Abstract

Customer churn poses a significant challenge for telecommunication companies, necessitating strategic interventions to foster customer retention and loyalty. This comprehensive study leverages data analysis, customer insights, and design thinking approaches to develop effective strategies and recommendations for mitigating customer churn. The proposed deliverables provide a robust framework for addressing this critical issue, including targeted customer engagement initiatives, data-driven retention efforts, and an emphasis on exceptional customer experiences. Crucially, the analysis identifies key services, such as online security, technical support, and internet connectivity, that significantly impact customer attrition, enabling targeted service enhancements. Furthermore, the study underscores the pivotal role of continuous monitoring and service improvements in reducing churn rates. By integrating data-driven insights, industry knowledge, and innovative thinking, the study equips the company with a comprehensive roadmap to tackle customer churn, retain valued customers, and maintain a competitive advantage in the dynamic telecom landscape.

Keywords: Customer churn, telecommunication industry, customer retention, data analysis, design thinking, customer engagement, service improvements, customer experience, continuous monitoring.

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1 Introduction

1.1 Assignment Introduction

This comprehensive report aims to provide an in-depth analysis of customer churn in the telecommunications industry, with a specific focus on a fictional telecommunications company. The report will use data analysis, learn about the industry, and use design thinking methods. These will help uncover the main reasons why customers leave and find good ways to reduce this problem. By looking at things like who the customers are, what services they use, account details, and pricing, this report wants to find the key things that make customers stop using the company services. It will also use best practices from other companies, research findings, and knowledge about the industry. This will help understand the analysis better within the wider telecom industry.

Finally, the report outlines specific strategies and achievable suggestions customized for the fictional telecommunications provider. These proposals are based on understandings from examining information, combining details, and incorporating knowledge, along with novel methods inspired by creative problem-solving principles.

1.2 Organization Introduction

The fictional telecom company being looked at is a major provider of calling, data, and video services, helping different types of customers like people, businesses, and large groups. They work hard to give good connections and great service experiences. Because of this, they are very important in the telecommunication market. They know keeping customers is important in this competitive field. So, they want to learn more about what causes customers to leave. By fixing this key problem, they want to make customer ties stronger and make customers more loyal. They want to be the top choice for phone and internet service providers.

This report provides ideas to help the fictional telecom company use their large network, advanced tools, and skilled workers to better serve customers. The company can apply the insights and advice here to launch focused plans. These plans aim to enhance what customers see and do. That should help lower the number of customers who decide to stop using the company's services.

1.3 Problem Statement

In the competitive world of telecommunications, the aspect of customer attrition, or the stoppage of services from a company, is a major hurdle with a yearly rate of churn is around 10-15 percent (Subex, 2021). Given that customers have the ability to jump from one service provider to another, earning their continuous loyalty is of prime importance for telecom company. Personalized efforts to hold onto customers can be tough given the vast user base, making it financially impractical to allot large resources to each customer.

Below pie chart shows that a significant portion of customers (73.46%) are saying no to churn, which means they are staying with the company. However, there is still a portion of the customer base (26.54%) that is churning or leaving the company for another provider. This represents a problem for the telecom company because losing customers can lead to decreased revenue and market share.

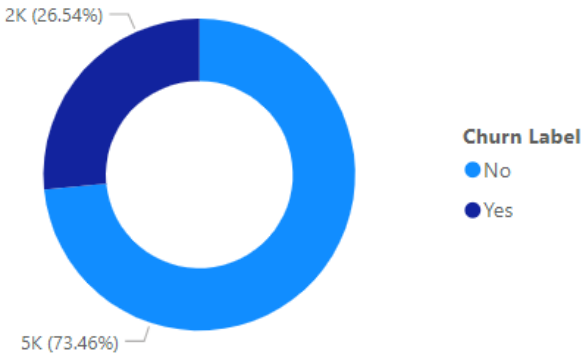


Figure 1.1 Churn Percentage

What are the key reasons for the 26.5% customer churn rate, and what customer segments are more subject to discontinuing the company's services?

1.4 Aim and Objective

Aim:

To develop effective strategies and recommendations for reducing customer churn in the telecom industry by leveraging data analysis, customer insights, strategies and recommendations.

Objective:

- To make the company retain its customers.
- To identify the service that is affecting the customer churn rate.

2 Organizational Memory and Integration

2.1 Organization Memory

IBM's fictional telecom company likely stores customer information, service use patterns, interactions, contract details, and reasons for ending service in an organizational memory for churn analysis. This data can reside in data warehouses, lakes, customer relationship management (CRM) systems, or business intelligence (BI) tools. Power BI is a helpful tool to perform extract, load, transform (ELT) on this data. By connecting to these sources and using Power Query Editor, Power BI can extract, clean, and format the data. Then, it can be loaded into a central Power BI dataset for further study. Power BI also offers functions to combine data, create new measures, and segment customers. This data can be visualized in easy-to-use dashboards to identify churn trends and patterns. By taking advantage of Power BI and its organizational memory of churn data, telephone companies can gain valuable insights to develop data-driven strategies to keep customers.

2.2 Integration

In this analysis we have utilized ELT (Extract, Load, Transform) which is a data integration process commonly used to extract data from organizational memory, load it into an analytics platform, and then perform transformations. In our case, below is an outline on ELT process for extracting data from an IBM website, loading it into Power BI, and applying transformations such as handling missing values with the median and binning numeric values.

1. **Extract:**

   The data was gathered from IBM Cognos Analytics, the link provided is https://www.ibm.com/docs/en/cognos-analytics/12.0.0?topic=samples-telco-customer-churn.

2. **Load:**

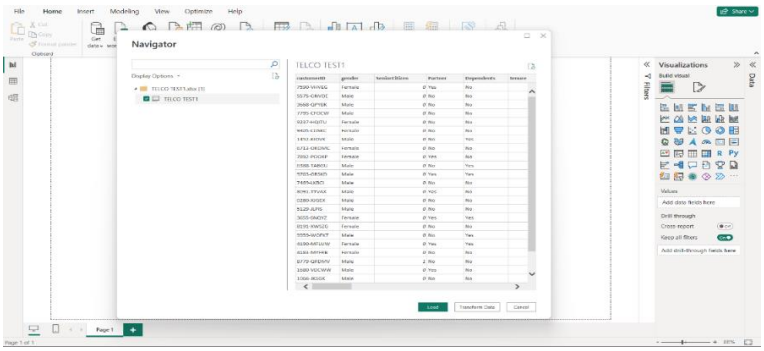


Figure 2.1 Loading the Dataset

The data is later uploaded into the Power BI program. After uploading, we can see it contains 22 categories and 7023 entries.

3. Transform

Handling Missing Values:

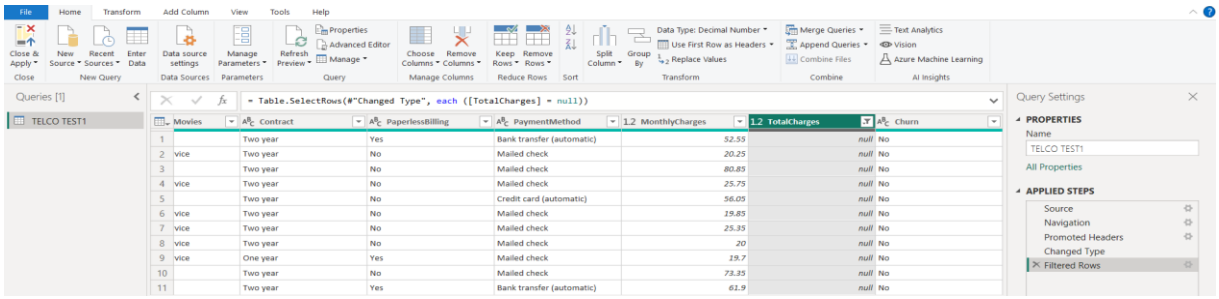


Figure 2.2 Null values in Dataset.

We filter the column and check for null values in the dataset.

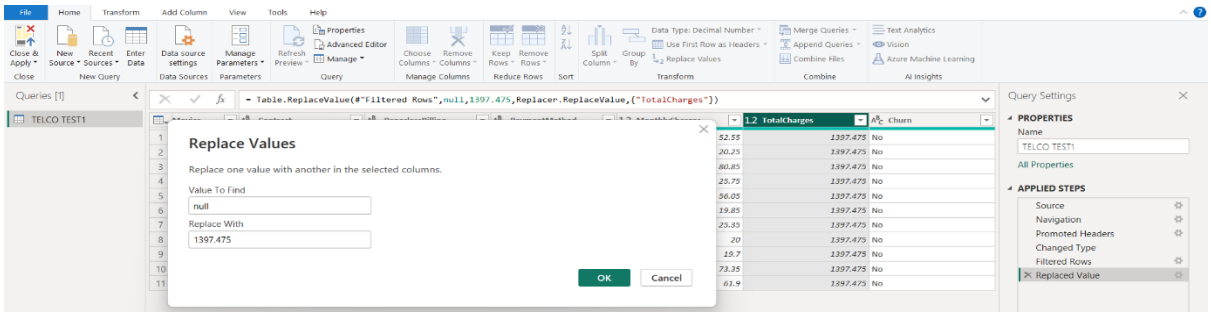


Figure 2.3 Imputing Null values with Median.

Later we impute the missing values in column with the median of the column.

Binning:

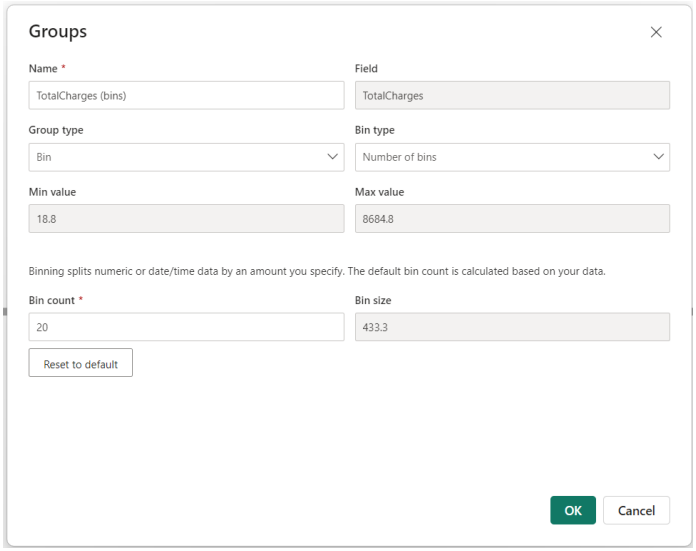


Figure 2.4 Binning the Numeric Value

Here, we bin the continuous value so that it can be useful for visualizing or analysis later.

3 Analysis

3.1 Data Analysis

3.1.1 Analysis of Customer Demographics

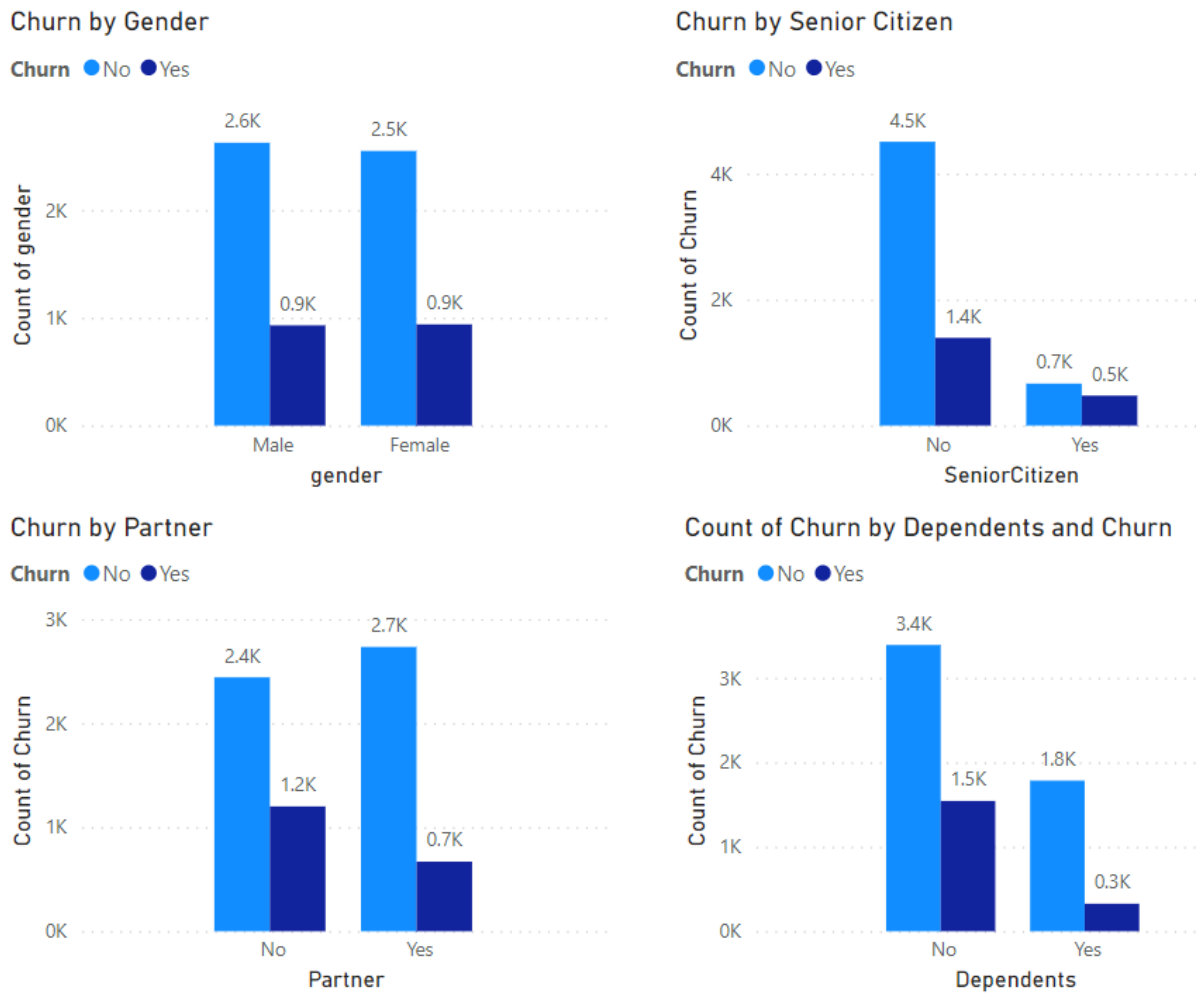


Figure 3.1 Plot on Churn by Demographics

Customer Churn Based on Gender: The data visible in this graph indicates a marginally higher count of male customers in comparison to females, but churn rates appear to be nearly equal for both genders. Roughly, there are 2.6K males who remained loyal and around 930 who left. Similarly, the number of faithful female customers stands at about 2.4K, with 939 having been churned.

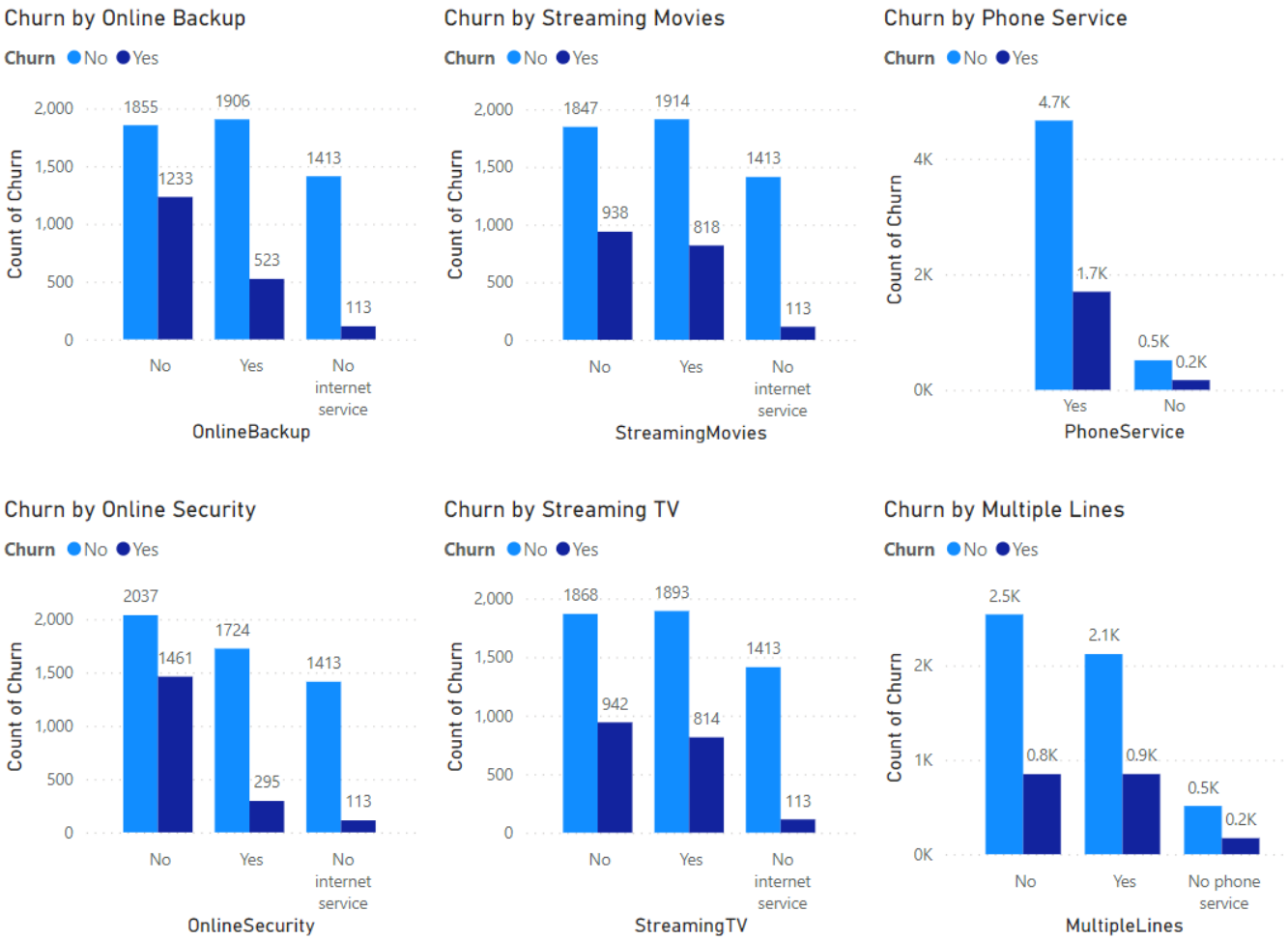
Churn Among Senior and Non-Senior Citizens: The bar chart shows that a higher presence of customers who aren't senior citizens, as compared to those who are. There are also more non-senior citizens who churned than senior citizens who churned. There are about 4.5K non-

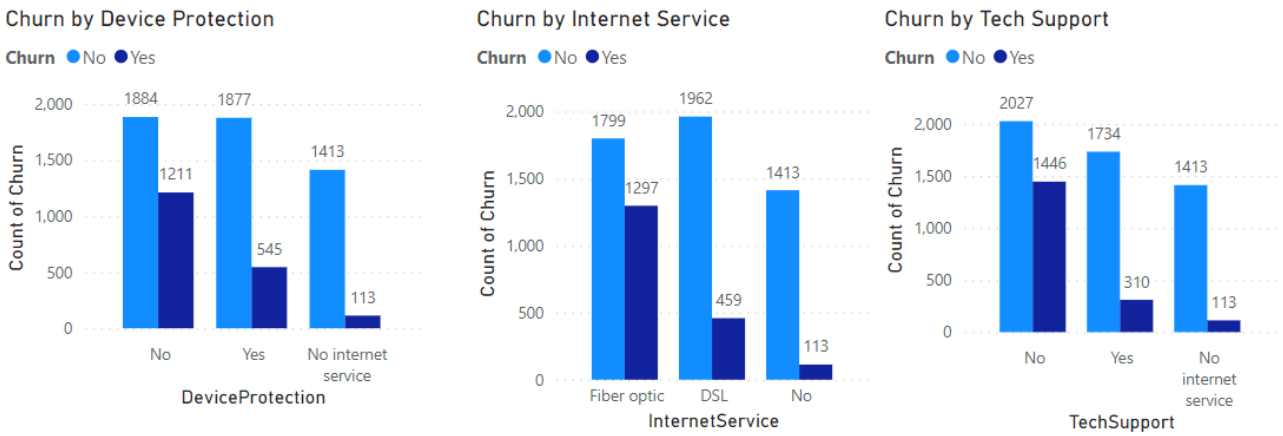
senior citizens who did not churn and about 1.4K who churned. There are about 700 senior citizens who did not churn and about 500 who churned.

Partner-Related Churn Analysis: This graph illustrates a higher number of clients with partners compared to those without. Interestingly, the churn rate marginally leans towards those with partners. Roughly 2.7K customers who have partner experienced no churn, opposite to about 700 customers with partner who did face churn. Considering non-partnered customers, around 2.4K saw no churn, whereas around 1.2K experienced it.

Dependent-Based Churn Analysis: The data visualization reveals churn rates amongst customers with varying dependent counts. It seems the churn rate spikes with customers having 0 or 1 dependent. Around 1.5K customers without dependents had churn issues, while about 3.4K did not. Approximately 300 clients with a single dependent faced churn, compared to around 1.8K with the same dependent count but no churn.

3.1.2 Analysis of Services Provided





Churn by Online Backup: The above graph illustrates that there are more customers who use Online backup and do not churn (1096) than those who churn (523), and there are customers who do not use the service and churn (1233) than those who do not churn (1855).Customers who have online backup but no internet service churn at a lower rate (133) than those who do not churn (1413).

Churn by Online Security: The above plot illustrates that there are more customers who do not use Online security and do not churn (2037) than those who churn (1461), and there are customers who use the service and churn (295) than those who do not churn (1724). Customers who have online security but no internet service churn at a lower rate (133) than those who do not churn (1413).

Churn by Streaming Movies: The above plot illustrates that there are more customers who use the service and do not churn (1914) than those who churn (818), and there are customers who do not use the service and churn (938) than those who do not churn (1847). Customers who have the service but no internet service churn at a lower rate (133) than those who do not churn (1413).

Churn by Streaming Movies: The above plot illustrates that there are more customers who use the service and do not churn (1914) than those who churn (818), and there are customers who do not use the service and churn (938) than those who do not churn (1847). Customers who have the service but no internet service churn at a lower rate (133) than those who do not churn (1413).

Churn by Streaming TV: The above plot illustrates that there are more customers who use the service and do not churn (1893) than those who churn (814), and there are customers who do not use the service and churn (942) than those who do not churn (1898). Customers who

have the service but no internet service churn at a lower rate (133) than those who do not churn (1413).

Churn by Device Protection: The above plot illustrates that there are more customers who do not use this service and do not churn (1884) than those who churn (1211), and there are customers who use the service and churn (545) than those who do not churn (1877). Customers who have the service but no internet service churn at a lower rate (133) than those who do not churn (1413).

Churn by Tech Support: The above plot illustrates that there are more customers who do not use this service and do not churn (2027) than those who churn (1446), and there are customers who use the service and churn (310) than those who do not churn (1734). Customers who have the service but no internet service churn at a lower rate (133) than those who do not churn (1413).

Churn by Internet Service: The above plot illustrates that there are more customers who are using DSL and do not churn (1962) than those who churn (459), and there are customers who use the Fiber optic and churn (1297) than those who do not churn (1799). Customers who do not use the service churn at a lower rate (133) than those who do not churn (1413).

Churn by Phone Service: The above plot illustrates that there are more customers who use the service and do not churn (4662) than those who churn (1699), and there are customers who do not use the service and churn (170) than those who do not churn (512).

Churn by Multiple Lines: The above plot illustrates that there are more customers who do not use the service and do not churn (2541) than those who churn (849), and there are customers who use the service and churn (250) than those who do not churn (2121). Customers who have the service but no phone service churn at a lower rate (170) than those who do not churn (512).

3.1.3 Analysis of Customer Account (Payment Method, Billing & Contract)

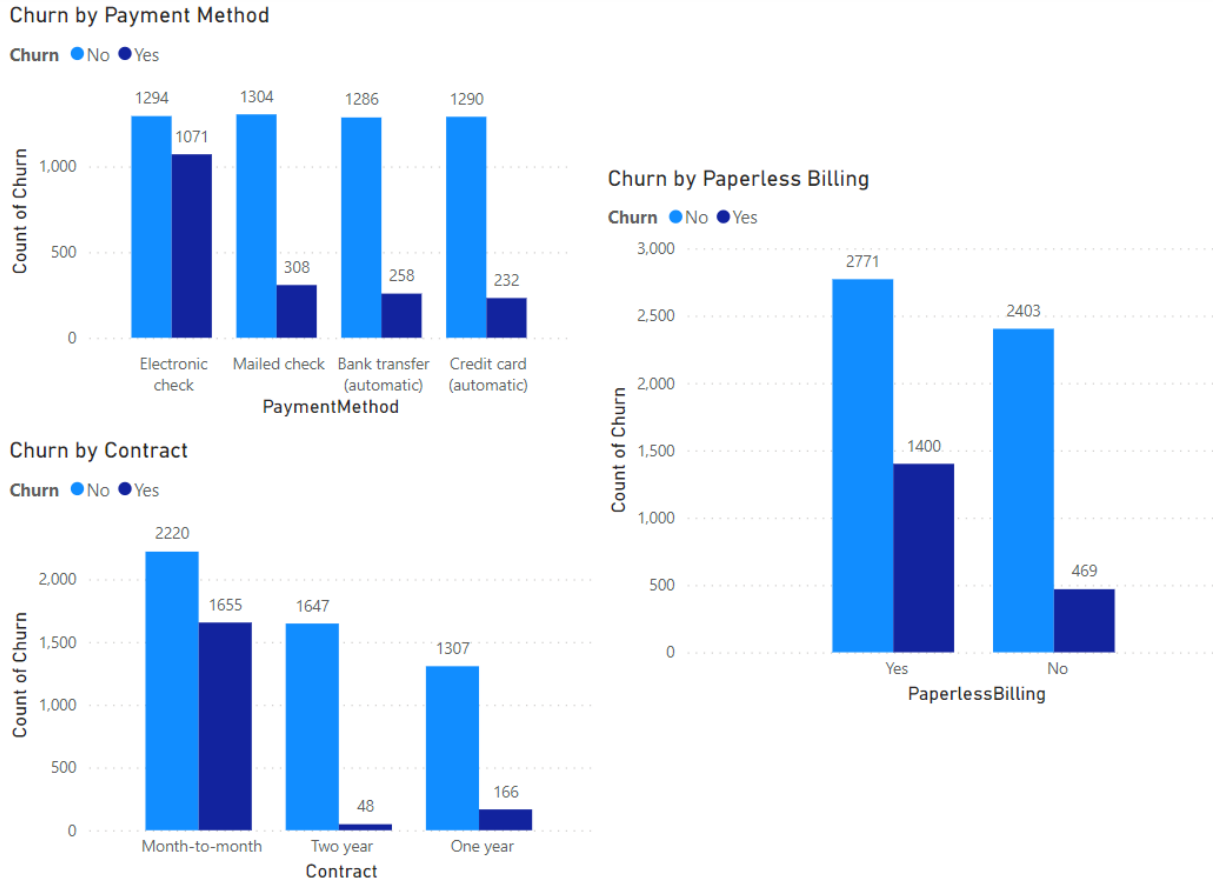


Figure 3.2 Plots of Customer Account (Categorical)

Churn by Payment Method: In the above plot we can see that out of a total of 7,043 customers, 1,869 churned, or cancelled their service, based on their payment method. The highest churn rate was for electronic checks, with 1071 customers cancelling service. Mailed check payments had a churn rate of 308 customers, while bank transfer and credit card payments were similar at around 258 and 232 churned customers respectively.

Churn by Contract Length: In the above plot among the three contract types, month-to-month contracts have the highest volume of both churned (1655) and retained customers (2220). Two-year contracts come in second for customer retention (1647) with a lowest churn rate (48) compared to month-to-month plans. One-year contracts have the lower churn rate (166) and the fewest overall customers, with a significant majority (1037) not churning.

Churn by Paperless Billing: The above plot shows that there are more customers who use paperless billing and did not churn (2771) than those who churned (1400), and there are more customers who do not use paperless billing and churned (469) than those who did not churn (2403).

3.1.4 Analysis of Customer Account (Tenure, Monthly Charge & Total Charge)

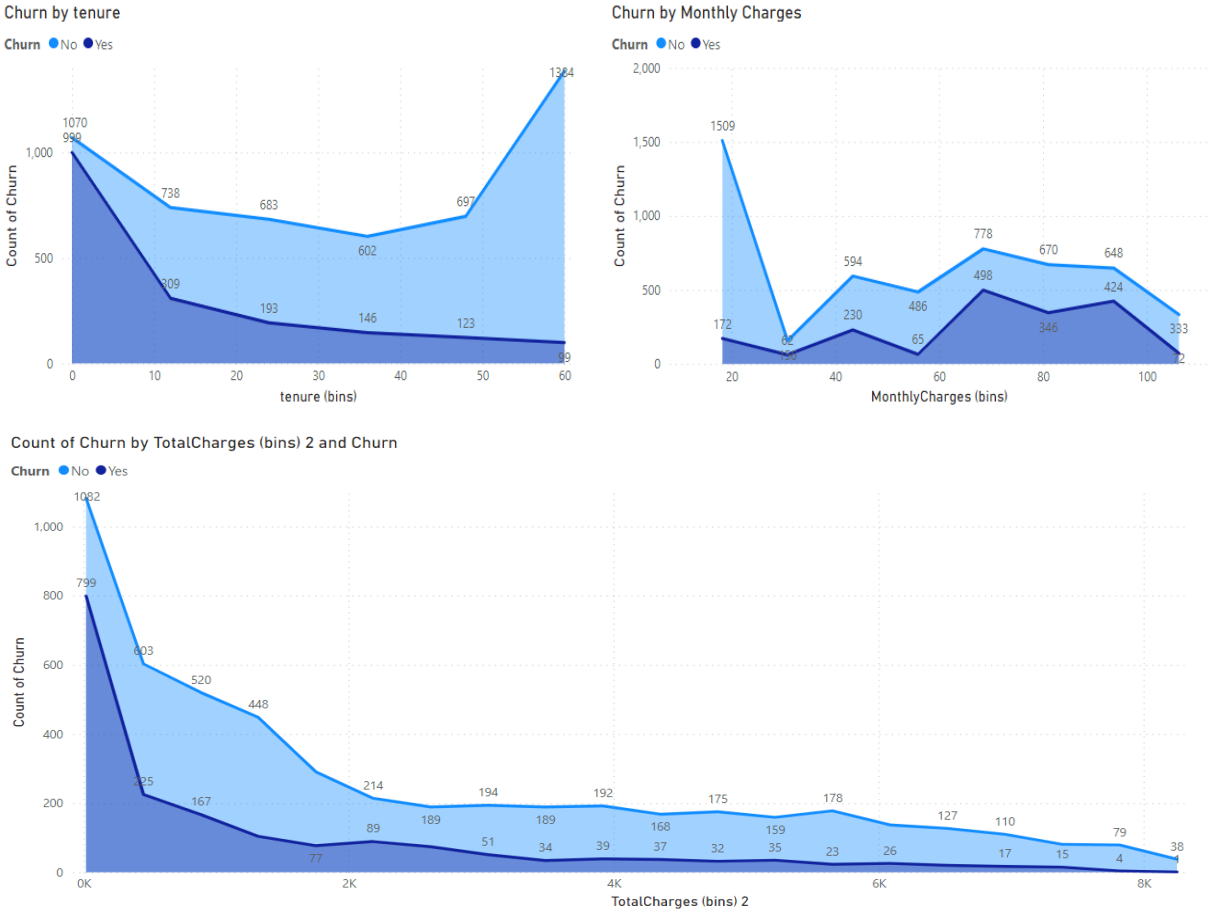


Figure 3.3 Analysis of customer account (Numeric)

Churn by Tenure: The area plot above reveals a trend where customers are most likely to churn within the first 10 months, with a surprising 999 customers discontinuing service during this period. Tenures between 10 and 20 months see a slightly lower churn rate of 309. Following this, churn rates steadily decline as customer tenure lengthens, with a significant drop to only 99 churned customers for those exceeding 60 months of service.

Churn by Monthly Charge: The above plot shows that there are more customers that pay less than $20 each month. Customer churn gradually lowers as monthly rates rise, only to increase again. There are 62 churns between $20 and $40, 295 churns between $40 and $60, with a slight drop in churn between them, 498 churns between $60 and $80, and a total of 770 churns between $80 and $100, with a sudden drop in churn of 72 due to fewer customers in that monthly charge range.

Churn by Total Charge: In above area chart we can observe that there are more customer who are charged below 2k dollar and gradually the customer are decreasing as the total charge is being increased.

Summarizing the above Analysis:

The analysis of customer demographics, services provided, customer account details (categorical and numeric), and churn patterns provides valuable insights into factors influencing customer churn. Here is the summary of the findings:

a. **Customer Demographics:**
   - In the effect of gender on customer retention, we notice a slight difference between the genders, with more male customers being recorded. The churn statistics are almost identical for both males and females.
   - Coming to senior and non-senior citizens' impact on churn, we observe that non-senior individuals stand as the majority in the customer base, witnessing higher churn metrics than their senior counterparts.
   - Churn based on partnership status and dependents, we observe a larger fraction of customers are those having partners, yet the churn is slightly increased for customers with no partnerships. Customers who have dependent seem to churn more.

b. **Services Provided:**
   - The churn rate is significantly increased for clients who lack online security. Clients who can't reach tech support tend to churn more frequently than those who can.
   - Clients who don't have online backup and device protection also experience a greater churn rate.
   - There's a somewhat increased churn rate among clients who utilize the phone service.
   - Internet service subscribers using Fiber optic experience a greater churn rate than those using DSL or none at all.

c. **Customer Account (Payment Method, Billing & Contract):**
   - Churn based on payment options, we observe E-checks record the highest churn numbers, succeeded by mail checks, transfers via banks, and payments via credit cards.
   - Churn according to contract duration, we observe contracts on a month-to-month basis register the greatest churn count, whereas contracts lasting two years demonstrate decreased churn rate.

- Churn in relation to billing type, the subscribers preferring paperless method of billing indicate an increased rate of retention in contrast to those opting for conventional billing procedures.

d. Customer Account (Tenure, Monthly Charge & Total Charge):

- In churn by duration, we observe that the initial 10 months show a higher churn, followed by a consistent reduction in turnover rates as the duration extends meaning shorter duration has more churn.
- The churn by monthly charge we see a larger base of customers have smaller monthly fees, with changing churn rates when the fees is increased and also observe that people who paid more have high chance of churn.
- Churn by total charge we observe customers with high fees tend to have higher churn as the customers reduce as the price increases.

3.2 Information Analysis

The data analysis presented above sheds light on customer churn trends influenced by several variables, ranging from demographics to services provided, and account specific information, which includes both categorical and numeric data. This data is key to grasping how customers behave and can be beneficial in shaping approaches to boost client loyalty. Below explores the main discoveries and their significance through an in-depth information analysis.

Customer Demographics:

Examining customer demographics provides interesting trends. There's a mild increase in male customers, yet the tendency to churn seems almost identical for both sexes. This suggests that gender might not play an influential role in churn patterns.

Nevertheless, information points towards non-elderly customers tending to churn more than the elderly, drawing attention to the crucial role of age in maintaining customers. Looking at the aspect of partners, a slightly unexpected discovery is that customers with partners undergo a slightly increased churn rate. In the same way, as we see a rise in the number of dependents, churn rates also seem to raise, especially among customers with none or just one dependent. The results highlight the importance of examining customer interactions in tackling problems related to customer churn by performing knowledge analysis.

Service Provided:

An analysis of services offered reveals how certain attributes influence customer churn. More specifically, consumers who lack access to online security, technical assistance, online backup, and gadget safeguarding show a spike in the tendency to quit. This demonstrates how significant these services are in keeping the customers content and loyal. Besides, customers using the Fiber optic internet service are recorded to have a greater quit rate than those with DSL or those without an internet service. This implies a requirement for betterment in the Fiber optic service or specially designed retention tactics for such consumers.

Customer Account (Payment Method, Billing & Contract):

Examining customer accounts in defined categories gives meaningful insights into ways of payment, agreement durations, and invoice preferences. Among different payment methods, electronic checks mark themselves as the top option with the great churn rate, signalling probable challenges or unhappiness associated with this particular payment mode. Short-term, month-to-month contracts depict the maximum customer churn, emphasizing the importance of developing attractive, lengthier contract schemes to enhance client hold. Interestingly, clients who favour paperless invoicing demonstrate an elevated retention ratio compared to those choosing standard billing practices. This observation denotes that endorsing paperless billing could potentially aid in increasing up customer commitment.

Customer Account (Tenure, Monthly Charge & Total Charge):

Examining customer accounts through a numerical lens showcases trends in churn based on factors like tenure, monthly fees, and overall charges. Insights obtained from the data tell us that customers tend to opt-out during the first 10 months meaning in the short-term tenure. This highlights the crucial role of the initial customer interaction. As the length of the relationship extends past 10 months, the churn rates start to gradually reduce, suggesting that customer dedication tends to solidify as time goes on. In the evaluation of monthly charges, it's seen that a higher proportion of customers with less monthly expenses churn. However, when the monthly costs increase, the churn rates show inconsistency, implying a complex interaction between the price points and customer loyalty. Similar trends are observed in the analysis of total charge, where customers with higher fees tend to have higher churn rates.

Summary and Implication of the above:

In summary, the study delivers a detailed insight into the elements that drive customer churn. It highlights the importance of tackling challenges regarding particular services, methods of payment, and contractual choices. Crafting bespoke strategies for various demographic groups and customer account choices can boost customer loyalty. To counter the noticed churn trends, businesses could think of enhancing the standard of services facing high churn rates, refining payment systems, and customizing contract choices to match customer likes. Moreover, attempt to amplify the primary customer journey and offer enhanced support during the vital initial months can lead to shrinking churn rates eventually.

This information analysis serves as a foundation for informed decision-making, enabling businesses to formulate effective retention strategies and adopt long-term customer relationships.

3.3 Knowledge Analysis

Knowledge analysis in the telecom industry is important for a few reasons. Capturing best practices and building knowledge bases help companies retain valuable business insights. This allows them to provide better service and strengthen bonds with key clients. By studying past experiences, telecom providers can enhance customer satisfaction going forward. Maintaining relationships and learning from history empowers companies to offer improved solutions over time.

Customer Demographics:

Research carried out by Becker et al., (2020), and later by Jin in 2022, have established a connection between gender and churn rates. In general, women tend to have lower churn rates than men. This could be recognised to varying communication styles, usage of services, or levels of loyalty among consumers. Age is another crucial demographic element influencing churn. Consumers who are older generally showcase increased loyalty and reduced churn rates compared to the younger ones. Younger consumers, being tech-savvier, could be more willing to change their providers in search of better bargains or services.

The findings of a different research conducted by Ribeiro et al., (2023) suggested that a person's relationship status, such as single, married, or involved in a committed relationship, might affect churn rates. People who are married or in committed relationships might be less inclined to change their service providers, often due to joint plans or familial obligations. The

impact of family, particularly children, might affect the churn rates. Houses with numerous members often display a wide range of needs and choices, making it more likely they may change providers to ensure everyone's needs are met.

The research by Saleh & Saha (2023) elaborated on the role of partners and children in affecting customer churn trends within the telecom sector. In particular, they found that in certain instances, partners or parents were the ones managing the subscriptions for some customers. In one instance, research uncovered that within Europe, parents often foot the bill for their kids' subscriptions, potentially affecting the patterns of client attrition.

Service Provided:

The churn rates in the telecommunications sector are heavily impacted by service quality. Key elements like reliability, quick response, issue resolution, and usage habits significantly direct customer retention. If customers feel a better service can be found somewhere else, or if they confront reliability, responsiveness concerns, unresolved issues, inaccurate information, or neglect to their comments, they are more prone to switch vendors noted by Patro (2020). Increased complaint instances and reduced use of services, like lower data use, correlate with a higher probability of churn, thus highlighting the importance of swift issue management.

In the telecommunications sector, offerings such a collection of digital data backup, internet safety, streaming services for films and television shows, device safeguards, technical assistance, and online connectivity, have a great effect on customer attrition. MaxBill (2023) discusses the role of trustworthy digital backup and security solutions in encouraging client trust by ensuring their data's security, leading to increased loyalty. From the customers' perspective, these services are precious, and if they have faith in their data safety, they are less likely to switch service providers. The page also underscores the importance of diverse streaming content towards enhancing customer pleasure and holding on to them. Customers who take pleasure in the entertainment options are more inclined to stick with a service provider who caters to their content preferences.

Another study by Tessitore (2022) discusses the importance of great telephone services in the telecommunications sector. Users anticipate clear communication and dependable assistance. Inferior telephone service quality can stir dissatisfaction and escalate customer churn. Presenting gadget assurance meaning the device protection schemes may amplify client commitment by offering additional advantages and a sense of security. Users with a feeling of safety about their gadgets are less prone to change suppliers. Skilled and convincing tech aid

is vital to customer satisfaction. Telecommunication corporations that emphasize good customer assistance and speedy problem-solving can considerably decrease customer churn. Trustworthy internet service is an influential aspect in maintaining clients. Customers rely heavily on internet connectivity, so providers offering stable and high-speed internet are more likely to retain customers.

Customer Account (Payment Method, Billing and Contract):

A recent study by Ribeiro et al., (2023) gave insight into how payment options notably impact customer churn rates in the telephone industry. Research has revealed that payment plans involving post-paid bills tend to correlate with higher churn probabilities compared to pre-paid options. Individuals signing up for post-paid arrangements appeared more inclined to change providers than those choosing prepaid selections. Additionally, collecting points from membership reward programs can influence churn probabilities, with greater amounts of points relating to a decreased chance of switching companies. This implies the convenience and flexibility associated with post-paid bills and loyalty rewards can encourage customer retention and diminish turnover rates in the telecommunications sphere.

Customers who sign up for brief telecom deals switch providers more often due to their greater freedom and lesser pledge compared to customers in lengthier contracts. People with short-term contracts can readily change companies with little penalty or payment, making them more inclined to explore other offers for better values or services. This flexibility allows brief-contract customers to react well to competitive deals or shifting preferences, leading to a higher probability of switching when their deal period ends. On the flip side, customers in longer contracts exhibit lower switching rates as they must follow legal commitments, fostering a sense of allegiance and dedication to the provider (Reilly, 2023).

Studies on how paperless billing affects customer loss in the telephone business are few. But we can guess that paperless billing, as a way to make billing easier and more modern, may influence how many customers stay. Paperless billing lets customers get and manage their bills electronically, possibly leading to more satisfaction and loyalty. By offering a greener and simpler way to pay, telephone companies may improve the overall experience, which could help lower customer loss. While direct research on paperless billing and customer loss is rare, adopting paperless billing follows the general move to better customer service and involvement, which can help keep more customers in the telephone industry.

Customer Account (Tenure, Monthly Charge & Total Charge):

The length of time a customer stays with a company greatly affects how often they change providers in the telecom industry. This is because longer relationships make people more loyal and committed. Those with contracts lasting 1 to 2 years are less likely to leave, around 34% will stay compared to month-to-month customers. The reason for this difference in how often customers remain is that longer relationships create more stability and trust in the company. Lengthier contracts build feelings of allegiance and make switching providers less easy to do. On the other hand, short-term deals or month-to-month plans give customers more flexibility and openness to other options, leading to higher rates of changing companies (Pinheiro & Cavique, 2022).

Monthly expenses play an important role in keeping customers as members, with people always looking for better offers to get the most value from their money. Offering competitive pricing is essential for service providers to hold on to clients and decrease the number leaving (SubscriptionFlow, 2022). A HeavyAI (2021) study emphasizes that the total cost in the telcom industry greatly affects customer choices. Individuals closely track expenses and search for worth for the money spent on services. If the complete cost goes above perceived worth, dissatisfaction may arise, urging customers to explore options with better offers or lower costs. Telcom companies must carefully match fees with customer expectations and industry standards. Providing competitive prices, savings, and special deals can attract and keep customers, developing loyalty and decreasing the total leaving.

Summarizing the above analysis:

a. **Customer Demographics Influence Churn:**
    - Gender, age, relationship status, and family dynamics all impact churn rates in the telecom industry.
    - Research by Becker et al. (2020) and Jin (2022) shows that women generally exhibit lower churn rates than men, while older consumers display higher loyalty compared to younger ones.
    - Married or committed individuals are less likely to switch providers, influenced by joint plans or familial obligations (Ribeiro et al., 2023).
b. **Service Quality Affects Customer Retention:**
    - Reliability, responsiveness, and issue resolution significantly influence customer satisfaction and loyalty.

- Patro (2020) highlights the importance of these service quality elements in reducing churn rates.
- Additionally, MaxBill (2023) research emphasizes the role of trustworthy digital backup and security services in enhancing customer loyalty.

c. Payment Methods, Contract Length & Paperless Billing Impact Churn:

- Payment options, contract lengths, and billing structures influence churn probabilities.
- Ribeiro et al. (2023) reveal that post-paid bills correlate with higher churn probabilities compared to pre-paid options.
- Longer contracts foster allegiance and commitment, while shorter-term deals offer flexibility and lead to higher switching rates (Pinheiro & Cavique, 2022).
- Adoption of paperless billing contributes to improved customer experience and satisfaction.
- While direct research on paperless billing's impact on churn is limited, it aligns with the trend towards better customer service and involvement.

d. Monthly Expenses and Competitive Pricing:

- Monthly fees and total cost significantly influence customer retention.
- SubscriptionFlow (2022) emphasizes the importance of competitive pricing in reducing churn, as individuals seek better value for their money.
- HeavyAI (2021) study highlights the impact of total cost on customer choices, with competitive pricing, savings, and special deals attracting and retaining customers.

4 Critical Analysis

Below interpretation and insight brings together the results from analysing the data, facts, and understanding to give a complete picture of why customers stop using the company's services and find ideas to prevent this from happening. The analysis looks at everything learned to help service providers keep their customers.

4.1 Interpretation from the Analysis

a. **Customer Segments and Churn Tendency:**
   - **Demographic:** From demographic point of view age matters a lot, with older people more likely to stay compared to younger, tech-savvy individuals who often look for better deals. Married individuals and those with bigger families tend to not switch as much maybe due to shared plans or needs to care for different family members. Gender may not impact switching that much.
   - **Services:** People using services like online backup, security solutions, internet, support, streaming options, and phone a lot are more likely to switch if these services are unreliable, lack good support, or are seen as not good enough. But using more useful services increases how happy customers are and reduces switching.

b. **Contractual Factors and Churn:**
   - **Payment Methods:** Pay-as-you-go plans usually have lower cancellation rates compared to monthly billed plans. This is likely because pay-as-you-go avoids worries about going over budget or losing control of expenses each month.
   - **Contract Length:** Short-term agreements provide flexibility but see more people switching providers for better offers. Longer agreements encourage loyalty and commitment, which decreases cancellation rates.
   - **Billing Preferences:** There is not much direct research, but electronic bills may link to an improved customer experience. This could potentially cut cancellation by offering a convenient and environmentally friendly way to pay.

c. **Pricing and Churn:**
   - **Monthly expenses:** Customers pay close attention to costs and look for good deals. High monthly bills and prices not as low as other companies can cause people to quit and switch to providers giving better prices.

- **Total price:** How much everything costs together, like monthly fees and any extra charges, really affects what customers decide. Customers may quit if the total price seems higher than what the service is worth to them.

4.2 Design Thinking and Innovation

Using a creative problem-solving approach and encouraging new ideas could provide additional perspectives and solutions for keeping customers. Exploring challenges from different angles through design thinking may surface helpful understandings and approaches. Fostering innovation opens doors to insights that conventional analysis may miss. Below are the few insights from the analysis:

a. Customer-centric Design:

- Learn about customers by watching them, asking questions, and spending time with different types of people. Find out what they like, what bothers them, and what problems they face.
- Create pictures of specific customers that show who they are, what they do, and what their experiences are like over time. This helps understand customers better.
- Invite customers to workshops and ongoing discussions to develop new products, services, and experiences together. Include them in ideas and early versions.
- Make sure interactions like bills, support, and online services meet what customers want and expect. Change these based on customers' real needs and feedback.

b. Service Innovation:

- Discover emerging technologies like 5G, IoT, and AI and think of new digital services and connected experiences customers could enjoy using them.
- Use data analysis and machine learning to suggest services, curate content, and offer deals personalized for each customer based on what they like and how they use services.
- Make switching between mobile apps, websites, and call centres seamless so customers have a consistent experience no matter the channel.

- Think about working with other service providers or tech companies to bundle services together or integrate solutions to provide more value for customers.

c. Pricing Experimentation:

- Experimenting with different pricing options, package deals, and promotional discounts to see how they affect how many new and existing customers we get and keep.
- Try out these options in small tests or with a few customers first before applying them more widely. This will help us learn which approaches are most successful at attracting and retaining customers without driving many away.
- Implement flexible pricing systems that change prices according to current market situations, customer groups, and usage routines, balancing customer value view and earnings.
- Look at subscription-based or usage-based pricing styles that fit with progressing customer choices and consumption behaviours.
- Provide customizable pricing levels or "make-your-own" bundles that enable customers to pick and pay only for the services they need, lifting perceived worth and cost-effectiveness.

d. Data-Driven Insights:

- Analysing patterns in data can help spot early signs that someone may want to leave. This helps us reach out to them in a friendly way.
- Scoring customers based on their risk of leaving allows us to focus on those most likely to go. Talking to high-risk users helps us address any issues.
- Looking at how much money each customer brings over time helps tailor our efforts. We can put more effort into keeping long-term valuable users happy.
- Tracking key numbers like churn, quality and mood lets us adjust quickly. Dashboards show this so we know when to change course.

e. Collaboration and Co-creation:

- Foster open innovation by engaging with customers, industry experts, startups, and academic institutions to explore new ideas and solutions for addressing customer churn.
- Establish innovation labs or programs to rapidly prototype and test new concepts, business models, and technologies in a controlled environment.

- Participate in industry forums, consortiums, and cross-sector collaborations to stay ahead of emerging trends, share best practices, and co-develop innovative solutions.
- Encourage internal innovation by establishing dedicated teams, processes, and incentives for employees to ideate, experiment, and propose new solutions for improving customer experiences and reducing churn.

5 Final Deliverables

In the above section we have seen how telecom companies can better understand customers and create loyal relationships by using design thinking. This process helps innovation. It gives insights into what people really need from services. Companies can then test creative solutions, pricing options, and digital tools. Working with different groups provides opportunities to tailor experiences. When customers feel heard and supported, they are less likely to switch to other providers. Together, these steps strengthen connections and lead to satisfied, long-term customers. Based on the findings here are some the strategies and recommendations for the final deliverables:

5.1 Strategies

1. **Targeted Customer Engagement:**
    - Target customers based on their characteristics like age, family size, internet use, and streaming services.
    - Develop special offers for groups like senior discounts, family plans, or packages combining relevant services like security and backup. This helps meet different needs and show value.
2. **Data-Driven Retention Efforts:**
    - Implement customer churn prediction models to identify customers at risk of leaving.
    - Reach out to high-risk customers with personalized offers, address any service issues, or provide loyalty rewards to encouraging them to stay.
3. **Flexible Pricing and Billing Options:**
    - Provide different contract lengths like short or long term. Also offer prepaid or paperless billing options to suit preferences.

- Experiment with flexible pricing and customizable plans so customers pay only for what they use.

5.2 Recommendation

1. **Invest in Customer Experience:**
    - Ensure reliable service, helpful customer support, and quick issue solutions.
    - Prepare staff to interact well with users and provide easy ways for communication like the website and app.
2. **Continuous Monitoring and Improvement:**
    - Continuously review data on customers no longer using our services and perform satisfaction surveys to comprehend what clients require and find regions for enhancement.
    - Utilize machine learning to obtain understandings and refine techniques to maintain customers.

6 Conclusion

In a major effort to address the important problem of customer turnover in the telecom industry, this in-depth study aims to develop effective strategies and recommendations by utilizing data analysis, customer insights, and design thinking approaches. The deliverables outlined in Section 5 directly align with this goal, giving a roadmap for the company to keep its customers and identify the services impacting churn rates. The targeted strategies proposed in Section 5.1, such as customer engagement initiatives and data-driven retention efforts, are carefully crafted to adopt long-term customer loyalty and minimize customer loss.

Additionally, Section 5.2 emphasizes the huge importance of investing in incredible customer experiences, continuous monitoring, and service improvements. Most importantly, the analysis in Sections 3.1.2 and 3.3 precisely pinpoints the specific services, including online security, technical support, and internet connectivity, that significantly affect customer turnover, enabling the company to prioritize and improve these offerings. By seamlessly combining data-driven insights, industry knowledge, and innovative thinking, the deliverables presented in Section 5 equip the company with a comprehensive framework to effectively tackle customer turnover, retain valued customers, and maintain a competitive edge in the ever-changing telecom landscape.

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