

Managing the Global Supply Chain at COGMA

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As Brian Finkle, CEO of COGMA, drove to work on a early Monday morning in January (2007), he was pensive. COGMA was headquartered in Chester, Indiana, a small town with an incredible reputation for manufacturing innovation. Star alumni of the town included developers of crucial process innovations for the auto assembly, designers of efficient loaders for finished car deliveries, machining speed enhancement processes for gear cutting... the list was endless for a small town in rural Indiana. As the 5 am drive showed off the bright stars in the dark Indiana sky, Brian pondered his long week that could well be a “make or break” week for COGMA.

Background

COGMA was a 100 year old manufacturing company that was started by Grandpa Jerome Finkle in 1907. The Finkles were immigrants from Scotland who had settled in Chester primarily to earn a living repairing farm equipment for farmers in the burgeoning Southern Indiana towns around Chester. A key geographic feature of Chester was its location at the intersection of five different roads. This meant that there were around 25 towns less than 30 minutes away from Chester. The early COGMA innovation was a 2 hour repair guarantee and 1 year parts and labor guarantee. Any farmer who notified COGMA of a problem with a piece of equipment was guaranteed a repair or a temporary replacement within 2 hours of the call.

COGMA under Jerome Finkle had a reputation for careful data collection and analysis. COGMA used available techniques for spatial data analysis, reliability analysis, forecasting etc to create an accurate picture of expected repair requirements. COGMA’s frequent meetings with farmers also provided an estimate of equipment use and age, thus enabling effective prediction of repair

needs. Farmers often remarked that COGMA's repairmen showed up soon before equipment broke, almost as if they had a premonition of things to come.

Such a focus on data and its use for planning became part of COGMA's DNA, and successive generations of Finkles had gone on to learn the best available techniques to mine the company's data as the company grew.

Jerome's son Gilbert has taken over the company in 1945 and pushed COGMA into the auto components business just as the US auto industry volumes surged. Gilbert had continued his father's legacy for data analysis and careful planning and COGMA had several awards to prove it. By keeping the company focused on a few manufacturing processes and by continually investing in the skill base of his employees, Gilbert Finkle ensured that COGMA had an industry reputation for manufacturing excellence. Most OEMs did not mind the 5 % higher price that COGMA charged, given the excellent quality and service that accompanied the product.

Brian Finkle was the third generation of Finkles to run COGMA. Brian took over as CEO in 1990, as his father retired from COGMA. A new development in the US auto industry was the opening of US plants by Toyota, Honda and by German and Korean automakers. Each of these OEMs demanded high quality levels, continuous improvement and constant technological innovation. Given that these traits were part of the COGMA DNA, winning such orders, though challenging, involved more of telling the COGMA story than fundamentally changing the company.

Steady growth had been a feature of COGMA right from 1907, except for brief interruptions during the war years. In the recent 30 years, COGMA had grown an average of 15 % per year. That meant steady employment for the people of Chester and neighboring towns. COGMA in turn had remained a loyal supporter of the arts and of the schools and nonprofits in the Southern Indiana region.

Globalization and associated challenges

Southern Indiana, home to many furniture companies, was already buffeted by the potential and perils of globalization. As residential furniture imports from

China started dominating US retail, companies seemed to disappear overnight. The more prescient companies had shifted their focus to office furniture which required faster deliveries and greater customization.

COGMA started feeling the brunt of global pressures in the mid 90s as OEMs started demanding the “China price” – a 30 % price cut. Global competitors meant that selling prices were under pressure – no longer was there any discussion of price increases to cover inflation – the question was now whether a 5 or 10 % price cut was acceptable.

In addition, the surging growth rates in China and India were pressuring steel prices, which had grown by 20-30 % a year in recent years. Diesel prices were soaring; reports suggested that truckers were spending close to \$ 1000 to fill up their tanks. All this had driven up COGMA’s freight costs which remained part of the delivery service offered by the company to customers. In addition, as salaries in computer related industries increased, COGMA found itself competing on wages to keep their best managers and employees. But there was good news too –the weak dollar meant that there was potential demand in Europe and in Japan for COGMA’s products, provided the company could service such distant accounts. It appeared that Brian Finkle and COGMA faced *a perfect storm*.

As was his demeanor, Brian split the problem into three separate, but manageable sub problems.

COGMA’s Supply Chain Flows

COGMA had grown to four separate plants, one each in Gouda (Oklahoma), Chester (Indiana), Brie (Utah) and Provolone (Georgia). Each plant focused on one of the functional components demanded by auto companies. These components were shipped to one central distribution center (CDC) in Feta, Missouri. From Feta, kits consisting of each of these four components were shipped to two main assembly plant locations – one each in Roquefort, Michigan and in Mozzarella, TN.

Given a production rate of 200 cars each in each of the assembly plants, and that each car required all four components (one from each of COGMA’s plants), the

shipments were made on a daily basis from the CDC to each assembly plant on a JIT basis. The truck capacity from the CDC to the assembly plants was 3200 units. The plants shipped full truckload to the CDC at Feta. Travel time between locations, travel distance are provided in Tables 1 and 2. The transport cost is based on travel distance and is charged at a rate of \$ 1.75 per mile. Holding costs for each destination location are listed in Table 3. Production at the plants are synchronized with shipment volumes.

The current COGMA supply chain had been set up by Gilbert Finkle and had remained unchanged as the company expanded. Long term relationships with the trucking companies, the warehouse managers and the plant managers ahead ensured that the system operated smoothly. Last minute changes required by plant managers were accommodated by the JIT deliveries as part of COGMA's service commitment.

But Brian wondered if COGMA was operating its supply chain effectively. He recalled a logistics class during his MBA in which the professor launched into a discussion of total logistics costs – the sum of all inventory, transport and handling costs. What if COGMA were willing to change its JIT deliveries to less frequent deliveries with the plant holding some inventory under a VMI (vendor managed inventory) arrangement? Under VMI, COGMA would own the inventory at the plant until the plant used the product.

But Brian also wondered if the warehouse at Feta was necessary. If Feta was eliminated, he estimated an annual savings of \$ 20,000. But that would mean even higher shipments direct to the plants, albeit with a lower pipeline inventory. Tables 1, 2 and 3 provide the distances, transit times and holding costs for shipment to assembly plants. How would eliminating Feta affect the supply chain costs?

Another alternative that Brian wondered about was whether shipments at full truckload provided the best alternative. Could COGMA decrease overall supply chain costs by shipping less than truckload?

Recent articles in Supply Chain magazine has recommended a new look at shipments, inventory and transportation costs. Brian wanted a quick analysis to decide if COGMA would be better off changing its flows and even, perhaps, eliminating the Feta warehouse.

Effective Purchasing

Steel prices had varied considerably over the previous two years and there was no firm forecast regarding the future. Several consultants had recommended buying in large volumes to take advantage of the volume discounts and prevent input cost inflation.

COGMA bought the bulk of its steel from a distributor who delivered to the four COGMA plants. Prices charged included delivery. The delivered prices varied by month the past 12 months – these prices per ton are provided in Table 4.

One of COGMA's purchasing managers had analyzed data from the Federal Government and claimed that the distributor markup resulted in a higher price for COGMA than buying directly from steel plants in China. Should COGMA give up its historic distributor relationship and go directly to the manufacturer? Would the company volumes justify the direct purchase? What if all aspects of the imported product were considered, would COGMA still be reducing procurement costs?

A consultant had recommended considering the following costs to import steel directly from a foreign manufacturer. The list of costs to consider included

- (a) Transport from the steel plant to the port
- (b) Handling costs at the port
- (c) Shipping charges per container of product
- (d) Unloading charges at US port
- (e) Customs clearance
- (f) Local transport from the port to the appropriate plant.
- (g) Pipeline inventory costs

Estimates of these costs per ton are provided in Table 5.

The current demand for steel at COGMA is a steady demand of 400 tons per month and approximately 25 % of the steel used by each of the four locations. Should COGMA shift from the current use of a distributor to direct procurement from the steel manufacturer in China?

Managing Export Opportunities

The weak dollar generated several enquiries for exports from COGMA's US plants to markets in Europe, the Middle East, Australia and Japan. One opportunity, in particular, was, in Brian's opinion, a great test case. A Korean automaker was expanding in Australia and the Middle East and wanted to know if COGMA was interested in being a supplier.

But a key feature of the contract was a fixed price commitment in Korean won for product supplied by COGMA. Given that the won fluctuated against the dollar (see Table 6 for a history), it was important to generate a price commitment that would cover cost variations over six months – this was the time between price adjustments. Recent history showed the won appreciating against the dollar – this required COGMA to be strategic about pricing and deliveries. Should shipments be done JIT to the manufacturer to ensure the highest possible dollar revenues despite the associated higher transport costs? Should COGMA bet on a declining dollar and offer a price that reflected that belief? What specific steps could COGMA consider to alleviate some of the risks associated with this arrangement?

Brian believed that future growth at COGMA would require it to increase exports and figure out a way to deal with the issues related to currency risks. Some of companies in Indiana were now setting up facilities in the destination locations to permit "real options" approaches i.e., permitting them to switch production to the cost effective locations given currency levels. It was not clear if COGMA should go down this path.

To prevent an unending stream of analysis, Brian decided that he needed recommendation regarding pricing and whether or not COGMA should start the process of establishing a manufacturing plant in China. He also wondered if he

should consider outsourcing the manufacturing of his product to a third party in Asia or, given intellectual property and service issues, avoid such a decision. He realized that there was not much data to make such a decision, but expected publicly available data to be used initially to sketch out a plan for COGMA.

Pulling it all together

It was late in the evening when Brian got back the three reports from his managers. He was determined to sketch out a plan for COGMA before he left for his drive back home. COGMA's management had a reputation for steady management so that whatever his decision, it would have to be framed within the context of a longer term strategy for the company. Brian Finkle looked around his office – perhaps a team of MBA students could help.

Table 1: Distances in miles between locations

From\to	Feta	Roquefort	Mozzarella
Gouda	1000	1800	900
Chester	700	500	400
Brie	800	1200	1000
Provolone	1300	700	300
Feta	0	1500	1200

Table 2: Transit time in Days

From\to	Feta	Roquefort	Mozzarella
Gouda	4	4	2
Chester	3	2	2
Brie	2	4	4
Provolone	4	2	1
Feta	0	5	4

Table 3: Holding cost in USD\$ per unit per day

Location	Holding cost/unit/day
Feta	1.5
Roquefort	3
Mozzarella	3

Table 4: Steel prices across months – from distributor

Month	Steel price/ton
1	639
2	699
3	800
4	915
5	998
6	1073
7	1099
8	1093
9	973
10	865
11	900
12	975

Table 5: Data regarding import costs

Description	Data
Transport from the steel plant to the port	\$ 100/ton
Handling costs at the port	\$ 10/ton
Shipping charges per container of product	\$ 2000/container
Container capacity	100 tons
Unloading charges at US port	\$ 25/ton
Customs clearance	\$ 5 /container
Truck Container	100 tons
Local transport cost from the port to the appropriate plant.	\$ 500/container
Transit time from steel plant to port	2 days
Transit from Overseas port to US port	44 days
Transit from US port to plant	4 days
Holding cost per ton in transit in \$/ton/day	\$ 5/ton/day
Steel price at the manufacturing plant/month	50 % of prices in Table 4

Table 6: Dollars per won exchange rates across 2007

