Teaching Case

The Loose Bolt-On: Implementation Issues at CPC

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Abstract

This case study describes the challenges that a manufacturing company faces when attempting to customize their software system at a time when it is non-essential; and the crisis that can ensue if it is not treated as a critical concern. Sheila Folk, a Supply Network Leader of Planning, volunteers her department to test the implementation of Opportunity Management Phase (OMP) software. This software works with SAP to allow her team to better regulate their demand planning both with current SAP controlled manufacturing production as well as with their back-of-house production that is run with a series of excel spreadsheets. But as the transition date approaches and the new software does not perform correctly in the test site, Sheila is faced with the decision of how to move forward. Once the system goes live, the OMP software is still plagued with missing or incorrect data and Sheila's team has to take desperate measures to ensure CPCs bottom line is not affected. This case is intended for the undergraduate IS strategy (IS2010.7) or foundations (IS2010.1) course. It could also be used in an MBA IT Strategy or management course, an undergraduate enterprise systems course (IS2010.3), and the undergraduate IS Project Management (IS2010.4) course.

Keywords: Teaching Case, Crisis Management, Supply Chain Management, Technological Change, Vendor Relations/Contract Type

1. INTRODUCTION

Sheila Folk's alarm clock chirped at the prompt hour of 4:00am. She hadn't slept well the previous night, concerned with the issues at work, so the bright hour was unnerving. Sheila wanted to get into the office extra early this Monday morning to view the results of the weekend's shipments.

As a Supply Network Leader of Planning for CPC (see Exhibit 1 for company background), she owned the entire supply network of the company's Fiber Pulp division. Just one week ago her team cut over to a new IT system designed to benefit her employees with smoother work processes and give an advantage in lean production planning.

By the second day of launch, serious issues were surfacing. As a result of the problems with the new system customer orders were missed, negatively impacting CPC's bottom line. Sheila was meeting with her leadership team at 7:00am for an update, and preparing for the debate on the whether or not to revert back to their old system.

At what point would she need to protect the business at the sacrifice of months of hard work for this IT transition? How much longer could they operate as they were the past 7 days? As she headed off to the office, she knew today called for a double espresso.

2. SUPPLY NETWORK OPERATIONS (SNO)

Sheila Folk was the Supply Network Leader of Planning for the Fiber Pulp division. Her responsibility was to oversee the entire supply chain from production capacity needs to delivery of their product to the customer. Her reporting team consisted of 30 employees ranging from administrative level to department managers (see Exhibit 2).

The forecast was a snapshot of what the client teams were predicting the future orders of the customers to be. They used sophisticated technology to map out historical patterns of orders, and would use this to estimate future needs. They would then pass this forecast downstream to the Planning organization. Sheila's group would take this forecast and use it as the basis for their analysis.

The forecast consisted of the number of cases of each product that were predicted to be ordered at a certain time. Supply Chain Leaders (SCLs) would look at the high level data and give an estimate if the overall needs could be supported by their corresponding businesses. The production lines were located at a manufacturing plant in Belleville, Canada. If it could be supported, the work would continue on a more detailed level with the rest of the planning group including Site Integration Planners (SIPs), Material Supply Managers (MSM), and Initiative Operations Leaders (IOLs).

The most detailed work was carried out by the Site Integration Planners. These employees served as the managerial link between the SNO group in Cincinnati, and the actual production operators in Canada. They managed the daily businesses, ensured the plant produced according to plan, and adjusted the plan to reflect the most current forecast and customer orders. This particular role was very demanding and fast paced. It required a high capability to adjust quickly and had a small margin for error or slow work processes.

CPC kept a very low level of finished product inventory at their warehouses in the US. Roughly four days on hand was the maximum, and the transit time from Canada to the US distribution centers accounted for two of those days on hand. As actual customer orders were placed each day, the SIPs would adjust the production plans to reflect the fluctuations in orders.

If the fluctuations were large, or adequate materials were not readily on hand at the production site, customer orders would be shorted or missed due to inability to adjust the plan. Similarly if there was any delay in customer order information in SAP, or slowness in SIPs work processes to change the production sequence or quantities, customer orders could also be shorted or "cut".

Case Fill Rate (CFR) was the business measure SNO used to determine the percent of customer orders placed that were able to be filled. The CFR goal for the Paper Pulp division was 99.5% of all orders placed would be filled.

3. LIMITS TO SAP

Site Integration Planners (SIP) used SAP for all of their work. When the forecast was received an

"Auto-Level" program would be run to spread out the production needs across the possible operation lines to equally allocate the work. The system was very basic and analyzed the data solely on keeping each production line below the threshold of maximum capacity (100%).

SIPs then had to do separate analysis and manipulate the plans to maximize efficiency. For instance, if the forecast required 10,000 cases of a particular product in week 15, then only 100 cases of that product in week 16, SAP would plan these as two separate production runs, ignoring the element that it would cost the business two hours of downtime to change back for the small second run for week 16. SAP was not advanced enough to determine the cost of building inventory early, versus the cost of downtime. CPC was wasting a significant amount of money in carried inventory, and also useless downtime to make small production runs.

Recently, the plant had also re-acquired custom manufacturing work that was done offline from the normal production. Feeder cases would be fed from the main lines to a "back of house" operation. This back of house operation had specific duties such as shrink-wrapping, building large pallets for club customers like Costco, and hand packing smaller cases for customers such as Family Dollar. This work was all disconnected from main business, but still required the use of shared resources such as the shrink wrapper.

Only one SIP at a time could plan on using the hand packing crew, or the shrink-wrapping machine. Since SAP did not have a way to track this offline work, SIPs resorted to the use of an Excel sheet to block out their required use times. With the rapidly changing plans, the Excel sheet was not sufficient in being updated with the most current data. Frequently the plant would phone saying more than one line was attempting to feed the offline area and they were overbooked.

Also, SAP could not be used to forecast specific high or low times in these offline operations to determine periods of time where the staffing might need to be increased. This area was completely staffed by temporary staffing and the temp agency had no notice of when they would need to recruit more employees.

This offline business was growing, and the SIPs were struggling to manage this new operation. Management was fearful that the business would eventually take a hit due to unforeseen requirements in this area. The risk of breaking a contract with a larger company like Costco had huge financial and relationship consequences. The lost business alone would be pricey. But also, Costco was depending on CPC to fulfill the contractual pallets for special events and promotions. If CPC could not deliver, the promotional events would be a flop, and Costco would not rely on CPC in the future.

Future business promises were also being signed on to, and CPC currently did not have a way to actually analyze if there was the time or space in the back of house operation to complete the additional activities. If something were not put in place soon, CPC could eventually find themselves in the position of commitments they had no capacity or resources to actually carry out.

4. OMP THE RESCUE

Opportunity Management Phase (OMP) software was an SAP add-on that was being customized for use in another division in the next year or so. With the urgent need of a more sophisticated planning system, Sheila took interest in the project outline and asked if her group could be the test pilot. The OMP programmers were anxious to get CPC up and running on their system, so they eagerly agreed to the newly accelerated plan. Sheila, her SCL team, and Key User, Melissa, met with the OMP team in late October 2013 to lay out the expectations. The way the system would operate was very promising.

The forecast would upload to OMP each day at 4am and the SIPs would use this as their planning tool; interfacing back the finished, analyzed plan to SAP at the close of business each day. OMP's main offering was called the "Cost Profit Optimizer". It was the equivalent to the Auto-Level function in SAP, but much more sophisticated. An arbitrary "cost" would be applied to each case of product produced ahead of the forecast, and another cost to each minute of downtime caused by changing the production line over to produce a different product. The OMP optimizer would take about an hour to run, to compute the cost of each different option. In the end, the leveled plan it offered was the most financially beneficial to the company.

Another feature of OMP was the ability to integrate the offline customization work into the optimizer. Phantom resources were created to integrate the use of the shrink-wrapper and

temp staffing. The maximum amount of temporary staffing would be entered, and OMP would propose a plan that would keep the usage consistent with the amount of staffing that was practical. This would bring stability to the staffing agency and a more secure supply chain with far fewer ups and downs. (See Exhibit 3).

Melissa, the Key technical User of the paper pulp division was worried the offerings were too good to be true, given the short timeline of 6 months. "How long will we have to test the system before final cut over? What type of back-up plan do we have if the system malfunctions?" she questioned in the project meeting. Peter, the lead OMP programmer didn't like her lack of confidence in their work. He quickly dismissed her; with the assurance that Business Acceptance Testing (BAT) would be adequately long to work out any kinks in the system before cutover.

Melissa, the SCL team, and SIP group spent the next four months training in the new systems test client. They learned all the new functions, work processes and set-ups of what would be their new lifeline. This was in addition to completing their normal work and required the team to work long, strenuous hours at the office.

BAT began in April, using live data, in the test environment, and several kinks were discovered. A list was compiled of items that needed tweaked. Small problems such as incorrect color-coding schemes or inaccurate changeover times and costs associated with the production lines were found.

The largest glitch was reoccurring on a regular basis and it involved the 4am forecast upload failing. The SIP testers would frequently come in to work to find that the upload failed and the forecast was completely blank. Testing would be canceled for the day as Peter and his OMP team would take over to trouble-shoot the miss.

They flew in more and more experts from Germany to Cincinnati to help. Sheila started to worry by mid-May that this glitch was still consistently occurring and the number of OMP experts was getting high. Was this more than they could handle? Once they transitioned to OMP and transferred all their data, SAP could only be used as a data source, but would no longer have the ability to plan the lines. Despite her gut feeling, she pressed on that they should stick to the June timeline. Her team spent so many hours and hard work to get this far, she didn't want to lose momentum.

5. THE TRANSITION OF PLANNING

Transition day had arrived. Everyone got to work early. The 4am upload was a success and the first day seemed to go smoothly. Peter's transition team was slimmer than expected, only consisting of himself and two others, with most of the crew having flown back to Germany. They had stayed so long during BAT testing, they were needed back home to work on other projects.

Day two was the start of chaos when the first SIP booted up the system with a blank forecast for his business. With no way to run the optimizer to determine what the lines should produce, he and his SCL Matt sequestered themselves in a conference room to use SAP as a data source and manually draw up plans for the day. Peter and his team worked feverishly to figure out what had gone wrong. With no solution, the day ended with high hopes it would fix itself overnight.

Unfortunately, miracles did not take place, but instead, quite the opposite. Day three started with an additional three SIPs loading blank forecasts. Melissa was furious.

> "What progress was made from BAT testing to now? Why are we still having the same issues we identified four months ago?"

The SCLs were upset with the manual intervention required on their part with their SIPs. They were also worried about the possible implications on the business results. Manually planning could only work so long. They didn't have the capacity or resources to develop long term, sophisticated plans for the plant. Their worries were solidified by day four when customer orders started to be shorted or cut due to lack of available cases of product at the distribution centers.

Without a live forecast, SIPs were not able to keep up on the most recent customer needs, and therefore customer orders were not being filled. Peter started to feel the pressure when Sheila confronted him on day three:

> "I need this fixed now. This is completely unacceptable at this stage. Where are your experts? Why are we

not being treated as your most important customer?"

Within the hour, Peter was making travel arrangements to fly in more help.

Day five was progressively worse. Matt had stayed up all of the previous night developing a macro in excel to pull the demand data from SAP and manipulate it outside of the system to at least help the SIPs make production plans. He was tired, and it was just the beginning of crisis mode. Even with the macro to help, it was taking incrementally longer to complete the work. Sheila was able to pull additional SIPs from other business units to help manually key in plans and check raw material requirements. This was of course more cost incurred to pay for the additional help.

To add to the mess OMP started to have mini breakdowns and would randomly kick out users to reboot. When this happened any unsaved work was lost and deleted, leaving the SIPs with more rework.

Friday had approached and the collective group was making arrangements to keep the business running through the weekend. Typically with solid forecasting and production plans, the plant would operate through the weekend without help. However, now with scheduling being done manually and uncertain, the business couldn't afford to go the two day stretch without a SCL and SIP to look over the customer requirements each day.

A rotation was drawn up for Sheila's group, but when she questioned Peter on who from the OMP team would be available throughout the weekend, his answer was that there were no additional resources available. He did promise that by Monday they would have several additional programmers on site to help. Sheila was extremely disappointed in knowing that no one would even be working on the problems over the weekend.

She left the office that Friday, with apologizes to her team for the impact this was having on their personal time, and a recap meeting scheduled for first thing Monday morning. Her fingers were crossed the customer shipments would be fulfilled over the weekend (See Exhibit 4) and more importantly that OMP would be working.

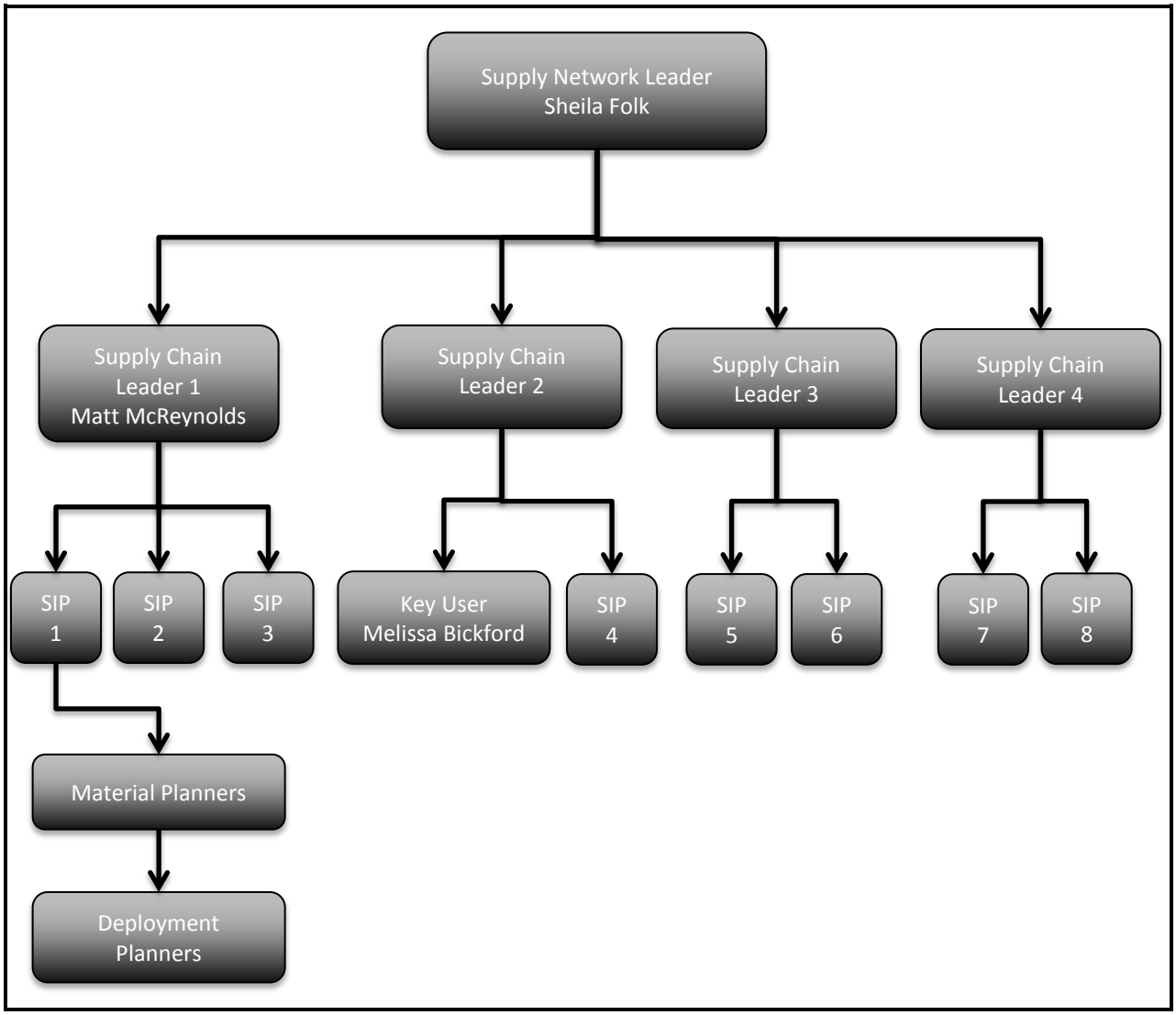
Discussion Questions:

1. What could have been done differently to avoid this situation?
2. What should be done now?
3. Were the "right" people involved in the decision to use this product?
4. How can the type of contract with a vendor impact the implementation?

Appendix 1: CPC Background

CPC today is a well-known manufacturer of numerous consumer products ranging from toilet paper to diapers to over-the-counter health remedies. It began with an unlikely pair of immigrants from the United Kingdom, Johnathan Lynch, a soapmaker, and Jim Ashenwick, a lumberjack, who happened to marry a pair of sisters from Toledo, Ohio. They went into business together in the early 1800's and developed CPC regionally until it won several significant contracts to supply soap to the Union army during the Civil War. The government contracts stabilized demand during the economically challenging time, increased profits, and bred a generation of soldiers familiar with and devoted to the CPC brand. After the war, Lynch and Ashenwick invested heavily into R&D and diversified their product offerings to include a variety of paper products, consumer home remedies, and candles. Throughout the next century CPC continued to grow through new product development as well as the acquisition of other consumer product companies. Today it is made up of more than twenty-two individual billion-dollar brands and is firmly established as one of the ten most valuable companies in the world.

Appendix 2: Organizational Chart



Appendix 3: Resource/Temp Staffing Capacity Planning in OMP
(Shows percent required each week)

S	Item Col	Start	Week 40-1	Week 41-1	Week 42-1	Week 43-1	Week 44-1	Week 45-1	Week 46-1
	4786/BV38								
	Tot.Avail.		125.8	140.5	98.3	135.3	126.8	166.0	166.0
	CapDec. - 4786/BV38								
+	Tot.Plan Load					97.7	107.7	141.1	141.1
+	Tot.Sched.Reserv.	1.1	105.9	115.5	91.6				
	Tot.Load		108.9	119.3	92.6	118.0	126.8	166.0	166.0
	Tot.% Load		86.6	84.9	94.2	87.2	100.0	100.0	100.0
+	Tot.Plan					22,408	24,124	19,628	23,833

Appendix 4: Case Fill Rate Week One of OMP