

## Telecommunications Company

### Part 1: Interactive Data Dashboard

#### A. Dashboard

- **4 Different Representations to Summarize / Display Trends**
  - **Maps:** Churn by Zip, Churn Ratio by Zip, Revenue by State, Customer Penetration Rate by State
  - **Metrics:** Total Churn, Monthly Revenue
  - **Pie:** Churn breakdown,
  - **Bar:** Churn/Average Tenure in Months, Churn/Bandwidth GB Year, Churn/Average Monthly Charge, Churn/Contract Type, Churn/Streaming Movies, Average Monthly Rate by State, Churn Ratio by State, Revenue by State
- **2 Interactive**
  - **Dashboard 1:** Telecommunications Company: Churn by Zip Map: All/Yes/No Churn - shows both current customer distribution and where customers are from geographically.
  - **Dashboard 3:** Regional: Churn by Zip: Search bar to search by either zip code or state to see the churn ration for that area.
- **2 Metrics/KPI's**
  - **Dashboard 3:** Regional: Churn by Zip: Churn Ratio
    - $\text{SUM}(\text{IF} [\text{Churn}] = \text{'Yes'} \text{ THEN } 1 \text{ ELSE } 0 \text{ END}) / \text{COUNT}([\text{Customer id}])$
  - **Dashboard 5:** Opportunities: Customer Penetration Rate by State
    - $[\text{Customer Count}] / \text{SUM}([\text{2020 Census}]) * 100$

#### 1. Data

- **churn\_clean.csv** (provided by WGU for D210)
- **US Population By Zip Code** (Census)
- **us population by state** (Petit, 2021)
- The population data sets were chosen to provide demographic and population information for all areas and potential markets across the country.

#### 2. Installation Instructions

1. Install Tableau Desktop: If not already installed, download and install Tableau Desktop from Tableau's website.
2. Download the File: Download the file telco2024.twbx, which includes the dashboard and workbook.
3. Open Tableau: Launch Tableau Desktop.
4. Open the Dashboard: Go to File > Open, then select the telco2024.twbx file from where you saved it.
5. Start Exploring: Your dashboard is now ready to use!

#### 3. Instructions to Navigate Dashboard

1. Locate Dashboard Slides: The dashboards are shown as slides at the bottom of Tableau.
2. Start with Overview: Begin with the first slide, titled "Overview" and colored blue.
3. View the Presentation: Click the presentation slide button in the top right to view all slides (1-5).

4. Interact with Maps: On the Overview slide, use the dropdown in the "Churn by Zip" map to select All, No, or Yes and view customer churn locations.
5. Search by State: Use the magnifying glass icon to search for specific states on the map dashboards.
6. Adjust Bar Graphs: Rearrange bar graphs using the graph icon.
7. Explore Data: Click on any dashboard element for more detailed metrics.
8. Review All Slides: After the initial five dashboards, follow the slides for each visualization, ending with the "Opportunities" dashboard.

\*If all else fails and/or if the telecommunications company needs a PDF is available to send out via email to those less tech inclined.

## Part 2: Storytelling with Data

### B. Panopto Link

- <https://wgu.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=1f6f933d-6ab0-4bac-a107-b1d900ab6b90>

## Part 3: Reflection Paper

### C. Reflection Paper

#### 1. Purpose & Function

- The purpose of building the following dashboards for the telecommunications company was to address the needs of the executive leaders (SVP, EVP, Panel of Regional VP's) in a visually engaging but also informative manner. Emphasis was placed on helping to predict and understand customer churn. The data can help inform the company's strategy on customer retention and recruitment.

#### 2. Additional Data Set

- The 2020 Census population data, combined with the 2010 population data by zip code, provides valuable regional demographic context. By comparing customer churn rates to state and regional populations, underperforming areas can be identified and targeted for improvement. Additionally, high-performing regions can be recognized and analyzed to replicate successful strategies.

#### 3. Dashboard Supported Decision Making

- **Dashboard 5: Customer Penetration Rate By State:** Market penetration measures the extent to which a product is used relative to the total potential market for that product (Investopedia). In our dashboard, this metric was calculated by dividing the number of customers in each state by the state's total population. This approach reveals significant insights into customer churn and market opportunities. For instance, some high-revenue states exhibited relatively low customer penetration, indicating potential for further market expansion. Conversely, states with smaller populations, such as Alaska and North Dakota, showed higher customer penetration, possibly reflecting less competition. However, these states still have room for growth, with opportunities to increase market share.
- **Dashboard 2: Demographic Overview:** The dashboard integrates insights from a previous predictive analysis for the telecommunications company, which identified the top five features of importance: tenure, bandwidth usage (GB per year), average monthly charge, contract type, and streaming movies (Fuller, 2024). This dashboard enables a deeper examination of customer churn by comparing those who churned with those who did not. It reveals some interesting patterns, such as churned

customers typically having shorter tenures, lower bandwidth usage, significantly higher monthly charges, and a greater likelihood of being on a month-to-month plan.

#### 4. Interactive Controls

- **Dashboard 1: Telecommunications Company – Churn by Zip Map:** The interactive filter "All/Yes/No Churn" allows users to view current customer distribution geographically. Selecting "All" shows the locations of all customers, while "Yes" and "No" filter to display only churned or active customers. This control is useful for identifying regions with high churn rates or understanding overall customer distribution.
- **Dashboard 3: Regional Map – Churn by Zip Search Bar:** The search bar enables users to look up churn rates by either ZIP code or state. This allows executives to quickly focus on specific regions, gaining insights into localized churn patterns for more targeted decision-making.
- These two maps with the interactive controls help all levels of the executive leadership but especially the Regional Vice Presidents giving them the ability to focus in on specific areas they are responsible for.

#### 5. Colorblindness

- To accommodate colorblind individuals, a condition affecting 1 in 12 males (8%) and 1 in 200 females (Wikipedia contributors), a colorblind-friendly palette was selected, primarily using red and blue. Additionally, a grayscale printout was utilized to ensure the colors were distinguishable for all users.

#### 6. Audience Analysis

- **Dashboard 1: Broad Overview**  
This dashboard provides a general overview suitable for all stakeholders, with a particular emphasis on the Executive Vice President (EVP) and broad demographic categorization.
- **Dashboard 2: Demographic Overview**  
Designed for the Senior Vice President for Customer Experience (SVP), this dashboard highlights key characteristics of customers, which are crucial for understanding customer behavior and improving engagement.
- **Dashboard 3: Regional Performance**  
Tailored for Regional Vice Presidents (Regional VPs) and the EVP, this dashboard focuses on regional performance metrics, including average monthly rate by state, churn ratio by state, and churn rate by zip code.
- **Dashboard 4: Regional Revenue**  
Created for the Regional VPs and the EVP, this dashboard displays regional revenue by state through both bar charts and maps, facilitating clear visual analysis.
- **Dashboard 5: Opportunities**  
Aimed at the EVP's broad needs, this dashboard assists in formulating recruitment strategies across the entire country market.

#### 7. Universal Access

- Although these dashboards were tailored to meet the specific needs of the executive team, they were designed to be easily accessible for all stakeholders, including other employees and departments. By employing color coding for grouping, using descriptive titles and clear chart labels, and ensuring a thoughtful use of color and layout, the dashboards are made user-friendly and intuitive for a broad audience.

#### 8. Two Elements of Effective Storytelling Implemented

- **Visual Presentation:** The data is shown with clear labels and effective color coding, making it easy to understand and visually engaging.

- **Storytelling Arc:** The presentation has a clear structure: it starts with the company's current situation, covers key metrics in the middle, and ends with growth opportunities. This flow helps the audience follow and engage with the story.

#### D. Sources

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