



Executive Summary

Detailed Insights from Telco Customer Churn Analysis

This project performs a comprehensive Exploratory Data Analysis (EDA) on a **Telco Customer Churn dataset comprising 7,043 customers and 21 features**. The analysis leverages descriptive statistics and insightful visualizations to uncover the primary factors influencing customer churn and to translate those findings into actionable business insights.



Overall Churn Landscape

- The overall **customer churn rate is approximately 26.5%**, meaning **more than one in four customers** have discontinued the service.
 - Around **73.5% of customers remain retained**, indicating a relatively stable customer base but with a significant churn-prone segment.
 - This level of churn represents a **moderate to high business risk**, making churn prevention a key strategic priority.
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Demographic Analysis

Gender

- Churn is **almost evenly distributed between male and female customers**.
- This suggests that **gender is not a strong predictor** of customer churn in this dataset.

Senior Citizen Status

- Senior citizens exhibit a churn rate of approximately **41.7%**.
- Non-senior customers show a much lower churn rate of **around 23.6%**.

- Senior customers are therefore **nearly twice as likely to churn**, highlighting a critical segment that may require:
 - Simplified service plans
 - Improved customer support
 - Targeted engagement programs
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Tenure-Based Churn Behavior

- Customers with **short tenure (early months of service)** account for the **highest churn concentration**.
 - As tenure increases, churn **declines significantly**, and long-tenure customers demonstrate strong loyalty.
 - This trend indicates that:
 - **Early customer experience is crucial**
 - Ineffective onboarding or unmet expectations early on can drive churn
 - Strengthening onboarding and early engagement can substantially reduce churn.
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Contract Type Impact

- Customers on **month-to-month contracts show the highest churn**, making this the most volatile contract category.
- Customers with **one-year contracts churn significantly less**.
- **Two-year contracts have the lowest churn rate**, indicating the strongest customer commitment.
- Longer contract durations clearly:

- Increase customer stickiness
 - Reduce churn risk
 - Improve long-term revenue stability
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Service Usage & Churn Relationship

Value-Added Services

- Customers who **do not subscribe to value-added services** such as:
 - Online Security
 - Online Backup
 - Device Protection
 - Tech Support
exhibit **significantly higher churn rates**.
- These services appear to act as **retention levers**, improving customer satisfaction and dependency.

Internet Service Type

- **Fiber optic users show higher churn** compared to DSL users.
 - This may be driven by higher pricing or service quality expectations.
 - Customers with **no internet service show comparatively lower churn**, possibly due to reduced service complexity and expectations.
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Payment Method Analysis

- Customers using **Electronic Check** as their payment method have the **highest churn rate** among all payment options.
 - Customers using **automatic payment methods** (Bank Transfer or Credit Card) show **significantly lower churn**.
 - Automatic payments likely improve retention by:
 - Reducing missed or delayed payments
 - Minimizing billing-related friction
 - Increasing perceived service continuity
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Key Business Implications

- **Early-stage retention** is critical, especially within the first few months of customer tenure.
 - **Senior citizens require targeted retention strategies** due to their higher churn propensity.
 - Encouraging customers to move from **month-to-month contracts to long-term plans** can significantly reduce churn.
 - Promoting **value-added services** can enhance customer stickiness.
 - Incentivizing **automatic payment adoption** can help stabilize revenue and reduce churn.
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Recommendations:

- **Promote Long-Term Contracts:**
Encourage customers to switch from month-to-month plans to one-year or two-year contracts by offering discounts, loyalty benefits, or bundled services to reduce churn risk.
- **Address Payment Method Concerns:**
Implement targeted campaigns to motivate customers to move from electronic check payments to automatic payment methods such as bank transfer or credit card, reducing payment-related churn.
- **Enhance Early Customer Engagement:**
Focus on improving onboarding, communication, and support during the first few months of service, as churn is highest among customers with shorter tenure.
- **Introduce Senior Citizen Retention Programs:**
Develop personalized plans, simplified services, and priority support for senior citizens, who exhibit significantly higher churn rates.
- **Promote Value-Added Services:**
Increase adoption of services such as online security, backup, device protection, and technical support to strengthen customer dependency and improve retention.
- **Improve Fiber Optic Service Experience:**
Review pricing, service quality, and customer support for fiber optic users to address their relatively higher churn compared to other internet service types.

Final Conclusion

This analysis demonstrates that customer churn in the telecom domain is driven primarily by **tenure, contract structure, service adoption, and payment behavior**, rather than basic demographic factors.

The insights derived from this EDA provide a robust foundation for **predictive churn modeling**, targeted customer segmentation, and data-driven retention strategies aimed at improving long-term customer loyalty and business performance.