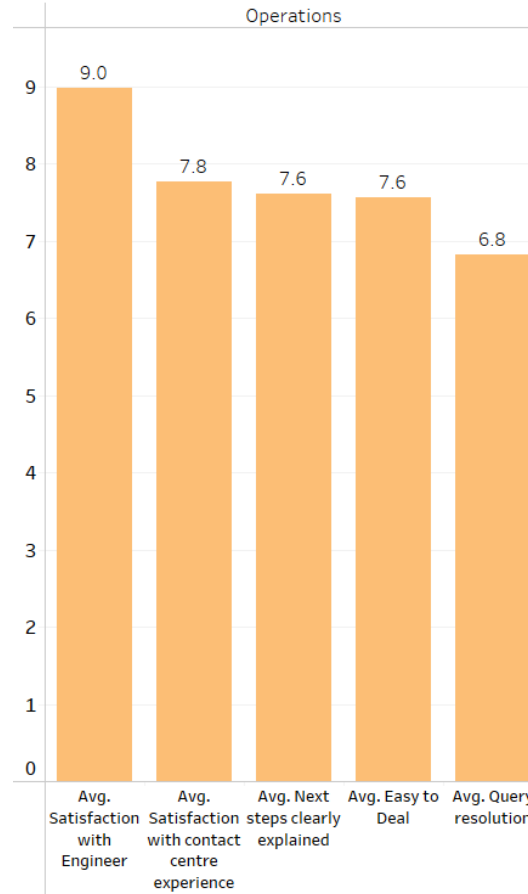
Query Resolution: The lowest rating in this category, at 6.8, indicates that customers are less satisfied with how their queries are ultimately resolved.

Solution: Operations

Clarify Next Steps: Ensure that all communications clearly outline the next steps for customers, using straightforward and easy-to-understand language.

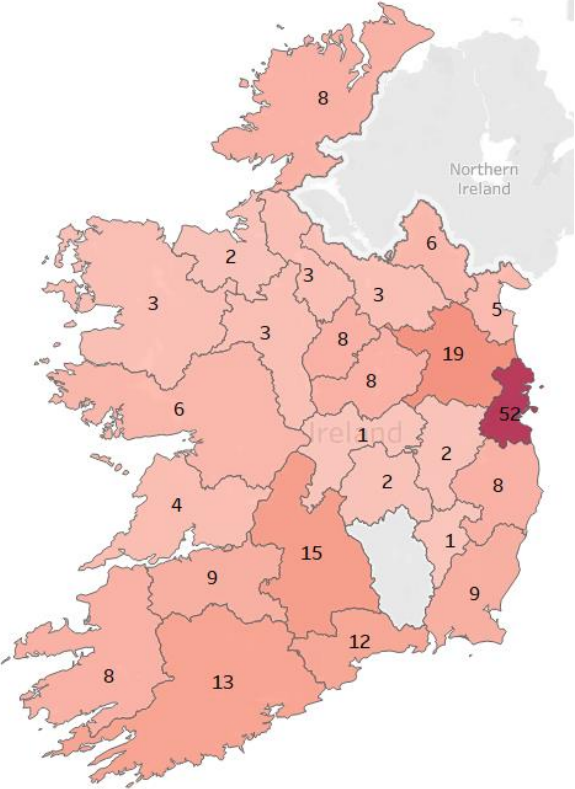
Ease of Interaction: Simplify the processes for dealing with operational queries to make interactions even smoother.

Enhance Query Resolution: Improve query resolution by analyzing common issues and implementing effective solutions, such as better diagnostic tools, faster response times, and ensuring customers feel heard and understood.

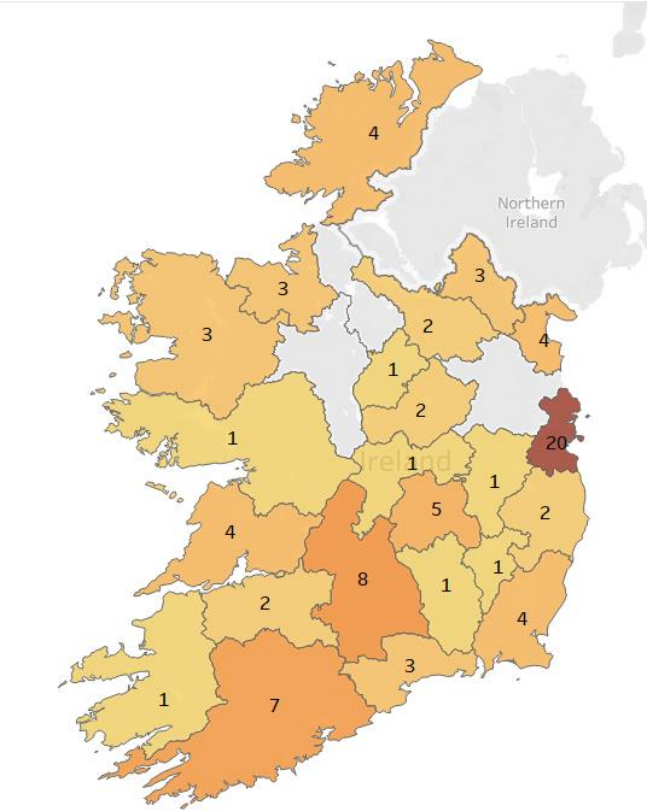


Map Showing number of Queries Resolved vs Not Resolved

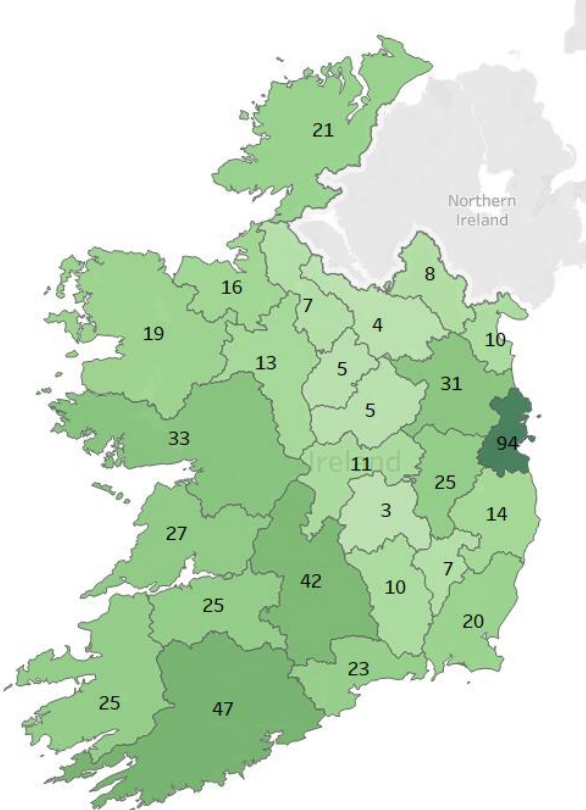
Not Resolved – Still ongoing



Resolved – Not Satisfied



Resolved – Satisfied



Resolution of Customer Queries across Case characteristics

Inference: Commercial

Unresolved Queries:

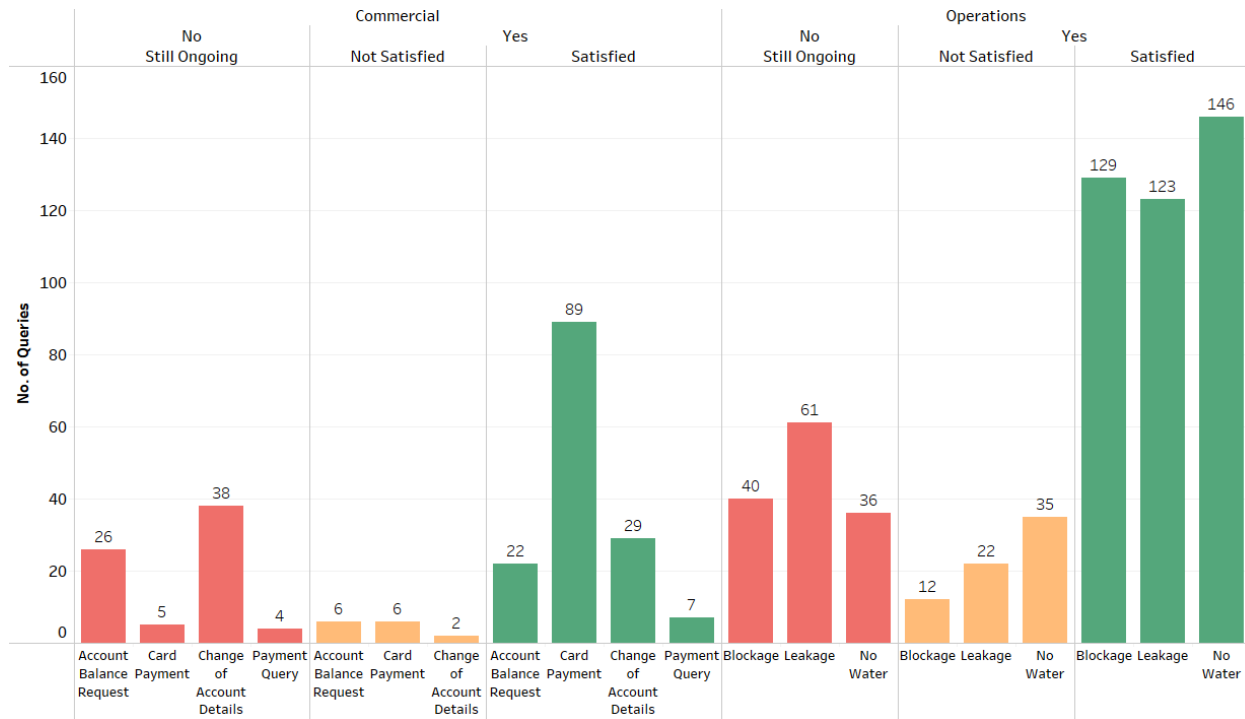
- **High Count:** "Change of Account Details" (38) and "Account Balance Request" (26) have high counts of unresolved queries marked as "Still Ongoing."
- **Dissatisfaction:** "Card Payment" (5) and "Payment Query" (4) also have unresolved queries, contributing to overall dissatisfaction.

Resolved Queries with Low Satisfaction:

- **Not Satisfied:** "Card Payment" (6) and "Account Balance Request" (6) show notable dissatisfaction even when resolved.
- **Mixed Satisfaction:** "Change of Account Details" has both satisfied (29) and dissatisfied (2) feedback when resolved, indicating inconsistent performance.

Resolved Queries with High Satisfaction:

- **High Satisfaction:** "Card Payment" (89) and "Account Balance Request" (22) show high satisfaction when queries are resolved successfully.



Resolution of Customer Queries across Case characteristics

Recommendations: Commercial

Focus on Resolution:

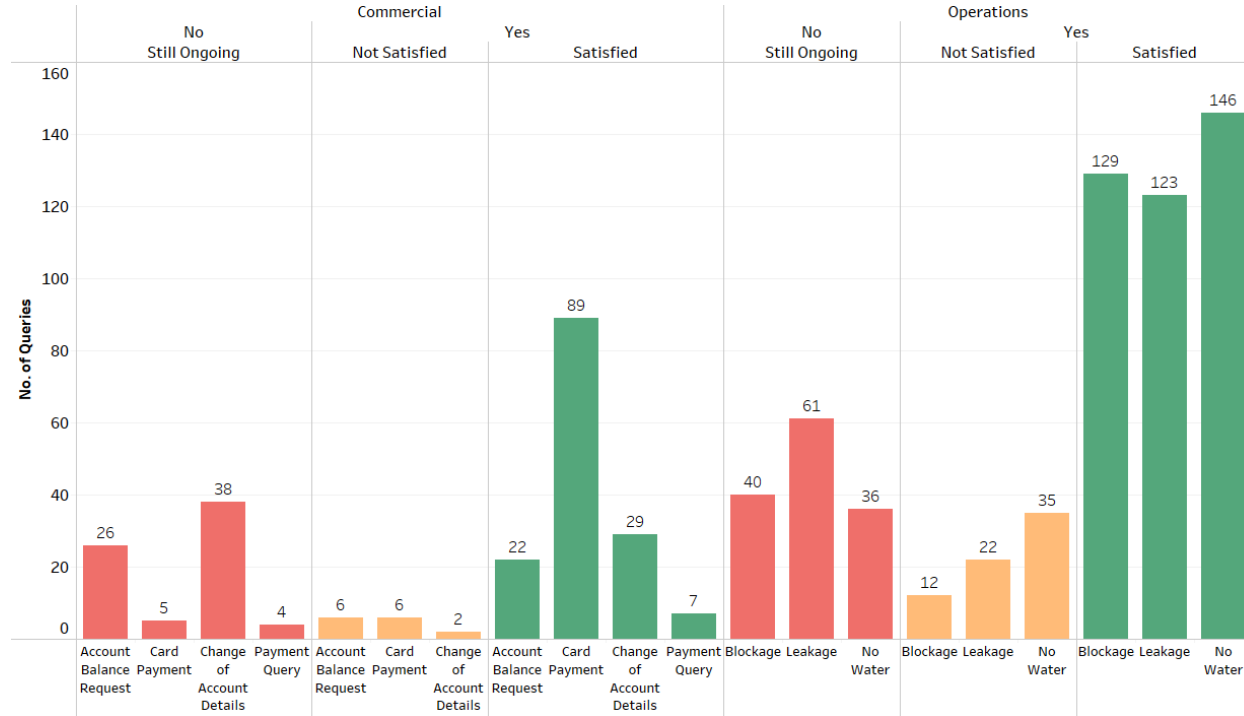
- **Prioritize Pending Queries:** Expedite the resolution of "Change of Account Details" and "Account Balance Request" to reduce the number of ongoing issues.

Improve Consistency:

- **Standardize Processes:** Develop and implement standardized processes to ensure consistent satisfaction across similar queries, especially for "Change of Account Details."

Enhance Communication:

- **Update Customers Regularly:** Keep customers informed about the status of their queries to reduce dissatisfaction from unresolved issues.



Resolution of Customer Queries across Case characteristics

Inference: Operations

Unresolved Queries:

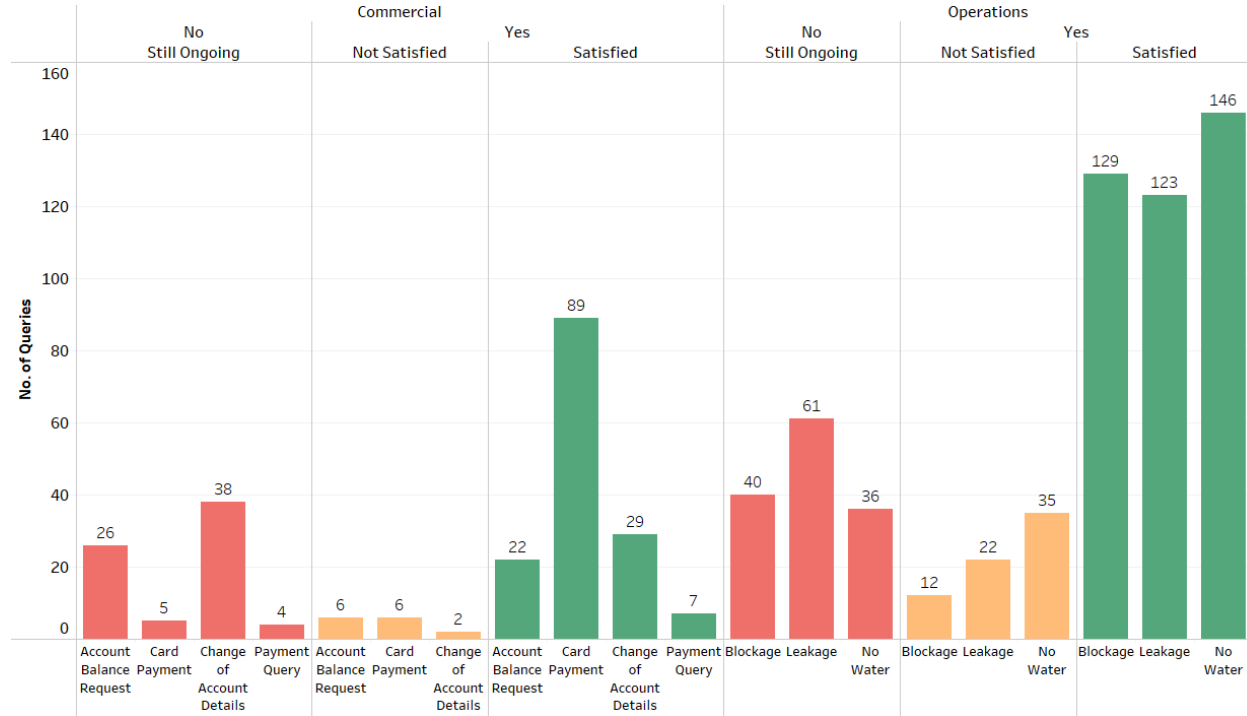
- **High Count:** "Leakage" (61) and "Blockage" (40) have high counts of unresolved queries marked as "Still Ongoing."
- **Significant Dissatisfaction:** "No Water" (36) also shows a high number of unresolved queries, contributing to overall dissatisfaction.

Resolved Queries with Low Satisfaction:

- **Not Satisfied:** "Leakage" (22) and "No Water" (35) show significant dissatisfaction even when resolved.
- **Blockage:** "Blockage" (12) also shows notable dissatisfaction despite being resolved.

Resolved Queries with High Satisfaction:

- **High Satisfaction:** "No Water" (146), "Blockage" (129), and "Leakage" (123) show high satisfaction when queries are resolved successfully.



Resolution of Customer Queries across Case characteristics

Recommendations: Operations

Accelerate Resolution:

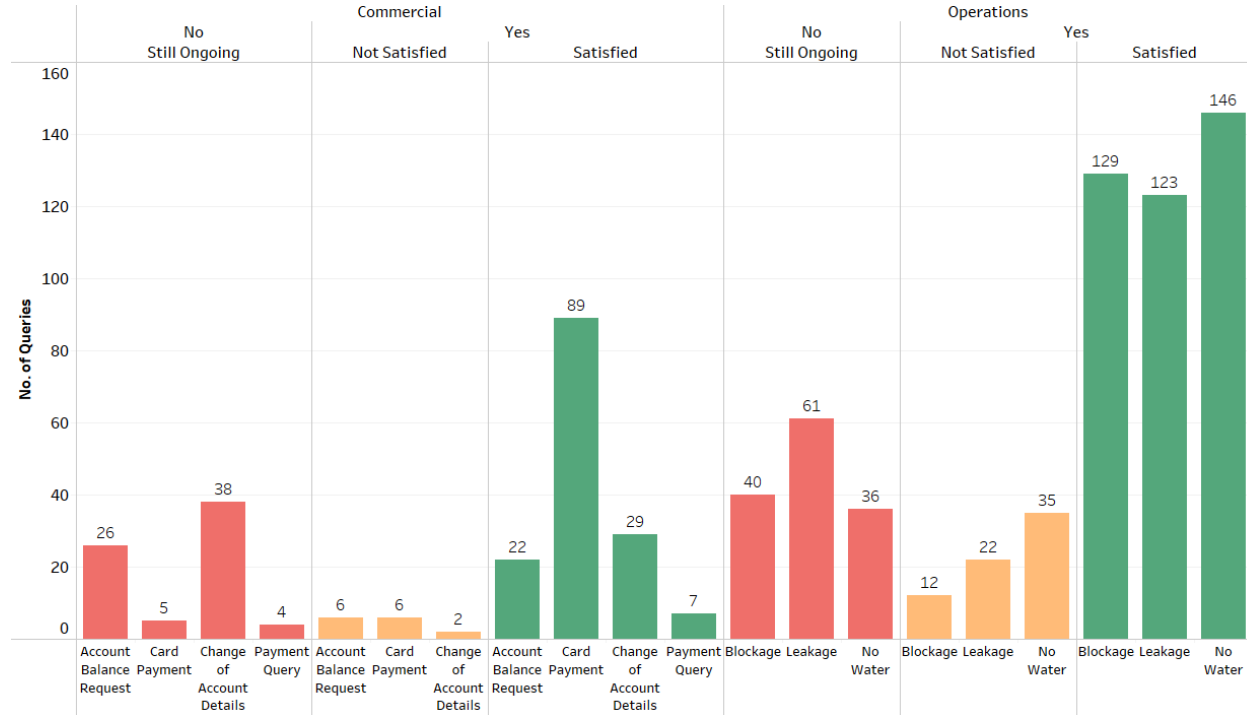
- **Allocate Resources:** Increase resources for resolving "Leakage," "Blockage," and "No Water" issues to decrease the number of unresolved cases.

Improve Service Quality:

- **Enhance Training:** Additional training for field engineers and service teams may be provided to address "Leakage" and "Blockage" more effectively, ensuring consistent satisfaction.

Increase Transparency:

- **Provide Clear Updates:** Ensure clear and frequent updates to customers regarding the status and expected resolution time for their queries.



Trend Line Analysis: Average Overall Satisfaction over Survey period

Inferences

Trend Line Slope:

The coefficient for the Date of Survey is **0.0079474**.

This indicates that, on average, the overall satisfaction rating **increases by approximately 0.00795 per day**. However, this increase is **very small**.

Statistical Significance:

Both coefficients (slope and intercept) have high p-values (0.532404 for the slope and 0.540859 for the intercept). A p-value greater than 0.05 typically indicates that the coefficients are not statistically significant.

Further analysis of a **larger dataset** might be required to **detect any subtle trends** or to explore other factors influencing satisfaction scores.



Overall Recommendations

Actionable Insights to help Uisce Enhance Services and Address Customer Concerns:

- **Target Low Satisfaction Areas:** Focus on improving areas with consistently low satisfaction scores. Use targeted surveys to identify specific issues and implement corrective actions.
- **Enhance Communication:** Improve communication and transparency around service processes to address common complaints.

Informing Improvements in Service Delivery:

- **Regular Monitoring:** Establish faster monitoring mechanisms to track changes in satisfaction and quickly address emerging issues.
- **Focus on High Impact Areas:** Prioritize improvements in service areas with the largest impact on customer satisfaction.

Identifying Notable Patterns or Trends:

- **Expand Time Frame:** Consider analyzing a longer time frame to detect more meaningful trends.

Variation in Overall Satisfaction Across Different Query Types:

- **Analyze Query Types:** Review satisfaction ratings for different query types to identify areas with lower satisfaction.
- **Implement Focused Strategies:** Develop tailored strategies to improve service quality for types of queries with lower satisfaction.

Specific Types of Queries Resulting in Higher or Lower Satisfaction Scores:

- **Identify Key Drivers:** Determine which query types consistently receive higher or lower satisfaction scores and address the factors contributing to these outcomes.
- **Optimize Service Delivery:** Enhance services for query types with lower satisfaction by addressing specific pain points and replicating successful practices from higher-rated queries.



Thank you