STRUCTURED PYRAMID ANALYSIS PLAN

Structured Pyramid Analysis Plan (SPAP) is a methodological approach to break down a desired analysis scope into measurable and realistic goals. It helps to simplify the process, effort and resources required to narrow down on each work action of the scope to achieve a desired vision.

SPAP thus forms a guiding framework to help us breakdown the required vision into the steps mentioned below in Fig. 1:
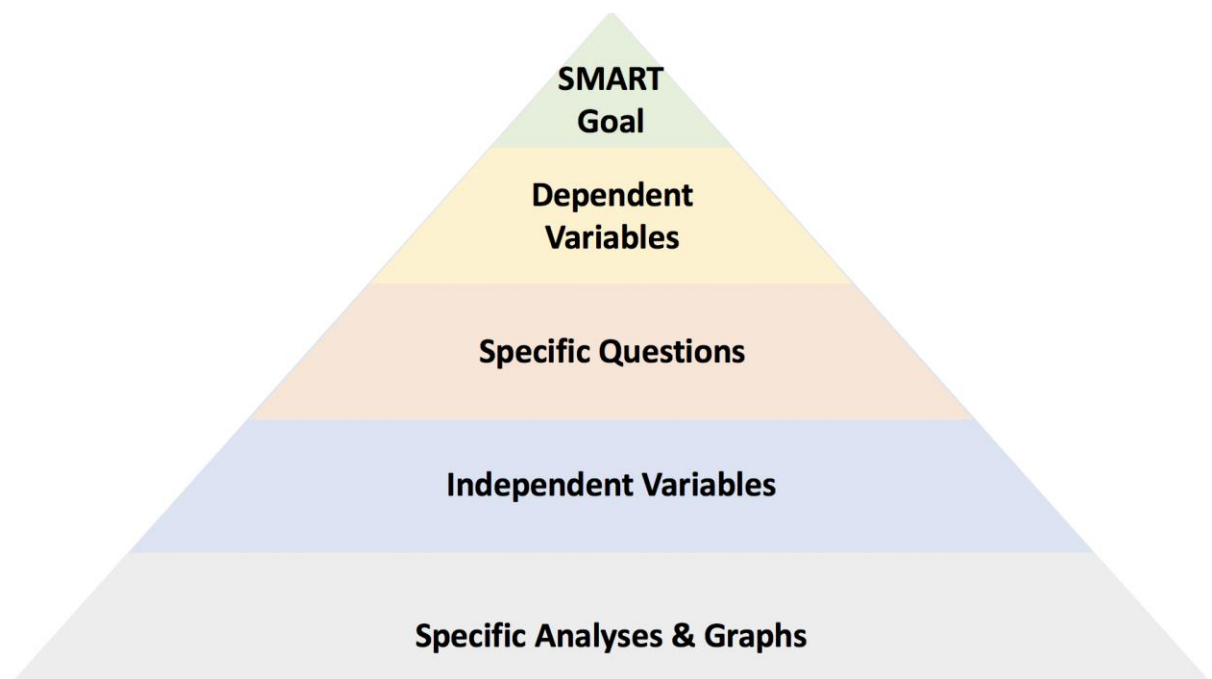

Fig. 1 – SPAP Mechanics

A Top-down approach is what best defines the mechanics of an SPAP analysis. Also known as stepwise design and in some cases used as a synonym of decomposition is essentially the breaking down of a system to gain insight into its compositional sub-systems in a reverse engineering fashion.

Top-down analysis generally refers to using comprehensive factors as a basis for decision making. It will seek to identify the big picture and all its components. These components will usually be the driving force for the end goal.

An analyst seeking a top-down perspective will want to look at how systematic factors are affecting an outcome. In corporate finance, this can mean understanding how big picture trends are affecting the entire industry. In budgeting, goal setting, and forecasting the same concept can also apply to understand and manage the macro factors.

SMART Goal:

This part of the analysis process assumes that a S.M.A.R.T. (Specific, Measurable, Attainable, Realistic, and Time-Bound) goal for the project has been identified. We have identified our goal as **'*What are the major factors affecting customer churn?*'**
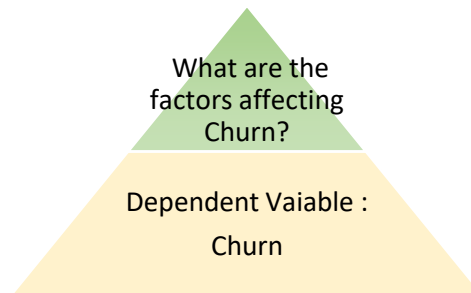

Fig. 2 – SMART Goal and DV

Dependent Variable:

Variable(s) that directly pertain to the accomplishment of the S.M.A.R.T. goal. To answer the raised question, we have assumed our dependent variable as <u>Churn</u> from our dataset.

1. What is Customer Churn?
- Customer churn is the percentage of customers that stopped using your company's product or service during a certain time frame.

Specific Questions to Investigate:

We are going with ideas and intuitions that will determine our SMART goals and ask about what parameters may impact the independent variables, which determine the impact on a dependent variable supposedly answering our question.

1. What is the effect of demographics on churn?
2. What kind of services causes customer to stay/leave?
3. Does billing and its related service affect churn?

These questions form a baseline for the direction in which the scope needs to be worked upon. In usual analytics brainstorming saying, **'Asking question and answering till you are creating knowledge',** leads us to the questions that bolster the process of finding the solution for the scope.
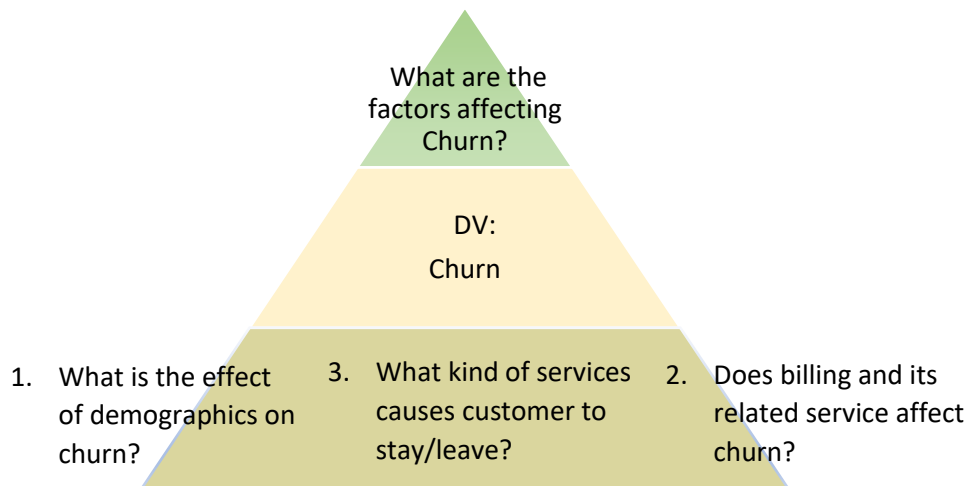
Fig. 3 Specific Questions to investigate

Independent Variables:

Variables that may help explain the possible connections in the questions, above, to the dependent variables are to be known as the Independent Variables.

1. Demographics:
    a. Gender
    b. Senior Citizen
    c. Partner
    d. Dependents
2. Services:
    a. Phone Service
    b. Multiple Lines
    c. Internet Service
    d. Online Security
    e. Online Backup
    f. Device Protection
    g. Tech Support
    h. Streaming TV
    i. Streaming Movies

3. Billing
    a. Paperless Billing
    b. Payment Method
    c. Monthly Charges
    d. Total Charges
    e. Tenure
    f. Contract

What are the factors affecting Churn?

DV:
Churn

1. What is the effect of demographics on churn?

2. What kind of services causes customer to stay/leave?

3. Does billing and its related service affect churn?

Gender?

Senior Citizen?

Partner?

Dependents?

Phone Service?

Multiple Lines?

Online Back up?

Device Protection?

Tech Support?

Streaming TV?

Streaming Movie?

Paperless Billing?

Tenure?

Contract?

Monthly Charges?

Total Charges?

Fig. 4 – Independent Variables

What are the
factors affecting
Churn?

DV:
Churn

1.What is the effect of
demographics on
churn?

2.What kind of services
causes customer to
stay/leave?

3.Does billing and its
related service affect
churn?

Gender?

Senior
Citizen?

Partner?

Dependents?

Phone
Service?

Multiple
Lines?

Online
Back up?

Device
Protection?

Tech
Support?

Streaming
Movie?

Streaming
TV?

Paperless
Billing?

Monthly
Charges?

Tenure?

Contract?

Total
Charges?

Bar Chart
On x-axis: Dependent
On y-axis: Count (Churn)

Bar Chart
On x-axis: Device Protection
On y-axis: Count (Churn)

Box Plot
On x-axis: Churn
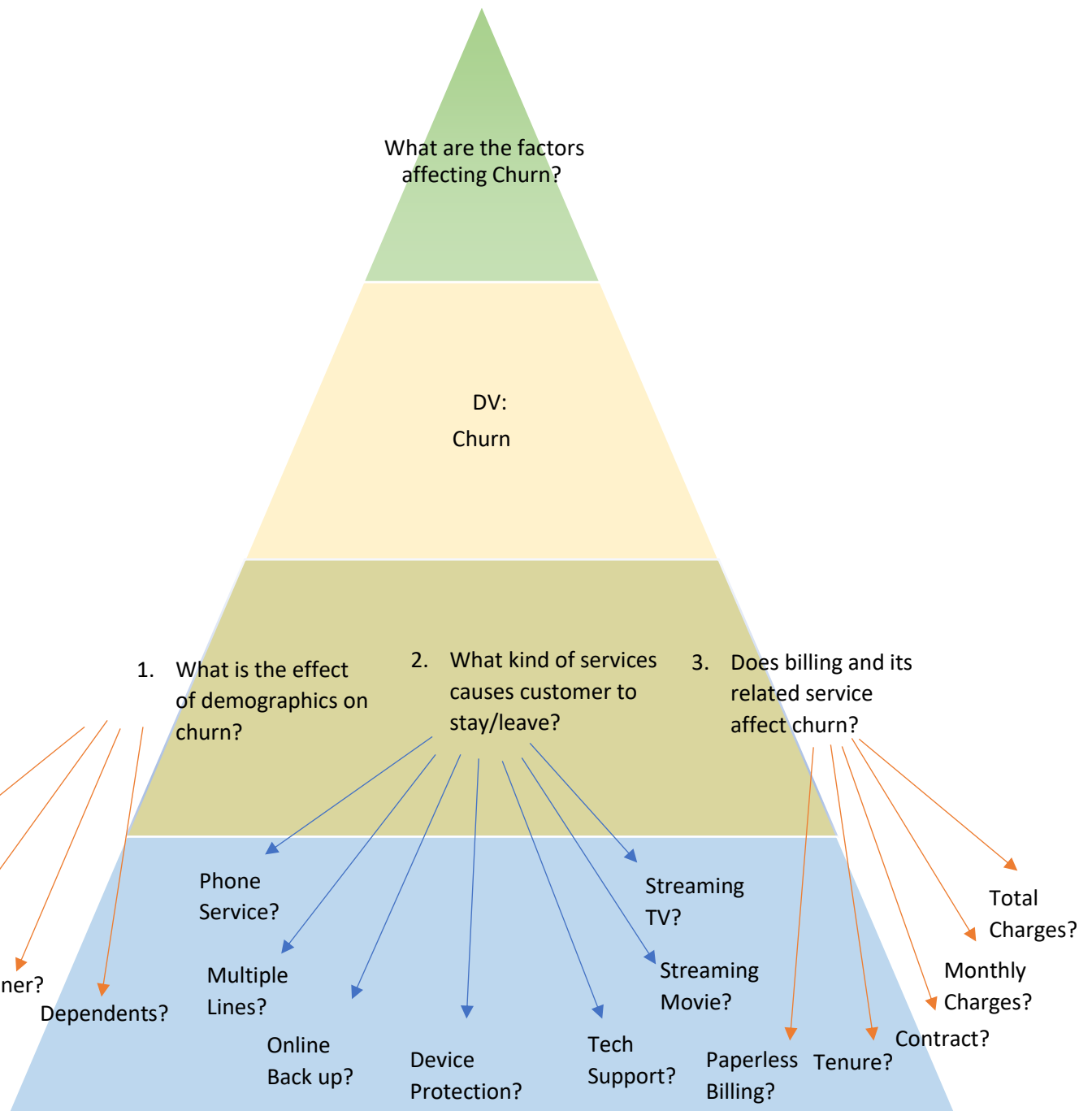On y-axis: Monthly Charges
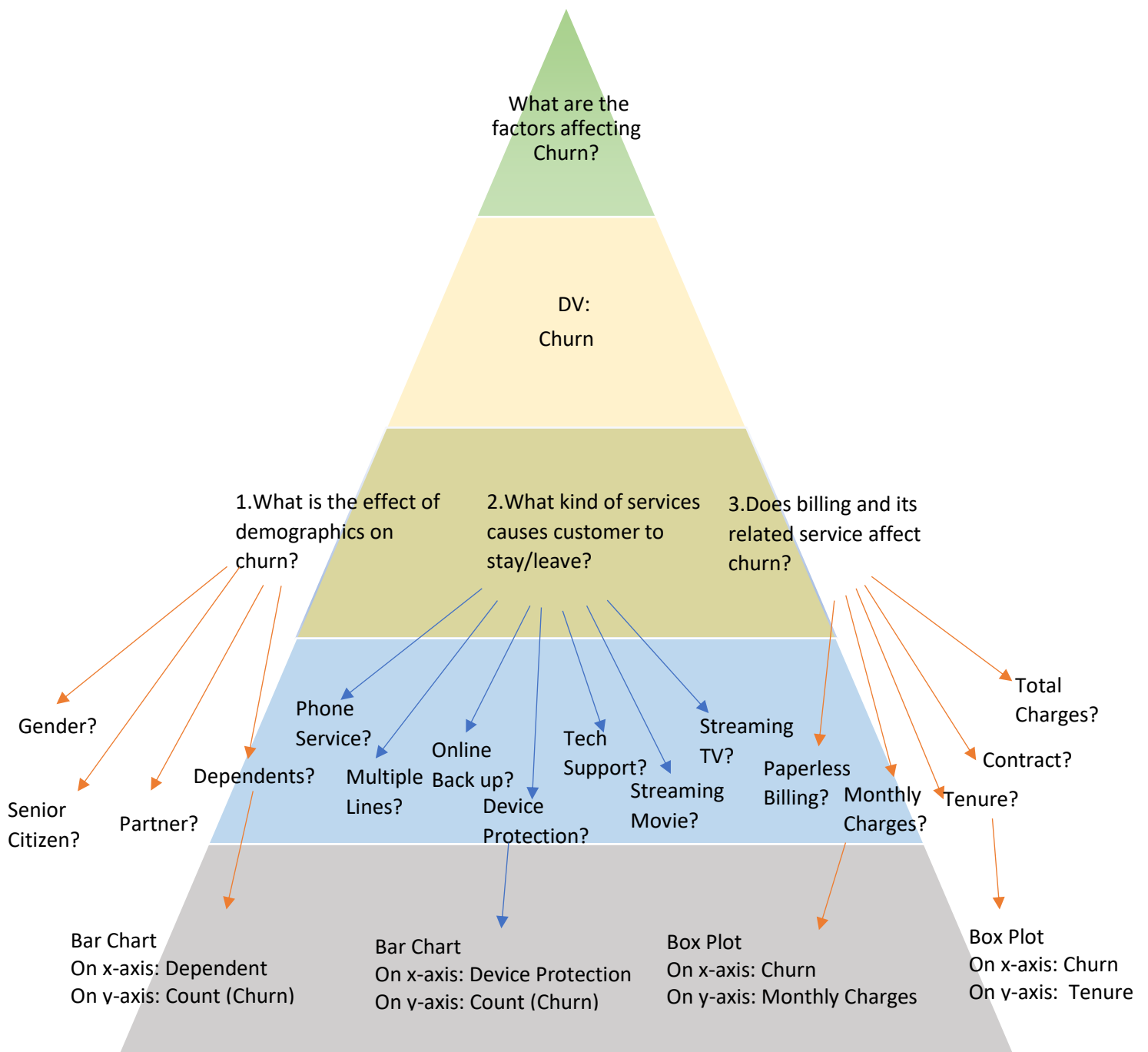
Box Plot
On x-axis: Churn
On y-axis: Tenure

Fig 5. SPAP for Telecom Customer Churn

Key Performance Indicators

Key Performance Indicators to measure success for the main question for our project are as follow:

1. Demographics
2. Services
3. Billing

Hypothesis

Main Question: What are the factors affecting Churn?

Hypothesis for the main question: We are trying to understand the effect on Key Performance Indicators of various independent variables and their relation with our dependent variable that will help us understand why customer stays/leaves i.e. customer churning.

Hypothesis for sub questions:

1. What is the effect of demographics on churn?
   - Being a senior citizen causes less churn.
   - Having no dependents leads to more churn.

2. What kind of services causes customer to stay/leave?
   - Having no tech support causes more customer to leave.
   - Churn is less in case of no internet service.

3. Does billing and its related service affect churn?
   - Customers with monthly subscription leads to more churn
   - The automatic credit card payment method causes less churn

Citations:

1. https://www.investopedia.com/articles/investing/030116/topdown-vs-bottomup.asp
2. www.wikipedia.com