

Identifying Unknown Risks in Your Supply Chain

The advantage of AnyLogistix is that it allows for you to run a risk assessment on your supply chain.

The example illustrates how to identify the issues and impact upon an event occurring. This way you can prioritize and manage risk successfully and at the same time provide visibility to see how your supply chain will perform to quickly address issues effectively and efficiently. (Webinar is also available for further explanation)

Business Challenge Summary

We consider a Supply Chain distributor of Smart phones supplying over 200 customers (retail, distributors, etc.). Located in the largest cities in the US. Majority currently are exported from Shanghai, China due their low production cost. As the China border is days away from closing (March 1) due the outbreak, the need to understand the risk is strategically important on how they will be dealing with this scenario. Will their backup factories in South Korea and Vietnam handle the current large demand volumes? If not, we would need to understand the impacts across all areas of the business from locations, suppliers, customers, smart phone models, and their components to identify what we can do today.

General Questions to expect in an event:

- Do we have anything to worry about?
- Will we run out of smartphones?
- Which models, when and how many?
- If several How should we prioritize?
- What's the revenue impact?
- Will our backup factories keep up (Do they have the production rates to meet the demand)?
- Are there any raw material shortages that prevents our factories to produce any of our smartphones?
- Will any raw materials from China impact any of our backup factories due to the border closing?
- Should we look for other potential suppliers to provide the specific components?
- Should we locate smartphone availability in the market to fulfill the demand of our customers?
- Is it worth switching to a new supplier?

Supply Chain design specs:

- China produces and exports all 3 brands (A, B, C) smartphones including the five models.
- Vietnam is backup source producer of 2 brands (A and C) smartphones and includes three models.
- South Korea is backup source producer of 1 brand (B) smartphones and includes 2 models.
- Brand A produces smartphone A1 and A2
- Brand B produces smartphone B1 and B2
- Brand C produces smartphone C1
- Each country has their own import and export location
- US has demand is from 200 of the largest cities

Specifications

- Demand is distributed by popularity order (Highest to lowest: A1, A2, B1, B2, C1)

Goal

Analyze to Identify issues, understand impact, and come up with solutions.

Result and Procedures

Run a Risk Analysis – Initial Run

Looking at our service level we can immediately see an impact on smartphone A1 and B1 as they fall below the 93% service level. Smartphone A1 slowly dwindles after 2 months and Smartphone B1 shows an immediate impact the moment the borders close (~60-day mark). Both are the top model of each brand.

How financially significant is this issue?

Revenue graph line shows a Smartphone plateau in revenue.

- Smartphone A1 - ~\$600 M impact loss of revenue
- Smartphone B1 - ~\$150 M impact loss of revenue
- Meaning if I need to prioritize it would be the Smartphone A1.

Run a Simulation – Initial Run

View the Available Inventory including backlog to identify demand shortcomings (backlogs)

1. Smartphone B1 – South Korea Factory B

- There is a backlog on the Smartphone B1 at the South Korea Factory B
- There is a backlog on the Microprocessor CMP at the South Korea Factory B (looking at our BOM we can easily address as the missing component of the Smartphone B1)
- Go to Master planning section, Product Flow table we can tell there is no CMP components coming into to the South Korean factory (Filter CMP in product).
- Navigate to the sourcing table to look for the CMP component to see if there is any non-active supplier that can provide it.
 - (Filter in the columns) sources: supplier and product: CMP
 - No non-active supplier in our organization

Since the CMP microprocessor is only sourced from China and there is no active or non-active supplier available to quickly resolve the issue internally the solution needs to externally.

2. Smartphone A1 – Vietnam Factory A Haiphong

- Back to Simulation go to the inventory including backlog
 - There was backlog on the smartphone A1 at Vietnam factory A, meaning it couldn't produce as fast enough product to fulfill

In conclusion, we understand the issue; we have the smartphone A1 with a Vietnam factory production issue and the smartphone B1 with a CMD (Microprocessor) component sourcing issue to solve.

Continued Storyline South Korean Supplier Found:

Let's say that our Sourcing department searches their list of suppliers for the missing microprocessor CMD to find out that they found a suitable supplier in South Korea. Due to the quick visibility their sourcing team was able to find a potential supplier substitute in South Korea. Immediately they contact to find out that they can supply their demand beating potentially many other competitors to the punchline. They can start shipping up reaching an agreement.

Let's find out what the impact would be? Should we use them?

Procedures

- Include South Korean Seoul Supplier 1B in supplier table

- *Add new South Korea Seoul Supplier 1B to the sourcing table*
 - *Filter Delivery Destination “South Korea Factory B” and Sources “South Korea Port of Busan” and product “CMP”.*
 - *Add additional South Korean Seoul 1B Supplier (Keep South Korea Port of Busan as an additional source)*
 - *Set Type from First (Fixed Source) to Cheapest (Dynamic Source)*

Run a Risk Analysis – Supplier

Look at our target service level for the smartphone B1 we show at a 100%.

Revenue graph shows no impact within the 60-120 days as well (Consistent and steady revenue growth).

This has solved our immediate issue but not our major issue with our Smartphone A1.

Continued Storyline Mexico Warehouse with inventory found:

There is news that the sourcing team has learned that a distributor in Mexico has a large supply of the smartphone A1 about 40K units. They are willing to sell it to us at a higher price of \$400 per unit at an initial batch size of 5K with increments of 2,500 units.

Is it worth it?

How much product and for how long will it cover us?

Should we do it?

Procedures

- *Include Warehouse in the DC and factories (Include) – Make sure it’s set as initially closed*
- *Activate Site State Changes for Warehouse (Active in 2nd month and deactivate in 7th month)*
- *Go to Sourcing Table and add Mexico WH to the sources column (Follow steps)*
 - *Go to available existing sourcing from (Filter) Source: Port Long Beach to (Filter) destination: DC CA*
 - *Add Mexico WH to sources column and keep the Port Long Beach source*
 - *Change from First (Fixed Source) to Cheapest (Dynamic Source)*
- *Add Sales batch for Mexico WH for smartphone A1 at exact batch size of 5K with step size of 2,500k with \$400 price*
- *Include Inventory at Mexico Warehouse of initial stock of 40K units*
- *Increase inventory at DC CA for smartphone A1 from s=9250 S=18500 with initial stock of 9K to s=10k S=20K, initial stock 10k*

Run a Risk Analysis – Provider

Look at our service level we were able to maintain a higher service level than before and barely went below the 90% mark.

Our profit did show an increase from 967 Million to 1 billion exactly (33 Million). It didn’t completely resolve the issue but helped reduce the risk, kept customers, and made us a profit.

Three important thoughts:

1. We immediately knew that 40k smart phone A1 units at the WH would help curve the risk and potentially gave us a chance to seek yet another supplier or distributor.

2. Who knows if the Mexico Warehouse would have had that inventory in a week and at the same price? The visibility gave us a quick view of what we needed and potentially beat other competitors and the Mexico company in knowing that there was a potential shortage out there.
3. We also validate that the backlog at the DC CA was slightly unnoticeable, but we needed to adjust for the smartphone A1 to make it more resilient for future events. The previous Smartphone A1 inventory was too lean and potentially is the reason that the event easily impacted the company financially.

Conclusion

The management was happy to quickly gain visibility to the issues to identify the challenges, the impacts and priority to solve their problems immediately upon and during the issue occurring. The simulation helped them effectively and efficiently make strategical and tactical decisions on the spot giving them a competitive advantage in adapting in the market in terms of preparation and reaction.