# MPS Pharmaceuticals Drug Planning Project

**Overview**

This project demonstrates advanced business analytics skills through a comprehensive analysis of the drug launch strategy for Sequacor by MPS Pharmaceuticals. The analysis covers demand forecasting, production capacity optimization, financial viability assessment, and strategic decision-making over a 20-year period.

**Key Components**

1. Demand Forecasting

- Objective: Predict Sequacor's demand over 20 years

- Methodology: Exponential smoothing based on historical data of Propalor

- Key Insight: Forecasted 7.5% higher demand compared to Propalor

2. Production Capacity Optimization

- Objective: Determine optimal annual production capacity

- Tools Used: Excel Solver, Scenario Analysis

- Key Finding: Optimal production capacity of 33,201 units annually

3. Financial Analysis

- Objective: Assess project viability under different discount rates

- Methods: NPV and IRR calculations at 5%, 7.5%, and 10% discount rates

- Recommendation: 7.5% discount rate for balanced risk-reward

4. Outsourcing vs. In-House Production Analysis

- Objective: Compare outsourcing and in-house manufacturing options

- Tools Used: NPV comparison, Excel Solver for cost negotiation

- Key Insight: Hybrid approach recommended, with negotiable outsourcing cost of £2.98 per unit

5. Project Management and Timeline

- Objective: Estimate facility construction timeline

- Method: PERT (Program Evaluation and Review Technique)

- Result: 227 days estimated completion time, 57% probability of meeting 40-week deadline

**Skills Demonstrated**

- Time Series Forecasting

- Linear Programming and Optimization

- Financial Modelling (NPV, IRR calculations)

- Sensitivity and Scenario Analysis

- Decision Analysis

- Project Management Techniques (PERT)

- Strategic Business Planning

**Key Findings and Recommendations**

1. Forecasted demand shows consistent year-over-year increase

2. Optimal production capacity balances efficiency and market demand

3. 7.5% discount rate recommended for financial planning

4. Hybrid approach of initial outsourcing with phased in-house production development

5. Phased production approach for scalability and risk management

6. Rigorous project management with 10-month timeline for facility establishment

**Tools and Technologies Used**

- Microsoft Excel (Advanced features: Solver, Scenario Manager, Data Tables)

- Exponential Smoothing for Forecasting

- PERT for Project Management

**Strategic Implications**

- The analysis provides a framework for informed decision-making in drug launch strategies

- Emphasizes the importance of balancing immediate market entry with long-term strategic advantages

- Highlights the need for flexibility and scalability in pharmaceutical production planning

This project showcases the application of advanced analytical techniques to a complex pharmaceutical business problem, demonstrating proficiency in data-driven decision-making, strategic analysis, and comprehensive business planning.