Customer Churn Analysis – Power BI Project Documentation

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1. Project Overview

Name: Telecom Customer Churn Analysis
Tool: Microsoft Power BI & Microsoft SQL Server
Data Source: Customer_Data.csv (telecom customer records including demographics, service usage, billing and churn information etc)
Purpose: To analyze customer churn in a telecom company using Power BI. Churn means customers who left the company. The dashboard shows insights into why customers are leaving, who is leaving, and what can be done to reduce churn.

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2. Business Objectives

1. Understand Churn: Find out total customers number, churn rate and retention rate.
2. Identify High Risk Groups: Spot which groups of customers are more likely to leave based on age, gender, district, service types, contract types and payment methods.
3. Find the Main Reasons for Churn: Look into why customers are leaving, whether it's because of better offers from competitors, dissatisfaction with services or pricing issues.
4. Give Useful Suggestions: Share clear and helpful insights with the marketing, customer support and product teams so they can take steps to reduce churn and keep more customers.

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3. Key Metrics

- **Total Customers**: 6,418
- **Total Churned Customers**: 1,732
- **Churn Rate**: 27%
- **New Joiners**: 411
- **Retention Rate**: 71%

These metrics help track overall customer behavior and business performance.

4. **Calculated Measures:** Defined DAX measures for:

- Total Customers = COUNT('gold customer_churn'[customer_id])
- Total Churn = CALCULATE(COUNT('gold customer_churn'[customer_status]), 'gold customer_churn'[customer_status] = "Churned")
- Churn Rate = [Total Churn] / [Total Customers]
- New Joiners = CALCULATE(COUNT('gold customer_churn'[customer_status]), 'gold customer_churn'[customer_status] = "Joined")
- Retention Rate = DIVIDE([Total Stayed], [Total Stayed] + [Total Churn])

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5. Dashboard Components & Chart Descriptions

Below is a breakdown of each visualization on the dashboard, explaining its purpose and how it helps stakeholders.

1. Top KPI Tiles

- **Total Customers:** Displays the overall size of the customer base.
- **Total Churn:** Shows the raw number of customers who have left.
- **Churn Rate:** Presents the percentage of customers who churned (left)
- **New Joiners:** Tracks the count of new customers.
- **Retention Rate:** Tells us the percentage of customers who are still using the service.

Business Value: These key numbers help quickly understand the overall status of our customer base and whether our efforts to keep customers are working.

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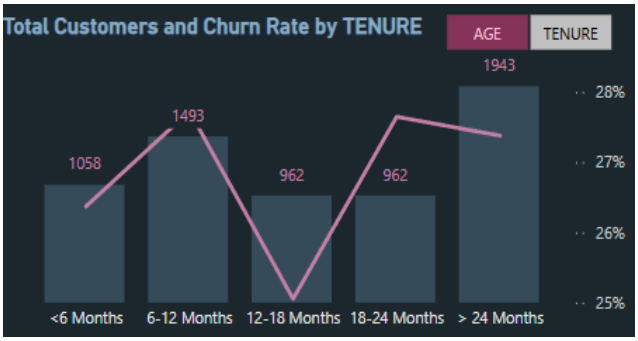
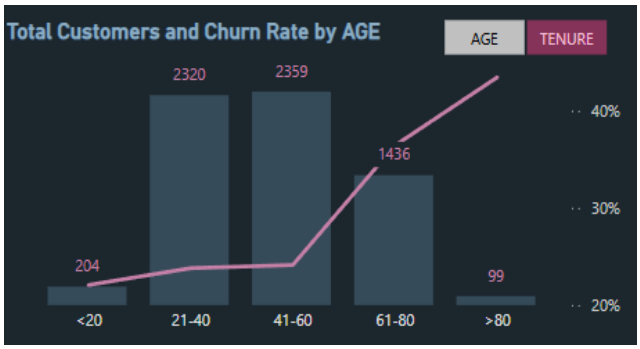
2. Total Customers & Churn Rate by Age & Tenure Months (Line & Stacked Column Chart)

- What it shows: A bar chart showing the number of customers in each age group & Tenure Months, with a line showing the churn rate for each group & Tenure Months.
- Why important: Helps spot which age groups are more likely to leave. For example, higher churn in older age groups could mean they find the service hard to use or are not satisfied.

Use Case: Create age specific marketing or support. For example, older users may benefit from simpler onboarding or personal support.





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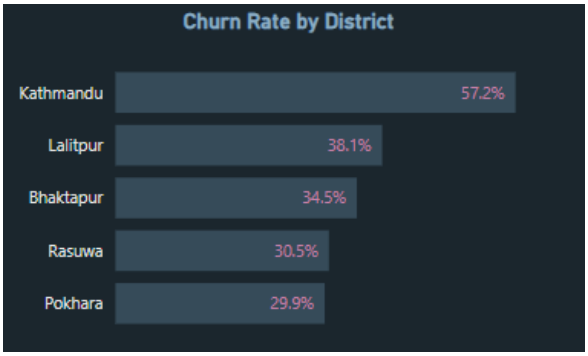
3. Churn Rate by District (Horizontal Bar Chart)

- What it shows: Percentage of churn across different districts like Kathmandu, Lalitpur, Bhaktapur, Rasuwa and Pokhara.
- Why important: Helps identify if churn is higher in certain locations, which might point to problems like poor coverage, local competition or pricing.

Use Case: Focus retention campaigns or service improvements in areas with higher churn.



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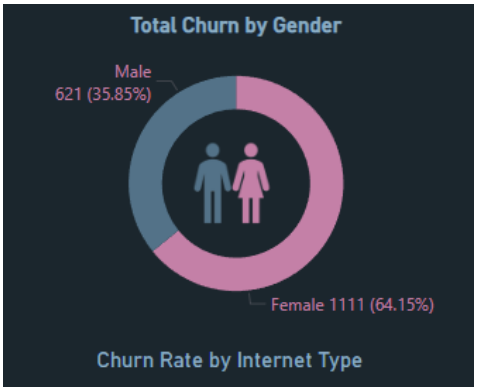
4. Total Churn by Gender (Donut Chart)

- What it shows: Shows what portion of churned customers are male vs female.
- Why important: Shows if churn is more common in one gender, which may help shape how you communicate with or support them.

Use Case: If one gender churns more, offer offers or messages that better suit their preferences or needs.



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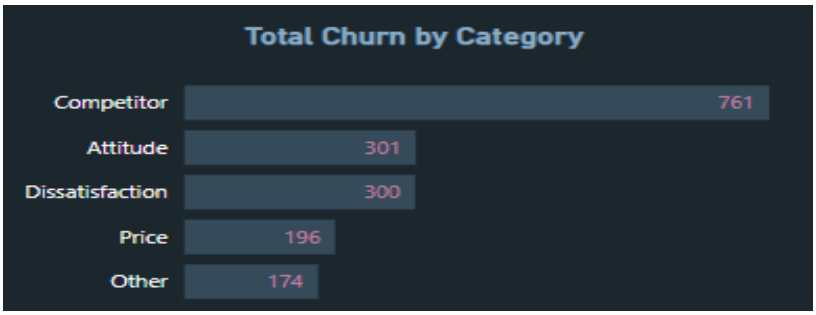
5. Total Churn by Category (Stacked Bar Chart)

- What it shows: Number of customers who left due to reasons like switching to competitors, attitude issues, dissatisfaction, pricing or other.
- Why important: Helps find out the most common reasons people leave. If many leave for competitors, the company may need better offers, services etc.

Use Case: Focus on the biggest churn reasons, improve service quality or pricing based on what people say.



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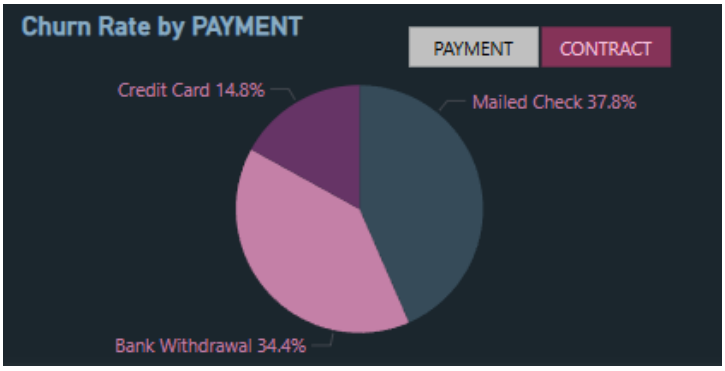
6. Churn Rate by Payment Method (Pie Chart)

- What it shows: Shows how churn is spread across different payment types (credit card, mailed check, bank withdrawal and paperless billing).
- Why important: Some payment types may lead to more churn. For example, customers using mailed checks might be less engaged.

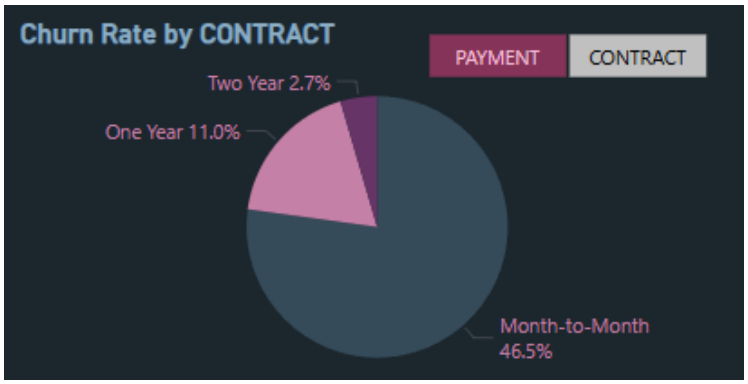
Use Case: Encourage easy to use payment options like paperless billing to improve retention.



Churn Rate by Contract Type (Toggle Button)

- What it shows: Compares churn rate among customers with month-to-month, one-year, and two-year contracts.
- Why important: Customers on short-term contracts tend to leave more often.

Use Case: Offer discounts or benefits to move users into longer contracts.



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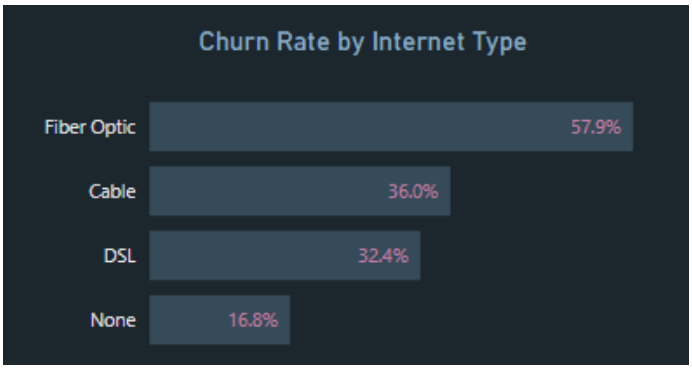
7. Churn Rate by Internet Service Type (Horizontal Bar Chart)

- What it shows: Churn rates by internet type like Fiber Optic, Cable, DSL or no internet.
- Why important: Shows how Internet Service affects churn, high cost, Fragility, Installation difficulty, older tech, services may cause dissatisfaction.

Use Case: Recommend upgrades, offer discounts or bundles to customers using older or high cost internet types to reduce churn.



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8. Service Add-Ons & Feature Table (Matrix)

- What it shows: Churn rates based on whether customers use extra features like device protection, online backup, streaming services etc.
- Why important: Helps see if certain features help keep customers. For example, those using premium support may churn less.

Use Case: Offer bundles with features that help reduce churn as part of the regular plan.

status	Device Protection Plan	Internet Service	Multiple Lines	Online Backup	Online Security	Paperless Billing	Phone Service	Premium Support	Streaming Movies	Streaming Music	Streaming TV	Unlimited Data
No	11.82%	1.05%	9.12%	11.97%	14.09%	4.23%	1.57%	13.90%	9.32%	10.18%	9.45%	3.32%
Yes	4.84%	15.64%	7.54%	4.69%	2.56%	12.45%	15.12%	2.76%	7.34%	6.48%	7.22%	13.36%

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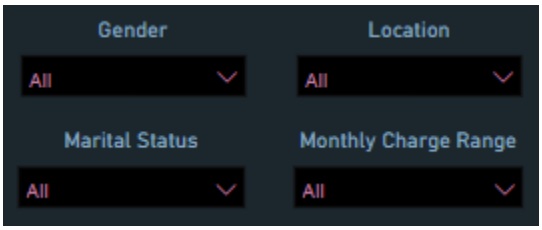
9. Filters or Slicers

- Slicers: Gender, Location, Marital Status, Monthly Charge Range.
- Dynamic Analysis: Users can explore different combinations of filters to see how churn changes across groups.

Business Value: Gives team members the power to explore data and find useful patterns quickly.



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6. Key Insights & Recommendations

1. High Risk Segments: Customers aged 61–80 have 36% churn & age above 80 have 43%, consider offering easier support and service for this group.

2. Regional Focus: Kathmandu has the highest churn at 57%, look into service quality or local competitors.
3. Contract Strategy: Month-to-month customers leave more, encourage longer contracts with special offers or discount to longer contract.
4. Service Bundles: Fiber Optic customers churn more 57.9%, offer discounts or warranty since fiber optic is fragile.
5. Billing Process: Customers using mailed checks have 37.8% churn, promote paperless billing with added benefits.

Conclusion

This Power BI project helps the telecom company understand customer churn better. By using the insights, the company can take actions to keep more customers, run marketing campaigns and attract more customers. The dashboard is interactive and easy to use, making it helpful for business teams & Marketing Teams.