**Business Proposal for Optimizing Procurement Supply Chain Using Predictive and Prescriptive Analytics**

**Objective:**

The main objective is to optimize the procurement process of supply chain to reduce the costs , improving supply chain efficiency and enhance value creation by leveraging the predictive and prescriptive analytics using data driven approach helping in identify cost drivers , forecast the demand and provide actionable recommendation for decision making.

**Approach Proposed:**

1.**Data collection and Integration**

- Collaborating with cross functional teams such as ops , finance , procurement , IT to understand the current process in the segment and also check the data available or could be collected.

- Engage with SME’s to understand the critical metrics and also KPI’s in procurement process.

- Gather internal available data from ERP systems, inventory logs , financial systems procurement records.

- collect external data that might be needed for analysis , like supplier performance metrics , market trends , geopolitical factors , product pricing and seasonality.

**2. Data Preprocessing and Exploration.**

- Perform data cleaning to get the right data needed for analysis and modelling.

- standardise the data so that it ensures seamless integration.

- Conduct EDA to get explore the data and find trends or anomalies in data.

**3. Predictive Analytics.**

- Use ML models , Time series analysis or other model based on testing which would work based on experimentation.

- Predict the performance of suppliers or other found out risk factors that could be improved

- analyse the price fluctuations of materials using global market trend analysis etc

**4. Prescriptive Analytics**

- using optimization algo to determine the best strategies , supplier , combinations and teams that work the best.

- simulate different scenarios to evaluate the different procurement strategies.

**5. Collaborate and Experimentation.**

- Partner with procurement/supply chain teams to validate the results and refine models through real world scenarios.

- Conduct experiments on smaller procurement categories to measure the effectiveness of proposed strategies.

- gather feedback to enhance the model.

**6. Deployment and monitoring**

- Integrate the analytics solutions into pre-existing systems or dashboards for real time monitoring that helps decision making.

- set up continuous review mechanisms to ensure continuous improvement

- provide training to teams to leverage the tool.

**Benefits:**

1. **Cost reduction :** Minimized procurement costs through optimized sourcing and inventory management strategies.

2. **Improve efficiency :** reduce timelines , enhance supplier collaboration , streamline processes

3. **Risk reduction:** Proactive identification and resolution of supplier or market risks.

4. **Data driven decisions:** provide clear dashboards to teams reduce intuition and enabling faster informed choices.

5. **Value creation :** strategic decision making aligned with business goals , resulting in long term value creation.

**Teams Involved:**

**1.Procurement Team**: to provide insights into supplier relationships and procurement workflows.

**2.Operations Team:** to understand inventory and logistics constraints.

**3.Finance Team:** to align cost objectives with broader business goals.

**4.IT/Data Team:** to ensure seamless data integration and system compatibility.

**5.SMEs:** to provide expertise on industry trends and best practices.

Flow Chart:

Data Collection

Continuous Improvement

Deployment & Monitoring

Pilot Experimentation

Data Preprocessing

Predictive Modeling

Prescriptive Analytics

**Timeline:**

**Phase 1: Planning and Initial Setup (Weeks 1–2)**

* Conduct stakeholder meetings to identify objectives, data sources, and KPIs.
* Assemble the project team, including SMEs and data analysts.
* Set up tools and systems for data collection and analysis.

**Phase 2: Data Collection and Exploration (Weeks 3–5)**

* Gather internal and external data from identified sources.
* Clean and preprocess the data.
* Perform exploratory data analysis to identify patterns and insights.

**Phase 3: Predictive Model Development (Weeks 6–8)**

* Build predictive models to forecast demand, supplier performance, and price trends.
* Validate models using historical data and adjust parameters as needed.

**Phase 4: Prescriptive Analytics and Optimization (Weeks 9–11)**

* Develop optimization models to recommend procurement strategies.
* Test “what-if” scenarios to validate decision-making frameworks.

**Phase 5: Pilot Experimentation (Weeks 12–13)**

* Apply predictive and prescriptive models to a smaller subset of procurement categories.
* Measure the impact of recommended strategies on costs and efficiency.

**Phase 6: Deployment and Training (Weeks 14–16)**

* Integrate analytics tools into existing procurement systems.
* Train the procurement team to use dashboards and interpret results.

**Phase 7: Monitoring and Continuous Improvement (Ongoing)**

* Establish regular monitoring mechanisms to track model performance.
* Gather feedback and refine models for sustained value creation.