**Planning and Optimizing the Christmas Express Supply Chain**

Recently I got an email from the North Pole saying that Santa Claus wanted to talk with me...I will have to admit that when you get a request from the head of the elves it is not something you want to ignore. A phone call was set up for later that week.

I didn’t sleep well the nights leading up to the call. I worried I might have done something that put me on Santa’s Naughty list.

The time came for the call and to my relief and surprise Santa told me that a couple of my recent Blogs had caught his eye and he wanted to discuss ideas on how to improve his Christmas Express Supply Chain.

Santa gave me a break down of his Christmas Express Supply Chain, which is definitely the most complex supply chain I have ever come across. Imagine planning, purchasing, manufacturing, and logistics required to deliver presents to every good boy and girl in the world in one night. Quite a feat that even Amazon and UPS might not be quite up to.

We then got down to discussing Santa’s supply chain concerns and potential ideas on how to streamline and optimize operations to ensure a successful Christmas Eve now and into the future.

Being the merry old sole that he is and quite the leader to boot, naturally the first area we discussed was his North Pole workforce, yes I mean his elves. Santa claims his planner elves are the best in the business.

**Data Management**

He told me that besides his planner elves having advanced degrees in supply chain management and the latest industry certifications they regularly rotate into different roles within the North Pole supply chain organization to ensure they understand the whole Christmas Express process.

Santa said that the rotational program helps to keep his elves happy. Santa commented that he can’t have grumpy planning elves affecting the North Pole workforce moral.

I mentioned that supply chain planners need to continue to grow their skills in analytics and Big Data management and that it might be wise to partner with a few of the better supply chain schools to further their supply chain analytics education. Santa thought that was a good idea considering the amount of unstructured data used by his team to classify each child as Naughty or Nice.

**Forecasting Accuracy**

We talked about the importance of accurate forecasts and issues his elves were having due to Stock Keeping Unit (SKU) proliferation. Santa said that back in the early days he maybe had 100 SKUs, mostly dolls, toy soldiers, wooden trains, etc. Today the Christmas Express Supply Chain is handling more than 1,000,000 SKUs many of which are new each year and have no demand history.

This complexity led our conversation to discuss the need for segmentation and management by exception, automated forecast algorithm selection, and robust life-cycle management capabilities. We also discussed hierarchical forecasting and using Proportional Profile Planning to forecast at an aggregated level of size, color, style, feature, etc., which reduces the number of forecasts while improving forecast accuracy.

I have to say, Santa is one sharp cookie. He picked up on the advantages of using product attributes for life-cycle management and aggregated forecasting very quickly and made the leap that moving to management by exception would free his planner elves up to focus on more value-added activities like planning his Christmas Day celebration party.

**Inventory Optimization**

Santa admitted that without proper planning of his manufacturing and distribution network, including the strict control of the inventory, even he wouldn’t have enough magic to deliver presents all over the World in one night. He mentioned several of my recent blogs where I discussed the need for supply chain optimization and wanted to hear more about this. He said due to SKU proliferation forecast accuracy had decreased and demand variability has sky rocketed all leading to the need to carry more inventory.

Santa said that Mrs. Claus, officially known as the Chief Financial Elf (CFE), has left frequent notes with his mid-day cookies and milk that he needs to shrink overall inventory. Phone Call With SantaSanta is concerned though that if he shrinks inventory he won’t be able to delight all the boys and girls on his Nice list. I told him through Multi-Echelon Inventory Optimization (MEIO) he should be able to reduce inventory while still keeping the children on the Nice list happy.

As opposed to single echelon optimization, that only optimizes inventory at a single site, MEIO considers all inventory holding locations and types of inventory (component, work-in-process and finished goods) and determines the optimal locations to store that inventory in the optimal amounts to meet the desired service level.

Santa confided in me that he utilizes more than 100 distribution centers spread throughout the World and that he makes frequent stops at these centers on Christmas Eve to replenish his sled. Sometimes the right inventory is not available which causes extra work for his elves to expedite inventory between facilities seriously stressing North Pole magic reserves.

Santa was interested in discussing ways to optimize his manufacturing network. Santa has over 30 large manufacturing plants in the North Pole and takes pride that they are all ecologically friendly, carbon neutral and self-contained.

The problem is that with the increasing mix of products it has become very challenging to meet demand. Santa said his manufacturing elves are doing the best they can, but in the last couple of run ups to Christmas, many extra elf-hours were needed to complete production on time.

We discussed the need to have complete visibility of capacities and constraints and to build a “digital twin” of the Christmas Express Supply Chain. Santa liked that idea and said that sometimes he wished he had his own “digital twin.” I mentioned that leading manufacturing companies are now using Supply Chain Optimization solutions to build and optimize their manufacturing capabilities which allows them to maximize manufacturing output while maximizing profits. Santa wasn’t so keen on the profits idea, but he thought that optimization might be able to maximize Christmas cheer.

**Sales & Operations Planning (S&OP)**

Another area that piqued Santa’s interest was in the best practices to help him mature the Christmas Express Sales & Operations Planning (S&OP) process. He told me that often his head Demand Elf doesn’t see eye-to-eye with his head Supply Elf leading to misaligned and unbalanced operations. Part of the problem, he said, is that his senior elves like to focus on the short-term with not enough thought given to longer-term trends, risks, and opportunities.

I explained to Santa that leading edge companies are starting to move to an advanced S&OP capability called Integrated Business Planning (IBP), where strategic and tactical planning are aligned and synchronized. Santa thought that IBP might help ensure all his elves dance to the same Christmas tune.

We talked about the need for advanced analytics and “what-if” scenario planning to enable risk and opportunity analysis. Santa thought that “what-if” scenarios might help come up with ways to satisfy Mrs. Claus’s focus on reducing costs. I mentioned that the use of on the fly “what-if” scenarios in the monthly executive elf planning meeting might be useful to gain consensus. He laughed in his deep jolly way and said he thought that might just cut down on the excessive consumption of milk and cookies during those tense and stressful meetings.

**Supply Chain Technology**

I encouraged Santa to investigate updating the technology he uses to manage his Christmas Express Supply Chain. Santa said that he would consider looking into a best-in-class supply chain planning and optimization platform to enable the Christmas Express Supply Chain.

Santa said he is always on the lookout for ways to improve his processes that have been refined over the past couple hundred years. He said he knows it is important to deploy the latest technology to avoid disappointing all the Jimmy’s and Susy’s on Christmas morning and that is one of the reasons he wanted to talk. He said that technology allows his planning elves to work smarter and add more value and that it keeps them smiling and singing Christmas songs all year long.

Well sad to say my hour was up with the legendary man of the North Pole. Before we said goodbye though I had to find out whether I was on the Naughty or Nice list. Santa said although I have been close to going over to the Naughty list in past years, this year I have been mostly good and have nothing to worry about. I slept much better that night.