# Analytics Startup Plan

**Synopsis: *This document provides a high-level walkthrough of the activities required to guide completion of the analysis.***

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| **Project** | Customer Churn Analysis for Fonitas Inc. |
| **Requestor** | Vinay Beesa Gnaneshwar |
| **Date of Request** | 15th July 2024 |
| **Target Quarter for Delivery** | Q3 2024 |
| **Epic Link(s)** |  |
| **Business Impact** | The project aims to reduce customer churn, thereby increasing customer retention and improving revenue stability. |

## 1.0 Business Opportunity Brief

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|  | Clearly articulated business statement of the Ask, opportunity, or problem you are trying to solve for. An important step is to understand the nature of the business, system or process and the desired problems to be addressed. This will be communicated back to All stakeholders for alignment. |

**Primary Objective:**

The primary objective is to analyze customer churn patterns, understand the factors contributing to churn, and develop strategies to mitigate churn and retain customers. This will help improve customer satisfaction and increase the company's revenue.

Fonitas, a leading telecommunications company, is facing a critical challenge of high customer churn rates, which adversely affect its revenue and market competitiveness. The telecommunications industry is highly competitive, and retaining customers is significantly more cost-effective than acquiring new ones. High churn rates lead to substantial revenue losses, increased customer acquisition costs, and diminished customer loyalty and satisfaction.

To address this challenge, Fonitas aims to conduct a comprehensive analysis of customer churn using its extensive dataset. The goal is to identify and understand the key factors driving customer churn, such as service quality issues, pricing concerns, customer service experiences, and usage patterns. By leveraging data analytics and machine learning techniques, Fonitas seeks to uncover actionable insights that can inform targeted retention strategies.

**Objectives:**

1. **Analyze Customer Churn Patterns:**
   * Utilize the provided dataset to identify trends and patterns in customer churn.
   * Segment customers based on various attributes to understand different churn behaviors.
2. **Identify Key Factors Contributing to Churn:**
   * Determine the primary reasons behind customer churn by analyzing customer demographics, service usage, billing information, and support interactions.
   * Evaluate the impact of different factors on churn rates to prioritize areas of improvement.
3. **Develop and Implement Retention Strategies:**
   * Recommend actionable strategies to mitigate churn based on data-driven insights.
   * Design personalized retention campaigns targeting at-risk customers.
   * Enhance customer experience through improved service quality, competitive pricing, and superior customer support.
4. **Measure and Monitor Impact:**
   * Implement mechanisms to measure the effectiveness of retention strategies.
   * Continuously monitor churn rates and customer feedback to refine and optimize retention efforts.

**Desired Outcomes:**

* **Increased Revenue:** By reducing churn, Fonitas aims to retain a higher percentage of its customer base, leading to increased revenue and profitability.
* **Improved Customer Satisfaction:** Implementing targeted retention strategies will enhance customer satisfaction and loyalty, fostering long-term relationships.
* **Cost Savings:** Lower churn rates will reduce the need for expensive customer acquisition campaigns, resulting in significant cost savings.
* **Competitive Advantage:** By proactively addressing churn, Fonitas will strengthen its market position and competitive edge.

Addressing customer churn is vital for Fonitas to achieve sustainable growth and maintain a loyal customer base. By leveraging data analytics to understand and mitigate churn, Fonitas can enhance its service offerings, improve customer satisfaction, and drive long-term revenue growth.

## 1.1 Supporting Insights

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|  | Define any supporting insights, trends and research findings. Where relevant, list key competitors in the market. What are their key messages, products & services? What is their share of market, nationally and regionally? |

**Competitors:** In the U.S. telecommunications market, key competitors to Fonitas include AT&T, Verizon, and T-Mobile. These companies dominate the market with significant shares, offering a range of services from wireless communication to internet and entertainment packages.

**Key Messages:** Competitors often highlight superior network quality, innovative technologies, better pricing plans, and exceptional customer service as their primary selling points. For example, T-Mobile emphasizes its 5G network and customer-friendly pricing.

**Products & Services:** AT&T, Verizon, and T-Mobile offer a broad array of products and services, including wireless communication, high-speed internet, streaming services, and advanced business solutions. T-Mobile, for instance, offers unique packages for small businesses, such as free Canva Pro subscriptions and advertising credits.

**Market Share:** As of recent reports, Verizon leads the market with the largest share of wireless subscriptions at around 37%, followed by T-Mobile and AT&T. These companies have robust national and regional presences, making them formidable competitors.

Data from <https://www.mordorintelligence.com/industry-reports/united-states-telecom-market>

## 1.2 Project Gains

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|  | *Describe any revenue gains, quality improvements, cost and time savings (as applicable). What will you do differently and why would our customers care. What are the implications if we do nothing? This section is particularly key for prioritization against company goals and KPI’s.* |

Reducing customer churn can bring significant revenue gains, quality improvements, cost savings, and align with Fonitas's company goals and KPIs. Here’s an in-depth look at the benefits and implications of implementing effective retention strategies versus doing nothing.

**Revenue Gains:**

Reducing churn directly boosts revenue by retaining customers who might otherwise leave. For Fonitas, even a modest reduction in churn, such as by 5%, could lead to a significant profit increase due to the high lifetime value of telecom customers. For instance, if each customer has a lifetime value of $1,000, retaining an additional 5% of customers could result in millions of dollars in incremental annual profit.

* Modest reduction in churn (e.g., 5%) can significantly increase profits.
* High lifetime value of telecom customers amplifies revenue gains.
* Example: Retaining an additional 5% of customers could result in millions of dollars in profit.

**Quality Improvements:**

Implementing targeted retention strategies based on churn analysis can greatly enhance customer satisfaction. By understanding the reasons behind customer churn, Fonitas can tailor its services and offers to better meet customer needs, leading to improved service quality. Personalized interactions and proactive support can transform at-risk customers into loyal advocates, fostering stronger, more resilient customer relationships. This approach not only improves the quality of service but also enhances the company's reputation and customer trust.

* Enhanced customer satisfaction through targeted retention strategies.
* Tailored services and offers based on churn analysis improve service quality.
* Personalized interactions and proactive support turn at-risk customers into loyal advocates.
* Strengthened customer relationships and improved company reputation.

**Cost Savings:**

Retaining existing customers is more cost-effective than acquiring new ones. The marketing and sales expenses associated with acquiring new customers are substantially higher than those required to retain existing ones. For Fonitas, improving customer retention by 10% could potentially reduce customer acquisition costs by 20%, highlighting the financial efficiency of focusing on retention. Additionally, loyal customers are more likely to purchase additional services and recommend the company to others, further driving down marketing costs and increasing overall profitability.

* Retaining existing customers is more cost-effective than acquiring new ones.
* Lower marketing and sales expenses associated with customer acquisition.
* Example: Improving retention by 10% could reduce customer acquisition costs by 20%.
* Loyal customers more likely to purchase additional services and recommend Fonitas, further reducing costs.

**Implications of Doing Nothing:**

Failing to address customer churn can have severe consequences for Fonitas. High churn rates lead to continuous revenue loss and reduced market competitiveness. The cost of acquiring new customers to replace those who leave is significantly higher than the cost of retaining existing ones. Without effective retention strategies, Fonitas risks falling behind competitors who are investing in customer retention and experiencing the associated benefits. Ignoring churn can also lead to negative brand perception and diminished customer trust, making it harder to attract new customers in the long run.

* High churn rates lead to continuous revenue loss and reduced market competitiveness.
* Increased costs of acquiring new customers to replace those who leave.
* Risk of falling behind competitors who invest in retention strategies.
* Potential for negative brand perception and diminished customer trust, making it harder to attract new customers.

### **Why Customers Care:**

Customers care about the initiatives Fonitas undertakes to reduce churn because these efforts translate into a better overall experience. Personalized offers, improved support, and proactive engagement make customers feel valued and understood. When customers perceive that a company is committed to addressing their needs and concerns, their loyalty increases. They are more likely to stay with Fonitas, recommend its services to others, and provide positive feedback, which in turn attracts new customers and drives growth.

* Personalized offers, improved support, and proactive engagement make customers feel valued and understood.
* Increased loyalty and likelihood of staying with Fonitas.
* Customers more likely to recommend Fonitas and provide positive feedback, attracting new customers and driving growth.

### **Aligning with Company Goals and KPIs:**

Prioritizing churn reduction aligns with Fonitas's strategic goals of increasing revenue, enhancing service quality, and optimizing costs. By focusing on customer retention, Fonitas can achieve key performance indicators (KPIs) related to customer satisfaction, lifetime value, and profitability. This alignment ensures that the company's efforts are directed towards initiatives that have the most significant impact on its overall success and market position.

* Focus on customer retention aligns with Fonitas's goals of increasing revenue, enhancing service quality, and optimizing costs.
* Achieving KPIs related to customer satisfaction, lifetime value, and profitability.
* Ensures efforts are directed towards initiatives with the most significant impact on overall success and market position.

## *Note: Completion of the following sections is possible only after a careful assessment and triage of the Ask. This is required to determine scope, resource, time, priority and data availability.*

## 2.0 Analytics Objective

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|  | List the key questions, assumptions and define the hypotheses. Often the deliverable may not just be an analysis output, however a recommended operating model or blueprint for a pilot etc.  Note: Asking the right questions and truly understanding the problem will lead to the right data, right mathematics, and right techniques to be employed. |

Key Questions:

**1. What are the main factors influencing customer churn?**

Service quality, pricing, or other variables identify as the primary drivers behind customers leaving Fonitas,

**2. Which customer segments are most at risk of churning?**

Identifying high-risk groups allows for targeted interventions and personalized retention strategies to be developed for different customer profiles.

**3. How can we effectively predict churn?**

Developing accurate predictive models helps in proactively addressing potential churn risks, enabling Fonitas to take timely actions.

**4. What strategies can we implement to reduce churn?**

Understanding effective retention strategies ensures that Fonitas can design impactful campaigns and initiatives to keep customers engaged and satisfied.

Hypothesis:

 Customers **with lower satisfaction scores are more likely to churn.**  
Unhappy customers are more prone to switch providers, making satisfaction a critical metric.

 Customers **with high total charges are more likely to churn.**  
High costs might drive customers to seek more affordable options, indicating a need for competitive pricing strategies.

 Customers **using certain payment methods are more prone to churn.**  
Payment method preferences may correlate with customer loyalty, where some methods might be linked to higher churn rates.

 Customers **with minimal service usage are more likely to churn.**  
Low engagement could signify a lack of perceived value, leading to increased churn likelihood.

 Customers **with fewer interactions with customer support are more likely to churn.**  
Limited interaction might indicate dissatisfaction or unaddressed issues, pushing customers away.

 Customers **who do not utilize bundled services are more likely to churn.**  
Bundling services often enhances perceived value and loyalty, making non-bundled users more susceptible to churn.

## 2.1 Other related questions and Assumptions:

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|  | *List any assumptions that may affect the analysis* |

**Additional Related Questions:**

1. **How does customer tenure affect churn probability?**
   * Understanding if longer-tenured customers are more loyal or more likely to churn can shape retention strategies.
2. **What is the impact of service usage patterns on churn?**
   * Analysing if certain usage behaviours (e.g., frequent streaming, data consumption) correlate with higher churn rates.
3. **How do demographic factors influence churn?**
   * Identifying if factors such as age, location, or income levels affect churn rates.

**Additional Assumptions:**

1. **Seasonal Effects are Negligible:**
   * Assuming that seasonal variations do not significantly impact churn rates.
2. **Customer Feedback is Representative:**
   * Assuming that the feedback collected accurately represents the broader customer sentiment.
3. **Uniform Service Quality:**
   * Assuming that service quality does not vary significantly across different regions or customer segments.
4. **Economic Stability:**
   * Assuming stable economic conditions, with no major market disruptions affecting customer behaviour.

These additional questions and assumptions help in framing a comprehensive and nuanced analysis, ensuring that the results are robust and actionable.

## 2.2 Success measures/metrics

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|  | *What does success look like? Define the key performance indicators (success definition/indicators, drivers and key metrics) against which the objectives will be analyzed. These should be drawn from the interlock meeting with key stakeholders and will inform the approach and methodology for the analysis.* |
|  | **Key Performance Indicators (KPIs):**   1. **Churn Rate Reduction:**    * Measure the percentage reduction in churn rate post-implementation of retention strategies. A lower churn rate indicates effective interventions. 2. **Customer Satisfaction Score (CSAT):**    * Track improvements in customer satisfaction scores. Higher CSAT scores reflect better customer experiences and increased loyalty. 3. **Retention Rate:**    * Measure the retention rate of high-risk customers. An increased retention rate signifies successful identification and mitigation of churn risks. 4. **Revenue Impact:**    * Assess the financial impact of reduced churn on overall revenue. Higher revenue retention indicates the effectiveness of churn reduction efforts. 5. **Customer Lifetime Value (CLV):**    * Monitor changes in the average customer lifetime value. An increase in CLV suggests improved long-term customer relationships and profitability. 6. **Net Promoter Score (NPS):**    * Measure changes in the Net Promoter Score, which reflects customer willingness to recommend Fonitas to others. A higher NPS indicates stronger customer loyalty and satisfaction. 7. **Cost per Retained Customer:**    * Calculate the cost associated with retaining an existing customer. A decrease in this cost, coupled with high retention rates, indicates efficient use of resources. 8. **Engagement Metrics:**    * Track usage patterns and engagement levels with Fonitas’s services. Higher engagement often correlates with lower churn rates and increased customer satisfaction. 9. **Customer Feedback and Complaints:**    * Monitor the volume and nature of customer feedback and complaints. A decrease in negative feedback and complaints suggests improved service quality and customer satisfaction. 10. **Service Utilization:**     * Measure the extent of service usage (e.g., data consumption, streaming hours). Higher utilization rates indicate that customers find value in the services, reducing the likelihood of churn.   These comprehensive KPIs provide a multi-faceted view of the success of churn reduction strategies, ensuring that Fonitas can effectively measure and optimize its efforts to retain customers and enhance overall business performance. |
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## 2.3 Methodology and Approach

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|  | *Now that you have a good understanding of the Ask and deliverable, detail the recommended approach/methodology.* |

**Type of Analysis:**

* Logistic regression
* Linear regression
* Decision trees
* Chi-square tests
* Random Forest
* K-means clustering for segmentation

**Initial Approach:**

1. **Data Preparation:**
   * **Cleaning and Pre-processing:**
     + Handle missing values using imputation techniques.
     + Encode categorical variables using methods like one-hot encoding or label encoding.
     + Normalize numerical variables to ensure consistent scale.
     + Address any outliers or anomalies in the data.
2. **Exploratory Data Analysis (EDA):**
   * **Data Visualization:**
     + Create histograms, box plots, and scatter plots to understand data distributions.
     + Use correlation matrices to identify relationships between variables.
     + Generate summary statistics to get initial insights into the data.
   * **Segment Analysis:**
     + Identify distinct customer segments based on demographic and behavioural variables.
     + Use clustering algorithms (e.g., K-means) to uncover hidden patterns.
3. **Feature Engineering:**
   * Create new features that may provide additional predictive power, such as interaction terms or polynomial features.
   * Derive variables like tenure length, average usage rates, and engagement metrics.
4. **Model Building:**
   * **Logistic Regression:**
     + Fit a logistic regression model to identify significant predictors of churn.
     + Assess model performance using metrics like AUC-ROC and precision-recall.
   * **Decision Trees and Random Forest:**
     + Build decision tree models to understand decision rules leading to churn.
     + Use random forests to improve predictive accuracy and handle variable importance.
   * **Other Models:**
     + Apply linear regression for continuous outcome variables related to churn.
     + Perform Chi-square tests for categorical variables to identify significant relationships.
5. **Validation:**
   * Use cross-validation techniques to ensure model robustness and prevent overfitting.
   * Split the data into training and testing sets to evaluate model performance.
   * Compare model performance using metrics such as accuracy, F1-score, and confusion matrix.
6. **Recommendations:**
   * Based on model findings, develop actionable strategies to reduce churn.
   * Identify at-risk customer segments and tailor retention strategies accordingly.
   * Propose personalized offers, loyalty programs, and targeted communication plans.
7. **Implementation Plan:**
   * Design a phased implementation plan for rolling out retention strategies.
   * Monitor and adjust strategies based on ongoing performance data.
   * Establish feedback loops to continuously refine and improve retention efforts.

**Output:** The output will be a comprehensive set of insights, predictive models, decision rules, and strategic recommendations. These will help Fonitas evaluate customers based on their likelihood to churn, optimize customer retention efforts, and position sales strategies effectively. The findings will be presented in detailed reports and visual dashboards, providing clear guidance for decision-makers.

## 3.0 Population, Variable Selection, considerations

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|  | Capture learning about the data available today location, structure, and reliability; this would include data in operational systems including dealer sourced, data warehouse and any CRM or email marketing systems available today. |

#### Population Selection:

* **Audience**: All customers in the dataset.
* **Observation Window**: Customers who have been active for at least one billing cycle.
* **Inclusions**: Customers with complete data for key variables (demographics, service usage, billing).
* **Exclusions**: Customers with missing critical information or those who have just signed up (e.g., less than one month).

#### Variable Selection:

* **Dependent Variable**: Customer Status (Churned/Active).
* **Independent Variables**:
  + Customer Demographics (Age, Gender, etc.)
  + Service Usage (Internet Service, Streaming Services, etc.)
  + Billing Information (Monthly Charge, Total Charges, etc.)
  + Customer Feedback (Satisfaction Score)

## 4.0 Dependencies and Risks

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|  | Identification of key factors that may influence the outcome of the project and likelihood of it happening: |

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| **Risk** | **Likelihood (based on historical data)** | **Delay (based on historical data)** | **Impact** |
| |  | | --- | | Data quality issues | | |  | | --- | | Data quality issues | | |  | | --- | | Data quality issues | | |  | | --- | | Data quality issues | |
| |  | | --- | | Lack of stakeholder buy-in |  |  | | --- | |  | | |  | | --- | | Low |  |  | | --- | |  | | |  | | --- | | High |  |  | | --- | |  | | |  | | --- | | High |  |  | | --- | |  | |
| |  | | --- | | Model accuracy | | Medium | Medium | Medium |
| |  | | --- | | Churn rate inflation due to multiple contracts per customer | | Low | Low | Medium |

## 5.0 Deliverable Timelines

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|  | List key dates and timelines as a work-back schedule. Activate line items based on complexity and line-of-sight required. Will set the stakeholder expectations for the process. |

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| **Item** | **Major Events / Milestones** | **Description** | **Scope** | **Days** | **Date** |
| 1. | Kick-off / Formal Request | Initial meeting to define project scope and objectives. | Define project scope and objectives. | 1 | Jul 15, 2024 |
| 2. | Assessment / Triage | Assess and prioritize the tasks based on complexity and importance. | Assess tasks and prioritize based on complexity and importance. | 2 | Jul 16-18, 2024 |
| 3. | Prioritization | Finalize the priority of tasks and resources needed. | Finalize task and resource prioritization. | 1 | Jul 19-20, 2024 |
| 4. | E.D.A   * Issues with duplicates * Issues with Spend data | Explore and analyze the dataset, addressing duplicates and spend data issues. | Address issues with duplicates and spend data, perform exploratory analysis. | 8 | Jul 19-26, 2024 |
| 5. | Story Board 1 | Create initial storyboard for presenting findings. | Create initial presentation storyboard. | 2 | Jul 29-30, 2024 |
| 6. | QA Output | Quality assurance and validation of the analysis results. | Validate analysis results through QA processes. | 3 | Jul 31-Aug 2, 2024 |
| 7. | Internal team Presentation | Present initial findings to the internal team for feedback. | Present findings to internal team and gather feedback. | 1 | Aug 5, 2024 |
| 8. | Go/No Go | Decision point to proceed based on internal feedback. | Decide on the next steps based on internal feedback. | 1 | Aug 6, 2024 |
| 9. | Story Board 2 | Refine and finalize storyboard based on feedback. | Refine and finalize presentation storyboard. | 2 | Aug 7-8, 2024 |
| 10. | Pilot | Implement a pilot of the proposed retention strategies. | Run a pilot program for retention strategies. | 4 | Aug 9-12, 2024 |
| 11. | Delivery & sign-off | Final presentation and sign-off from stakeholders. | Present final findings and get stakeholder approval. | 2 | Aug 13-14, 2024 |