

# **Improvisation of the Forecasting model for a new product launch by Pharmaceutical company**

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# Introduction

- Global Pharmaceutical industry is complex and is growing rapidly due to technological advancements in therapy.
- Oncology therapy is evolving, and the treatment regimes are getting complex due to spread across various lines of therapy and eligibility criteria.
- Developing a drug and running a clinical trial is lengthy and costly process. And the Performance of an asset will determine the future business of the company.
- Business Analytics helps analyse the existing and in line products and drives investment decision and strategic planning by top management.

- Forecasting is a methodology to forecast /predict future in terms of sales/ revenue based on various historical and current data.
- Research project was carried out at PharmaACE- a global pharmaceutical consulting firm, with purpose to understand the forecasting model and improvise it to achieve accurate result.

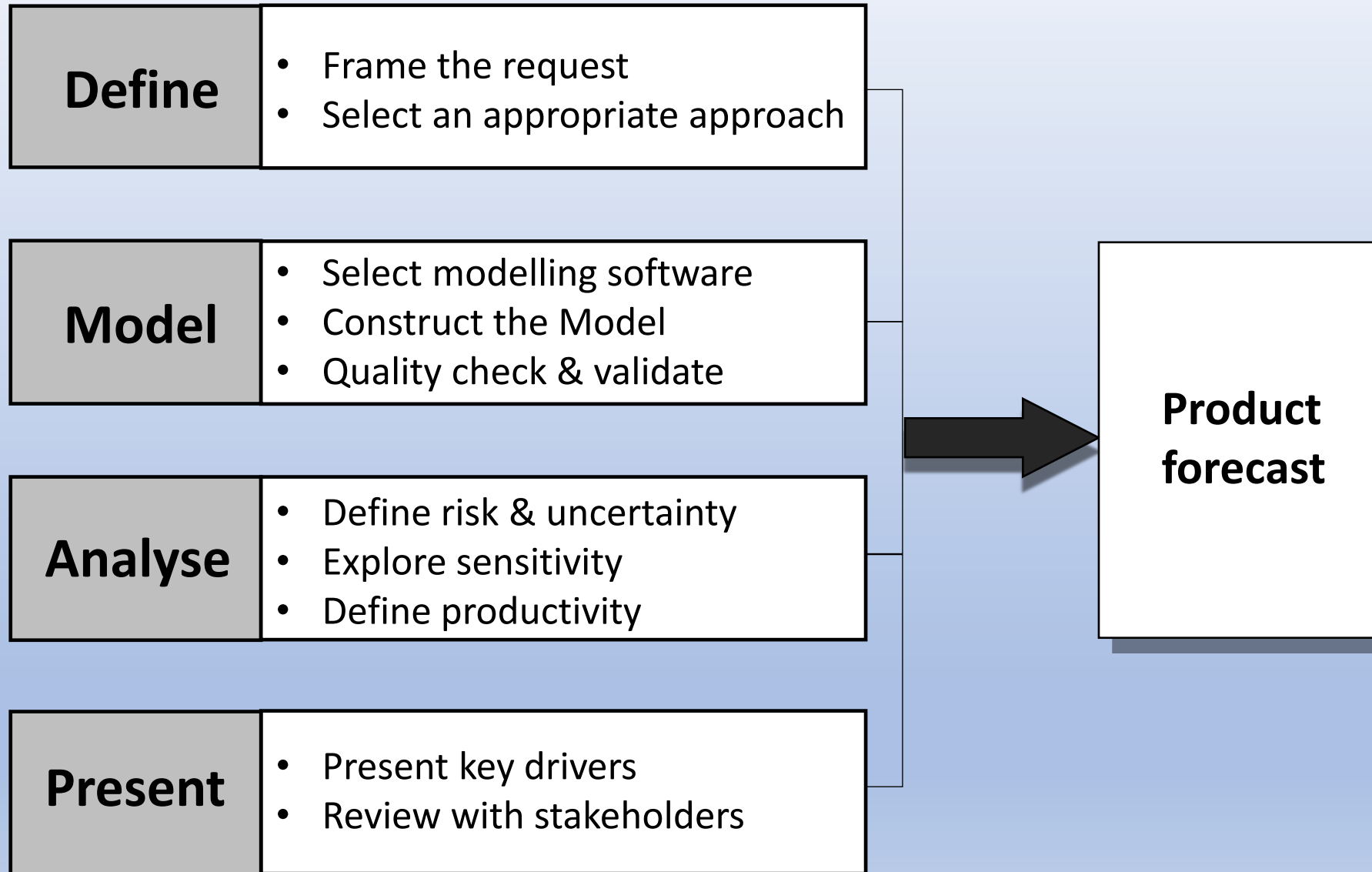
### **The Research Objective:**

- 1) To study the existing forecasting model to forecast the sales revenue for Product X .
- 2) To improvise the existing forecasting model to forecast sales revenue for Product X.

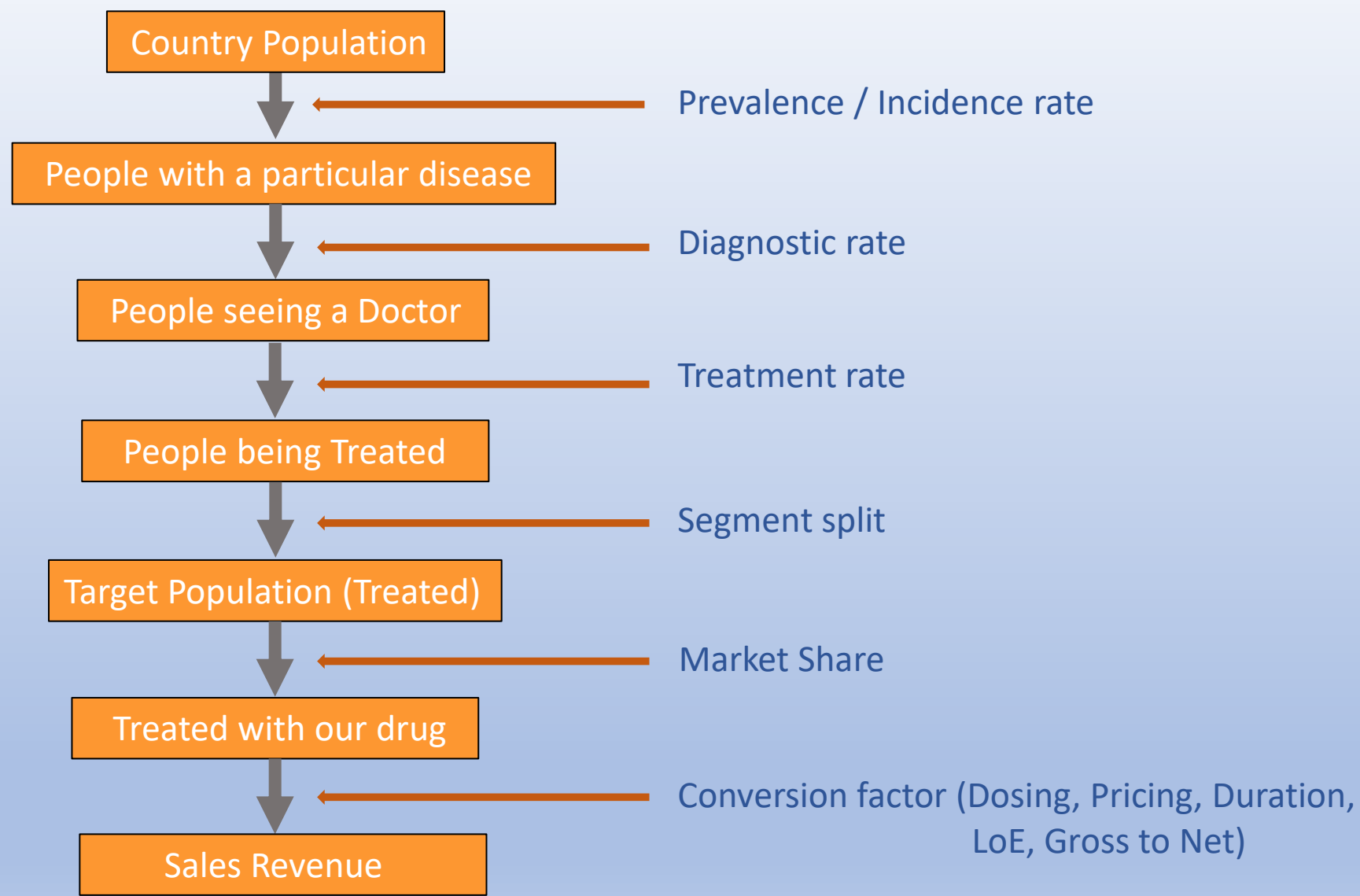
# Review of literature

| Study Title                                                                             | Author         | Year | Key Findings                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------|----------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| How to Choose the Right forecasting Technique                                           | Chambers et al | 1971 | Study explains the potential of forecasting to Managers, focusing special attention on sales of products as they mature through the product life cycle.                                                                                                                     |
| Navigating the Complexity of Forecasting Oncology Products                              | Bob Ramsey     | 2013 | Study states that the novel therapies in oncology and differences in oncology drug/ regimen adds to the difficulties of oncology product forecasting and can make it challenging to determine the most effective forecasting approach                                       |
| Examining the Applicability of Market Forecasting Models to New Pharmaceutical Products | Agarwal et al  | 2008 | Study states that developing new products is a complex and tricky business and to evaluate the performance of new products many models have been developed and tested. Certain unique characteristics of the market for pharma products renders the models to modification. |
| Forecasting for Pharmaceutical Industry                                                 | Arthur Cook    | 2006 | The Book gives us insights of the models for new product or In-line products and how to use them in forecasting. It describes the two different forecasting methodology and the framework used to evaluate product's forecast potential.                                    |

Figure 1. Process of Forecasting



**Figure 2. Shows a framework for Patient Based Forecasting.**



# Methodology

A] **Key Research Question**: How can the existing forecasting model be improvised to forecast the long-term revenue?

B] **Research Design**: The study design used to carry out this research project was Descriptive study, as it was a comprehensive summarization of the procedures and events that occurred and helped gain insights regarding the event.

C] **Study Setting**: PharmaACE Analytics LLP, Pune.

D] **Study Period**: February 3, 2020 to May 3, 2020

E] **Research Procedure**: For the study, analysis of currently used model was conducted, and shortcomings were enlisted. With the help of literature review and record review of the existing forecasting model new forecasting model was proposed.

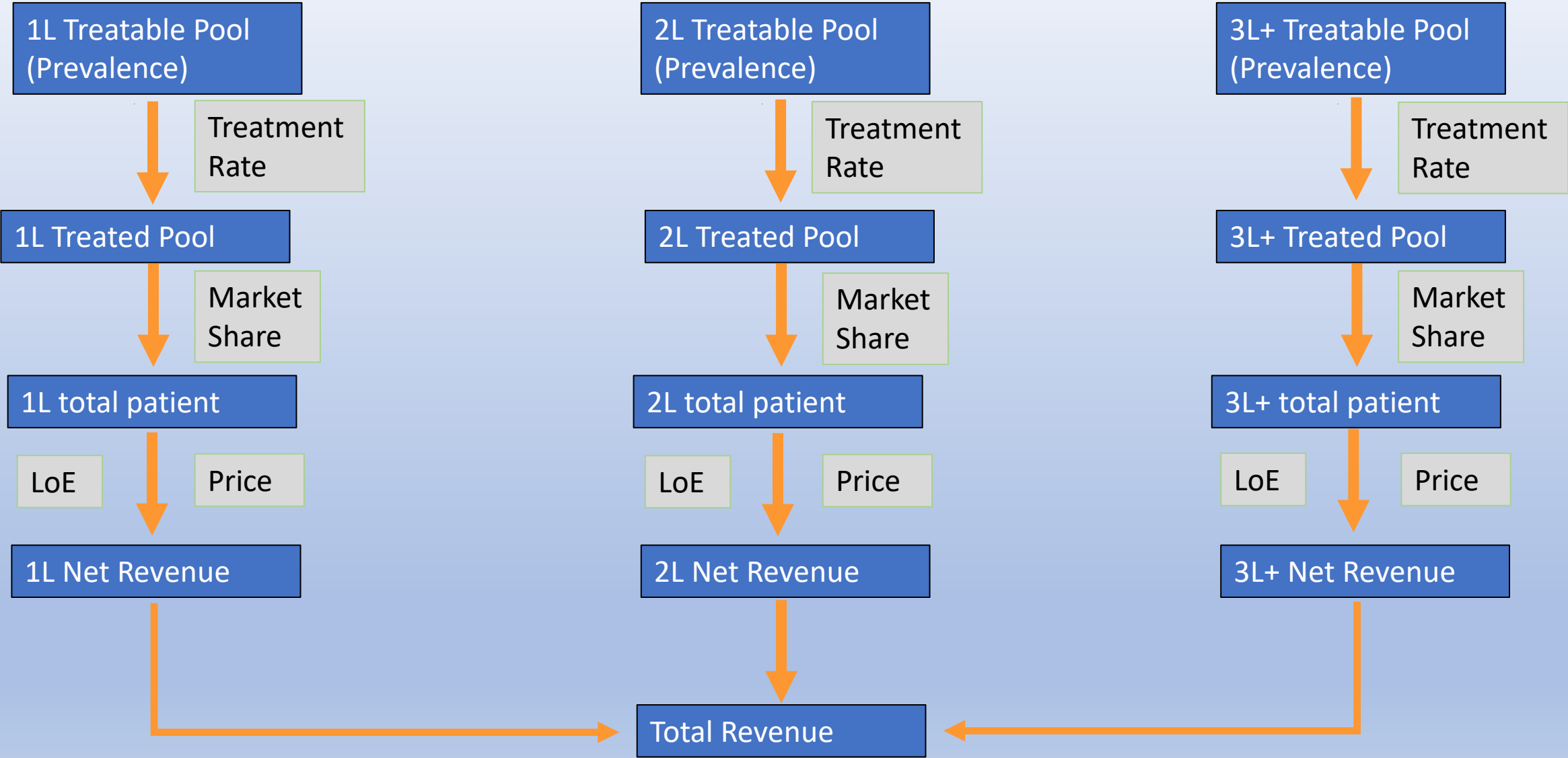
F] **Ethical Consideration**: All the required consents were taken, and all measures were ensured to main data security and confidentiality.



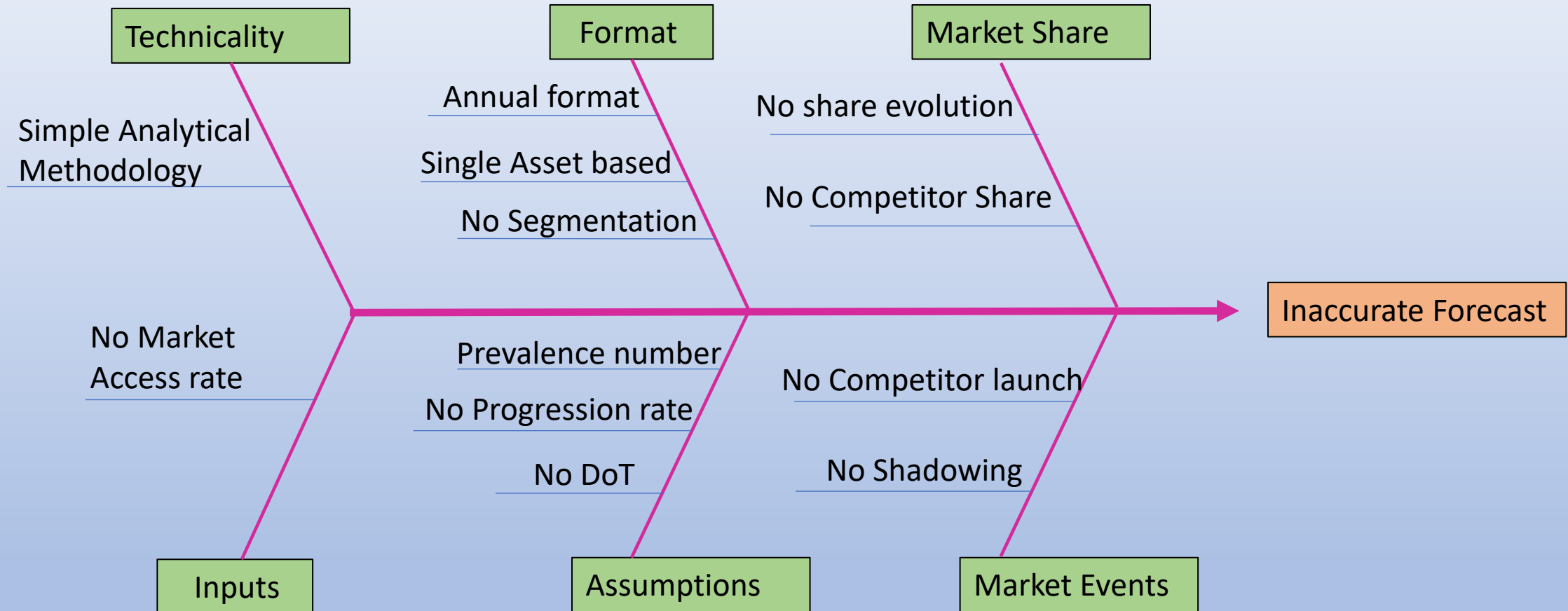
# Results

- i. The Pharmaceutical company currently uses a simple methodology to forecast revenue across three cancer indications. The Forecast Model is a VBA based excel file
- ii. The model is product specific and does not consider competitor products. Thus it does not capture the entire market.
- iii. The structure of the model is Annual, and Prevalence based. Prevalence number is used directly in various lines of therapy as treatable pool. They are funnelled to achieve treated pool by using treatment rate and market share cuts.
- iv. The treated pool is not segregated into segments and fails to use the concept of shadowing. The patients are not progressed into further lines of therapy.
- v. Revenue per line of therapy is calculated by applying the pricing and LoE on Treated numbers. It doesn't no consider the drop-outs across the duration of therapy.

# Existing Model flow –



## Fishbone diagram with reasons for Inaccurate Forecast



# Discussion

- ✓ Accurate forecasts could be achieved by use of a complex analytical methodology rather than simple.
- ✓ Models should be disease specific and asset specific. It should consider the competitors and be capable to forecast for the entire market. This will help us capture the effect of existing and pipeline products of competitors on the company's product.
- ✓ The current model is prevalence based and for a therapy as dynamic as oncology therapy, it is beneficial to have incidence-based model.

- ✓ The current model has an annual format and fails to capture the market growth in a year accurately. Monthly format will help to capture the share evolution and capture the monthly trends shown in incidence numbers.
- ✓ Since, this is a prevalent model the concept of Progressed patients is not applicable. The patient numbers i.e treatable pool are separately put in each line of therapy and not generated from the treated patient of previous line.
- ✓ The revenue is calculated by multiplying the conversion factors like market share, pricing and LoE (Loss of Exclusivity) to the prevalent numbers while in incident model we will apply these factors to incident numbers and then multiply by DoT to appreciate the drop-offs and thus achieve accurate numbers.

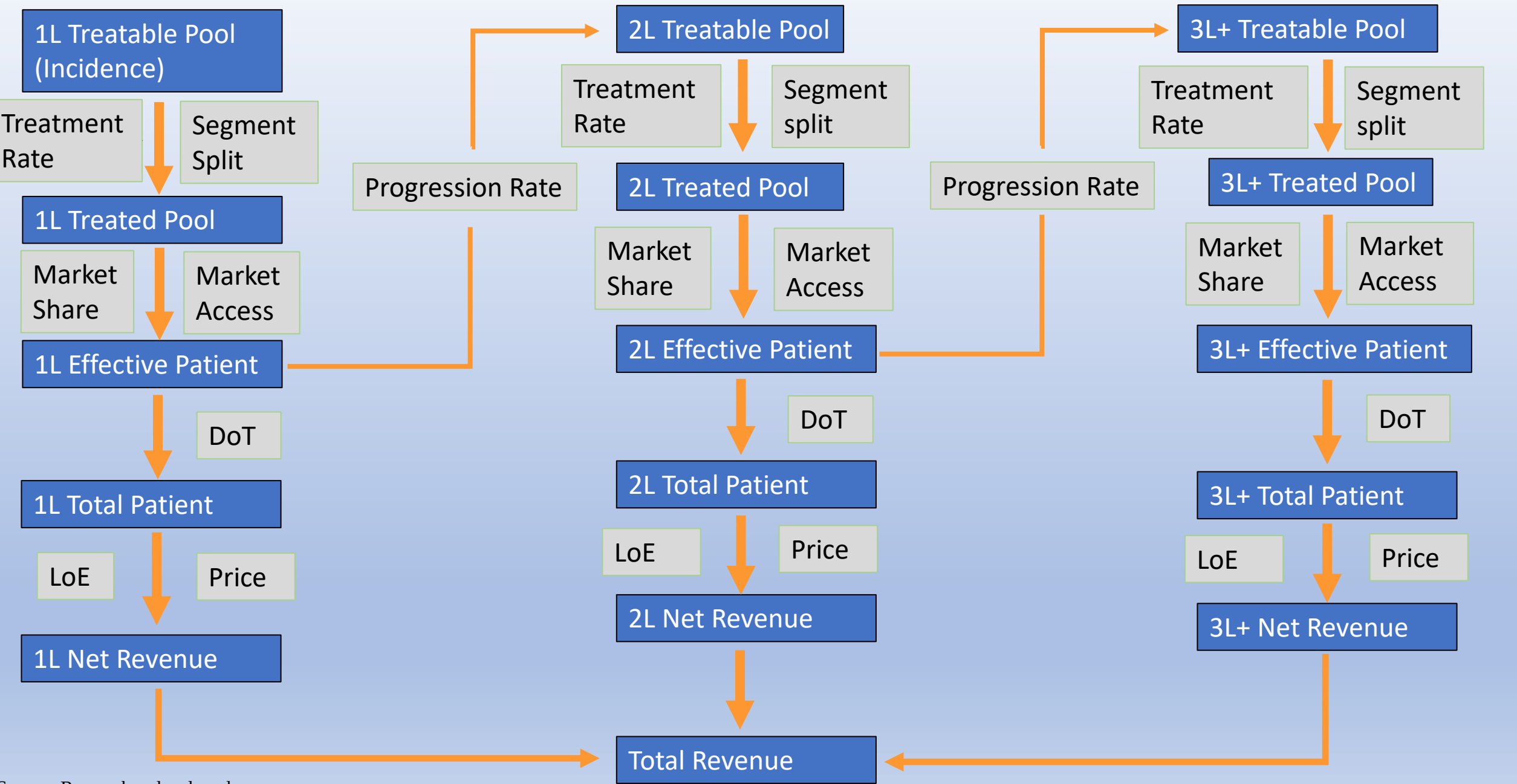
# Conclusion

- ❖ The pharmaceutical industry is growing rapidly due to advancements in therapy and one such therapy area is Oncology therapy
- ❖ Oncology therapy is one of the most complex therapy area with multiples lines of therapy and specific eligibility criteria
- ❖ Development and launch of a drug requires heavy investment and without a doubt, a company investing heavily on a product would like to see the performance of the drug/asset.
- ❖ At PharmaAce Analytics LLP, business analysis for a newly launched product was performed with the help of forecasting model. To achieve accurate results, the old model was analysed and improvised.
- ❖ The improvised model structure was recommended after thorough understanding of forecasting models with the help of literature review, record review and analysis of existing model.

# Recommendation

- The model should be a monthly Incidence based model and able to forecast for long term i.e. till 2040. The epidemiological numbers of 1<sup>st</sup> line will be considered as the treatable pool and be the base for further calculations. (see figure- New Model flow)
- The model will be disease specific and it will include all the competitor drugs and consider various regimes of therapy and accordingly have segmentation created. Thus, this model will help us evaluate the entire market.
- There will be separate calculation for share evolution to incorporate shadowing and launch of competitor drugs in pipeline.
- The 1L treatable patient will be multiplied by factors like treatment rate, segment split, market share to achieve 1L treated pool which will be multiplied by progression rate to achieve 2L treatable pool. The patient will similarly be flown across the various lines of therapy.
- The treated patients in each line is multiplied by conversion factor of DoT, LoE and pricing to dollarize them.

New Model Flow -



Source: Researcher developed.



# Bibliography

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*Thank you*