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Google Cloud

SPECIALIZATION

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Data & Analytics

2019

ADAPTIVE SUPPLY EXCESS AND SHORTAGE EXCESS MANAGEMENT WITH ML

CONTENT

COVID-19 IMPACT

COVID-10 has impacted global supply chains in an exponential way. As a result, the movement of goods, purchases, demand, and supply processes have been disrupted. Given these unique circumstances, the changes to supply and demand are dependent on many different factors.

A report on COVID-19 by McKinsey states that business leaders should consider the following indicators

- Depth of Disruption - time to implement social distancing, cuts in spending on durable goods, extent of behavior shift, extent of travel reduction
- Length of Disruption - late payments/ defaults, stock market volatility, purchasing management index, unemployment claims
- Shape of Recovery - bounce back in economic activities, private and public sector actions to ensure restart

Additionally, government lockdowns, unemployment rates, and the categorization of essential and non-essential goods are major determinants of current demand and supply planning. As factors and priorities shift, demand changes drastically and often, representing a complex challenge for anyone that is managing a large volume of supplies. Thanks to the current market landscape, many enterprises are dealing with inventory excess and shortages.

Subsequently, businesses are now considering flexibility and adaptability among their top priorities.

MANAGING EXCESSES AND SHORTAGES OF INVENTORY: SUPPLY PLANNER'S PAIN POINTS
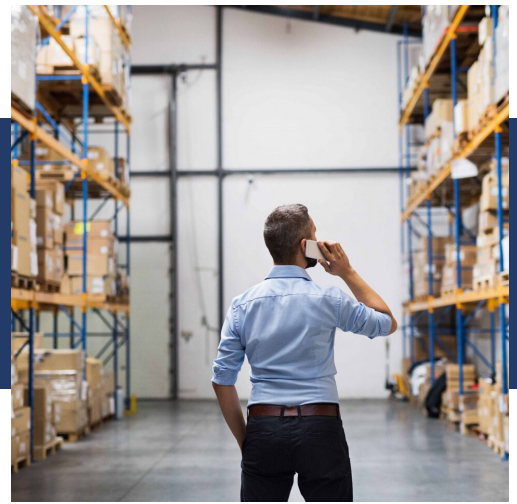
For decades supply chain professionals have managed the supply planning process by running a rule-based system or in many cases, have used manual techniques to manage supply planning.

Due to the impact of COVID-19, the frequency, volume, and accuracy of the decisions that supply chain leaders have to make are increasing exponentially.

Many businesses are facing the "Bullwhip effect" where their inventory swings much higher in response to the rapid changes in demand.

As the demand curve adapts to the COVID-19 disruptions, the supply curve in a given part of the world must adapt faster than ever before.

The job of a supply planner turns into a very difficult one while they are navigating this unprecedented situation and working to mitigate the supply excess or shortage. At times, the business leaders who are focused on driving profitability and maintaining customer satisfaction create different service level agreements (SLA) or

Key Performance Indicators (KPIs) that need to be met by the team.

Unfortunately, this situation pushes supply planners to overstock or understock inventory in anticipation of the next wave of demand, which can be difficult to predict.

In addition, the labor shortages we are currently facing adds to the complexity of the situation. All of these factors can affect the supply plan of your organization.

The reality is that manufacturers and suppliers do not get the full picture of the crisis until it has hit them. Pluto7 has the business and technical expertise to ignite supply chain transformation across your enterprise enabling the flexibility and adaptability you need.

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FIVE WAYS TO IMPROVE SUPPLY PLANNING

- **Centralize supply related data:**

Centralizing and analyzing collectively all your supply chain data allows management to gain deeper insights and a better understanding of the entire supply chain network. Third party data like weather, geographical-based COVID-19 statistics, and industry specific trends should be considered when centralizing all relevant data.

Aggregating your data in one single place can immediately help your supply planners manage excess and shortages better. Enabling this data strategy will remove inaccurate data from the equation.Many businesses are leveraging Google Cloud and BigQuery to manage the process of analyzing the different data formats, helping supply planners understand multiple variables as well as make well-informed, data-driven decisions.

Pluto7 has developed a series of supply chain Machine Learning solutions that can both improve your demand forecast accuracy by 10%+ and reduce your inventory carry over costs up to 50%.

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- **Enabling a digital twin for data-driven decision making:**

Supply planners make many decisions especially in uncertain times with rapidly changing scenarios. Many companies are facing the constraints of limited time and bandwidth. If supply planners have a digital twin in the form of an AI/ML model to give recommendations and assist in carrying out decisions, they can focus less on analyzing and spend more time implementing strategic initiatives.

Enabling chatbots linked to historical data has helped planners find accurate information quickly and effectively. On average, 35% of supply planner's time in large enterprises is lost searching for information.

- **Continuous Planning**

Planning is largely done at a specific point in time -- like the beginning of the week or the month. Planning has been like this for a long time and it is usually due to the human limitations of managing technology and aligning these new processes with the plan. Continuous planning is implemented when ML models run frequently and continuously adapt, analyzing new incoming data.

These algorithms can provide up to date supply recommendations, leveraging new learnings and information. Supply planners have the tendency to build biases based on what their experience has shown. In disruptions, such as the one caused by COVID-19, unprecedented demand fluctuations give planners limited comparison points for reference.

Therefore, leveraging technology optimally allows your team to move and adapt faster. If your on time shipping (OTS) is at 95%, machine learning can boost it to 98%, improving your KPIs benchmark.

- **Have your digital eyes and ears everywhere**

Let cameras, IoT devices, and sensors capture new information to define your supply constraints in real time. It is highly recommended to store that information in a central location such as Google Cloud. Supply planners today can have access to relevant information and deeper insights when AI technologies are enabled at different levels. . Unleashing the power of your supply chain data will not only unlock new business insights, but also reduce decision time and cost significantly.

- **Align process and people**

When introducing a new technology like Cloud, ML/AI, and IoT, it is key to ensure that there is an appropriate change management strategy in place. To effectively manage change, we recommend positioning the new technology as an enabler instead of a threat. Humans have an amazing ability to adapt when introduced to new capabilities that are aligned with their job role, metrics, and incentives.

Creating awareness is the first step towards adoption of any type of change. Moreover, it is important to align your technology, processes, and people to get the most out of your investment.

THE FUTURE OF SUPPLY PLANNING

When it comes to supply chain transformation, it is more important to be agile than to have a pre-planned scenario for supply planning. With COVID-19, scenarios are changing frequently which means plans also need to change frequently.

With the ability to access information automatically in the form of audio, video, text, structured, and unstructured data in the cloud, supply planners can access data driven insights.

The future of supply planning and execution will rely on deeper insights and recommendations from AI with near real time visualizations dashboards. Making better decisions especially during uncertain times is crucial for supply chain success. "IoT" and "Enterprise Search" will become an integral aspect of the supply chain planning as businesses become more proactive and less reactive during current and future crises.

Understanding the state of your enterprise, including the supply position at every node in the supply chain, is key to driving a supply chain transformation aligned with your demand variations.

Supply planners should be empowered instead of overwhelmed when making supply decisions. Rule-based business planning systems cannot scale while data-driven cloud systems enable scalability and growth. Identifying data patterns and allowing AI to make faster and more accurate decisions allows you to scale your business without rule based systems holding you back.

Additionally, defining the roles of a demand and supply planner with the adoption of the "Digital Twin" in the form of an AI system, enables planners to adapt to crisis rather than react to crisis. With AI your planners can select suppliers that are not at risk and plan delivery times and shipments during COVID-19 shutdowns.

Pluto7 has launched Supply ML, a solution that addresses these supply challenges. This AI-driven solution augments your existing systems capabilities to improve your planning with a pay-as-you-go model. For more details please reach out to marketing@pluto7.com