



# 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.

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## 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 Supportexhibit **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.

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## 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.