



Demand Disruption Checklist



RESTORE

The COVID-19 pandemic has quickly disrupted business operations by impacting resources in a complex, interconnected way. From suppliers to transportation and including huge spikes and deep declines in demand, there are varying degrees of disruption in virtually all industries.

When a highly disruptive event like this occurs, historical data can be insufficient - even irrelevant - for modeling future demand to make accurate forecasting, resource allocation and capacity planning decisions. The consequences of this temporal break are far-reaching. Time series forecasting methods, a mainstay of the demand forecaster's toolkit, may no longer be viably predictive, as they rely on the assumption that the past is indicative of the future. Today's circumstances glaringly highlight that the future is unlike the past, which means organizations need to rethink their approach to predicting demand.

While it is impossible to have predicted all of the COVID-19 crisis impacts, maintaining and adapting operations to fast-changing events is complicated but possible. This checklist offers a path to restore operations and meet customer demand in the near-term. It also lays a foundation for an evolved demand analysis capability to inform integrated forecasting, supply chain and strategic planning decisions across the enterprise.

For more information about any of LLamasoft's COVID-19 Response Center Solutions visit:

<https://llamasoft.com/covid-19-response-center/>

Near-term

1 KNOW YOUR CONSUMER

- ✓ Collect POS or granular end consumer buying data from the commercial team or customer.
- ✓ Segment demand data by country, state, region and 3-digit zips to unveil timing and magnitude of COVID-19 impact.
- ✓ Analyze and compare regional demand data with COVID-19 virus trajectories to gain insight into consumer response to the pandemic.
- ✓ Monitor changes weekly and even daily to identify short-term vs long-term behavior changes as customer behavior tends to shift very quickly during this crisis.

2 SEGMENT AND PRIORITIZE BY PRODUCT

- ✓ Segment products by sales volume and COVID-19 impact both positive and negative. Leverage AI-powered pattern recognition for more accurate segmentation based on consumption patterns.
- ✓ Prioritize time by focusing on high-value products with highest volatility and use machine learning algorithms to automate forecasting for remaining products.

3 REFRESH FORECASTS AND PLANS FREQUENTLY

- ✓ Refresh the forecast as new data becomes available. It helps to quickly sense changes and adjust plans accordingly.
- ✓ Review and analyze changes in the forecast over time.
- ✓ Apply business judgment to adjust the forecast when necessary. Document and journal any change and assumption for retrospective analysis in the future.

4 COLLABORATE ACROSS FUNCTIONAL TEAMS

- ✓ Set up a war room to collaborate internally across demand, supply chain, commercial, marketing and other departments to quickly adjust plans based on the most recent forecast. Create a direct communication line between demand and supply chain teams.
- ✓ Collaborate externally with customers and suppliers to be informed about their risks and challenges and the impacts to plans and operations.
- ✓ Drive consensus and take action quickly while considering the mid- and long-term implication of decisions.

Mid-term

5 INCORPORATE INTERNAL AND EXTERNAL CAUSAL DATA TO IMPROVE FORECAST

- ✓ Augment historical demand with internal data such as trade inventory, promotions, product attributes and external data including COVID-19 virus trajectories, school closures, lockdown periods, internet searches and macroeconomic indicators by region.
- ✓ Leverage machine learning and deep learning algorithms that apply advanced forecasting techniques, substitution analysis, stock-out indicators and hierarchical learning to get a deeper understanding of demand shifts by measuring change points.

6 EVALUATE MULTIPLE SCENARIOS

- ✓ Proactively run what-if scenarios and inform contingency plans. Amid this crisis, scenarios are a crucial supplement to point forecasts that enable navigation through the potential impact of unavoidable short and mid-term changes.
- ✓ Use analogous examples from regions that are ahead of the infection curve and publicly available COVID-19 virus trajectories to build realistic scenarios.
- ✓ Use new information to identify weak links and high-risk areas and build scenarios to increase supply chain resilience.

7 UTILIZE INVENTORY MORE EFFICIENTLY

- ✓ Use granular forecasts to balance inventory in the network by considering inventory across all warehouses and the latest view of customer demand.
- ✓ Frequently correct the forecast and inventory imbalances between the inbound and outbound sides of the supply chain.

Long-term

8 BEWARE OF EXTENDED IMPACTS

- ✓ Expect that as markets and supply chains recover from this crisis, there will be long-term impacts to consumer demand such as brand loyalty, channel preference and product substitutions.
- ✓ Understand that forecasting systems that use univariate algorithms such as exponential smoothing and ARIMA will not be able to accurately capture trend and seasonality due to the noise.

9 BE PREPARED FOR FUTURE DISRUPTION

- ✓ Use this crisis as a learning opportunity to advance and evolve the demand forecasting process. Although many call this pandemic a black swan, future demand disruptions are inevitable.
- ✓ Equip the business with a robust demand forecasting technology that leverages market sensing, internal and external data and advanced algorithms to support what-if scenario analysis.
- ✓ Start building various scenarios and plan and document a playbook for each of those. This enables you to reduce the time to react when the next disruption hits.

ADAPT and EVOLVE

COVID-19 has forever changed how companies navigate to understand, manage and predict demand so they can deliver on their commitments. Utilizing the best combination of data, technology, people and processes will define those that most successfully adapt and evolve.

LLamasoft delivers enterprise demand modeling capabilities that include advanced AI self-learning capabilities to uncover patterns, quantify external factors and rapidly model what-if scenarios. Our customers have gained science-backed insights to analyze, predict and plan for customer demand across short- to long-term horizons, helping make more informed supply chain, operations, product, promotion and pricing decisions.