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The Fresh Connection

An Introductory Case Study for the CTL.SC4x – Supply Chain Technology and Systems

Introduction

Background

The Fresh Connection is a juice producing company founded by Vincenzo (Vinny) Andolini. Vinny, a New York native, moved to the Netherlands at age 23 after receiving investor funding to start up his company in Europe. Vinny decided to name the company “The Fresh Connection”.

Vinny came up with the idea for The Fresh Connection while studying abroad in Belgium. As a juice lover from a young age, Vinny identified the need for a new type of juice company targeting the young adult population in Central Europe. Vinny brought the company idea back to New York and began looking for investor support. After some time in a startup incubator and many rejections from local investors, Vinny finally found support in a wealthy angel investor from the Upper West Side.

Early Years

Within six months of receiving funding, Vinny had already purchased a small production facility in the Netherlands and hired some needed employees. The first hire Vinny made was Hans. Hans was previously a sales representative at a multinational fast moving consumer goods (FMCG) company. Hans had many contacts and could help get early company sales. Hans would be the primary salesman as Vinny moved forward with getting the company operational. Hans was also in charge of looking for vendors to procure raw materials from.

The second hire Vinny made was for a new operations manager, William. William brought juice production expertise from his previous job at a prominent juice manufacturer in Southern Europe. He had worked at many positions along the production line before climbing his way up to general manager. William was very familiar with the juice industry and its operations. Once William and Vinny were able

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to measure out the newly purchased production facility, they began looking for the right combination of machinery. Their goal was to maximize long term profitability of the company given the space requirements that they had.

Vinny and William soon found out that there would not be enough space to store products at this facility. Luckily each side of the new facility had a small warehouse next door that rented out space. Vinny and William decided that this could be used as inbound and outbound warehouses. Only work in progress inventory would sit in the production facility.

While Vinny had initially wanted to squeeze fresh fruit, William calculated that this would not be possible with the space available. William and Vinny agreed to ship in already squeezed fruit in a concentrate form from vendors around the world. The Fresh Connection only needed a mixing machine and a bottling line to be fully functional. William worked out a floor plan that allowed The Fresh Connection to have a good sized mixer along with a relatively fast bottling line.

With recommendations from William, Vinny went out and purchased a used Fruitmix MQ mixing machine. The German made machine was not fancy in any way, but it did not require too much cleaning or maintenance. It also allowed the company some versatility in the type of juice produced.

Vinny decided to go against William's recommendations when purchasing a bottling line. Vinny purchased a new Swiss Fill 2 bottling line a few months before the release of the Swiss Fill 3. William thought the new Swiss Fill 3 would be better for changeover times and would help the company in the long run. Vinny, on the other hand, was focused on getting the new facility up and running. This caused some tension between Vinny and William that eventually boiled over when William attempted to quit. After a few beers and some apologies, William decided to stay and the two agreed to consider purchasing the Swiss Fill 3 in five or six years.

The production facility was assembled over the next three months as Vinny and William began hiring new team members. The initial team was quite small and all employees were expected to complete multiple functions.

As the production facility was finishing up, Hans had two customers ready to purchase from The Fresh Connection. One was a grocery chain while the other was a convenience store. Much to Vinny's surprise, many of the customers that Hans was contacting were in need of orange juice and orange mango juice. The Fresh Connection would be an orange juice company. Hans and Vinny initially decided to offer two products: Orange Juice and Orange Mango Juice. These would both be offered in cartons for home use and plastic bottles for customers on the go.

Hans also had a good number of potential suppliers lined up. These suppliers were from around the world and all had reasonable prices for the various contract terms that they would offer. Hans continued to coordinate all selling and purchasing efforts.

These first few months were rocky while many start up issues were ironed out. Hans managed customer relationships well and was able to keep the early customers around. Over the next year and a half these customers began to order larger quantities from The Fresh Connection. After two years of production, the first signs of profits were emerging. By the end of the third year of production, profits were streaming in and the company was still growing. The company also released a new orange juice fortified with vitamin C.

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Vinny hired a new purchasing manager, Carla, to give Hans extra time for generating sales. Carla had previously worked as a purchasing agent at a stylish Spanish clothing manufacturer. Carla had many years of experience and quickly learned about The Fresh Connection's purchasing needs.

Vinny also hired a new supply chain manager to deal with the increasing complexity of managing the company's supply chain. This job had previously fallen on William's shoulders and now allowed him to focus on keeping operations running smoothly. The new supply chain manager, Felix, was a fresh graduate from the MIT SCALE network and was ready to apply his new education to some real world applications. Before studying at the SCALE network, Felix was a logistics analyst at a small trucking firm located near London.

The Problem

By the end of the fourth year, The Fresh Connection had taken a hard downturn. Sales were the same levels as before and all employees seemed to be doing their jobs well, but everything was falling apart. Service levels were falling, which caused penalties to be paid. Warehouse costs were skyrocketing. Cash was scarce and vendors weren't able to be paid on time. Too many products were expiring and getting thrown away. All in all, the situation looked bleak.

It's now been another six months since the initial downturn and recent decisions have only made things worse. Employee morale is at an all-time low, stress is at an all-time high and the situation is about to boil over. To top things off, the angel investor in New York is becoming more and more displeased with his investment. He will likely cut funding or attempt to remove Vinny from leadership if the situation is not resolved soon. Vinny decides to look over The Fresh Connection in more detail as he attempts to make his business profitable again.

To get started, Vinny wants to make sure that he fully understands how his business is functioning. He wants to look at how everything is currently working from receiving raw materials to filling customer orders. Vinny then wants to have a discussion with his primary decision makers and find out about their roles. Once Vinny understands the whole situation, he will look at company financials to identify key improvement areas.

The Fresh Connection – Functional Overview

Materials and Products

The Fresh Connection currently sells six different finished products to three different customers. The six finished products are:

1. Orange Carton
 2. Orange Mango Carton
 3. Orange Vitamin C Carton
 4. Orange Bottle
 5. Orange Mango Bottle
 6. Orange Vitamin C Bottle
- **Special Note: A carton may also be referred to as “Pack” or “1L”
- **Special Note: A bottle may also be referred to as “PET”

The three different customers that currently purchase from The Fresh Connection are:

- **Food & Groceries** - A national chain store that prides itself in having quality products
- **LAND Market** - A discount store that offers great specials for the conscientious consumer
- **Dominick’s** - A convenience store that offers products for consumers on the go

Each finished product represents a unique stock keeping unit, however finished products are all composed of a combination of only six different raw materials. These raw materials and their respective suppliers are:

1. Carton
 - Supplier: Mono Packaging Materials
2. Bottle
 - Supplier: Trio PET PLC
3. Orange (pre squeezed concentrate)
 - Supplier: Miami Oranges
4. Mango (pre squeezed concentrate)
 - Supplier: NO8DO Mango
5. Vitamin C (as a concentrated solution)
 - Supplier: Seitan Vitamins
6. Water
 - Supplier: Local Municipal Government

The Fresh Connection currently receives shipments of raw materials from suppliers in pallets or in intermediary bulk containers (IBC). Orange and mango pre squeezed concentrate arrives in IBC containers. A pallet and an IBC container both take up one pallet space for warehousing and shipping purposes. A full truck has 30 pallet spaces available.

Cartons and bottles both arrive on pallets while orange, mango and vitamin C all arrive in IBC containers. Liquids in IBC containers can also arrive in a 30,000 liter tank truck or in 250 liter drum. For now, all liquid products arrive in an IBC container. An IBC container holds 1,000 liters of the liquid that is stored

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in it. Cartons arrive folded up while bottles arrive fully formed. Because of this, an incoming pallet of cartons will have significantly more units on it than an incoming pallet of bottles.

Finished products are shipped to customers on pallets for a specified sales price per unit. The number of finished products that fit on a single pallet are different depending on if the unit is a carton or a bottle. Cartons are unfolded and filled with juice as a finished product. Finished products in cartons then take up more volume than a bottle and subsequently take up more space on a pallet.

Most raw materials and all finished products have a given shelf life. Cartons and bottles don't expire but orange, mango and vitamin C will last 52 weeks before expiring. Finished products on the other hand have a much shorter shelf life. All finished products expire after 20 weeks.

Table 1 shows the bill of materials, finished product information and materials information. Water is not included in this bill of materials. Water represents 80% of the liquids that are mixed in any given drink produced by The Fresh Connection. Water is not stored but pumped as needed by the local municipal government.

		Materials							
		Carton (unit)	Bottle (unit)	Orange (liters)	Mango (liters)	Vitamin C (liters)	Shelf life (in weeks)	Number (per pallet)	Sales price (in Euros)
Finished Products	Orange Carton	1		0.2			20	600	0.45
	Orange Mango Carton	1		0.15	0.05		20	600	0.48
	Orange Vitamin C Carton	1		0.19		0.01	20	600	0.55
	Orange Bottle		1	0.06			20	1440	0.22
	Orange Mango Bottle		1	0.045	0.015		20	1440	0.25
	Orange Vitamin C Bottle		1	0.057		0.003	20	1440	0.32
							Key		
	Shelf life (in weeks)			52	52	52	Bill of Materials		
	Number (per pallet)	17,280	1,080				Finished Product Information		
	Basic price (in Euros)	0.03	0.03	0.4	0.9	0.15	Materials Information		

Table 1. Bill of Material, finished products and material information

Inventory Flows

Inventory for The Fresh Connection flows in a specific manner. First The Fresh Connection places an order to one of their suppliers. The supplier then ships the amount of raw material ordered to the raw materials (RM) warehouse. The raw materials sit in this RM warehouse until they are needed for production. Once they are needed for production the raw materials get moved to the production facility where they are transformed into finished products. The finished products are then moved to the finished goods warehouse where they are stored. The finished goods stay there until they get shipped to a customer or expire.

There is only one production line at The Fresh Connection. Due to this, only one finished product can be produced at a time. If another product is to be produced, a changeover time is needed to clean machines and prepare them for the next finished product to be produced.

This process happens for each raw material and each finished product. To get a better idea of how this works, see the diagram below. Remember that “PET” can refer to bottles while “1L” or “Pack” can refer to cartons.

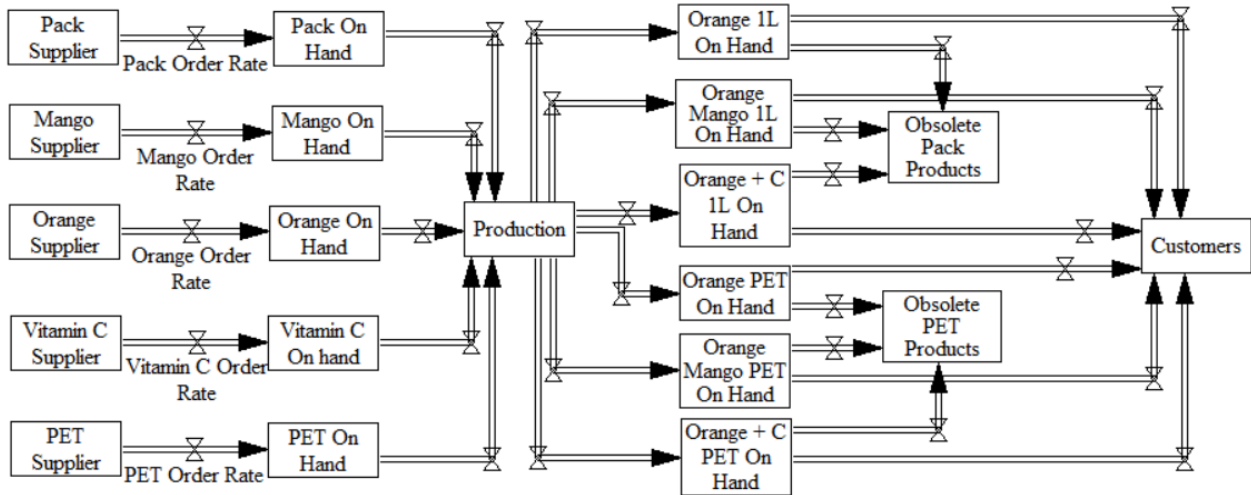


Figure 1. Stock and flow diagram that represents the flow of materials in the company

For the production process, raw materials first move from the raw materials warehouse to the production facility. Liquids go straight to the mixing machine while bottles and cartons go to the filling line to wait for mixing to complete. Once mixing is complete, liquids get moved to the filling line where they fill up the bottles and cartons. These finished products then move to the finished goods warehouse. A simplified version of this is represented in the diagram below.

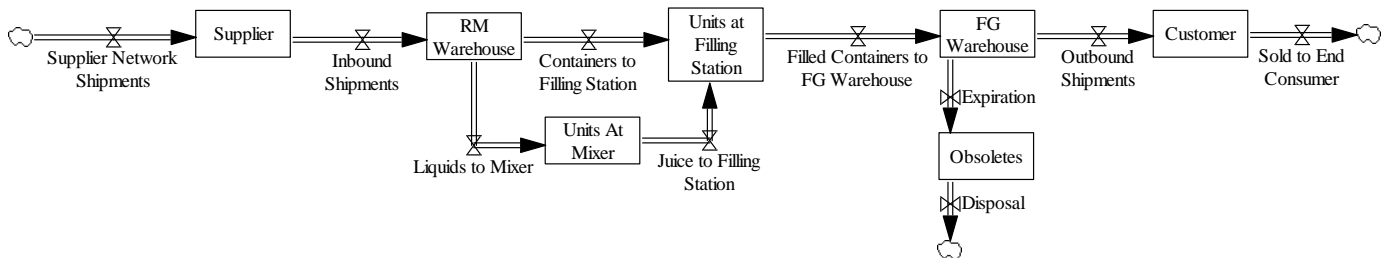


Figure 2. Stock and flow diagram that represents the production process in the Company

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Primary Decision Makers and Their Roles

Purchasing – Carla

Carla is currently coordinating all of the purchasing activities for The Fresh Connection. Carla's primary job is to find good suppliers and negotiate favorable contracts with them. She strives to reduce purchasing costs while balancing out many other factors.

For each raw material that needs to be purchased, Carla can choose the supplier that she wants to work with. There is a supplier market that allows her to choose suppliers from around the world. Each supplier has different base characteristics and negotiable characteristics.

Primary Supplier Base Characteristics include:

- Supplier Location
 - The supplier location is set and cannot be negotiated. Supplier locations range from the Americas to Asia. The country that the supplier is located in can affect price, quality, reliability and other factors with a supplier.
- Lead times
 - Lead times depend on the supplier location and transportation mode. It also depends on the company itself. In peak production times, longer lead times can cause stock outs in the raw materials warehouse and affect the whole manufacturing process. Typically, companies with shorter lead times cost more since they are in more economically developed countries.
- Certification
 - A certified supplier has shown controlled production processes. Certified suppliers are more likely to abide by the agreement that is negotiated. Unfortunately, certified suppliers tend to be more expensive.
- Transport Mode
 - Raw materials are typically shipped by boat or by truck to The Fresh Connection's raw materials warehouse. Shipping by boat is generally cheaper while shipping by truck is more expensive. Trucks, however, have a shorter lead time.

Negotiable Characteristics include:

- Delivery Reliability
 - The delivery reliability refers the percentage of on time deliveries. A higher delivery reliability will help The Fresh Connection have better control of inventory flows. A shorter delivery reliability will save money on purchasing costs.
- Delivery Window
 - The delivery window is the window of time that an inbound delivery must arrive within to be considered on time. A smaller delivery window will allow better control of inventory flows, but it will cost extra. A larger delivery window will cost less and could cause extra fluctuation in inventory.
- Quality
 - The quality level of products can be low, medium or high. High quality products are less likely to cause breakdowns in production or be rejected due to quality issues. Naturally, higher quality products cost extra.

Supply Chain – Felix

Felix is currently coordinating the supply chain at The Fresh Connection. His primary job is to ensure the proper stock management of raw materials and finished products. He needs to make sure that there are enough raw materials in stock for production to continue. He also needs to ensure that there are enough finished goods in stock to meet sales agreements with customers. Felix can also decide on other minor production factors.

Primary Decisions for Felix include:

- Safety Stock for all raw materials
 - Each raw material needs a tailored safety stock that matches the purchasing agreement. Higher safety stocks can compensate for poor suppliers and high fluctuation in demand. High safety stocks, however, cost more for warehousing. Lower safety stocks can cut warehousing costs, but may cause production problems. This is especially true if there is a supply chain issue with a raw materials supplier or a large fluctuation in demand.
- Lot Size for all raw materials
 - Lot sizes for raw materials affect how often shipments are sent to the raw materials warehouse. Smaller lot sizes mean more shipments and more transportation costs. Smaller lot sizes have better reaction times to demand fluctuations. Larger lot sizes mean less transportation costs and a higher variation of inventory in the inbound warehouse.
- Frozen period of production
 - The frozen period of production is the amount of time that the production plan cannot change. A longer frozen period can allow for better raw materials inventory planning. Shorter production periods are more reactive to demand but make raw materials planning much harder.
- The production interval
 - The production interval is the amount of time set between production runs of a single product. A shorter production interval means more changeover times on machines and a quicker reaction to demand fluctuations. It also affects the cycle stock in the finished goods warehouse. (In the game, this cannot be changed)
- Safety Stock for all finished goods
 - The safety stock for finished goods is the amount of safety stock stored in the outbound warehouse. A higher safety stock can help to ensure better delivery reliability to customers. A lower safety stock for finished goods can reduce the amount of obsolete products that are thrown away.

Operations – William

William is in charge of managing operations at The Fresh Connection. He assumes the responsibility of managing the production process from top to bottom. William is always working to find ways to reduce downtime on the production floor. He also strives to keep costs low for staffing and inventory purposes. William has a considerable amount of control over the production process.

- Raw Materials Inspection
 - Each incoming raw materials shipment can be inspected. Shipments that do not meet the inspection criteria are returned to the supplier. Inspections can be costly when

many orders are placed as every inbound order needs an inspection. Inspections can help prevent breakdowns on the production line and other quality rejections.

- Raw Materials Warehouse Space
 - The Raw Materials warehouse is rented out from a third party. As such, a certain amount of space (in pallets) is reserved every six months. A flat fee for the reserved space is charged per pallet. If raw materials inventory is above the amount of reserved space at any given time, a significant extra fee would be charged for exceeding the reserved space. A balance between having too much inventory space and too little inventory space must be found.
- Raw Materials Warehouse Employees
 - The number of employees that are permanently working in the raw materials warehouse can be changed. These workers are paid a flat fee for their services. If there is not much work to be done, then these workers sit idle and incur unnecessary costs. If there is too much work to be done, extra workers must be brought on and incur significant extra costs. Workloads vary from day to day, so a long term balance is required.
- Intake Time to Raw Materials Warehouse
 - The intake time to the raw materials warehouse is the maximum amount of time after a delivery has arrived before it has to be moved into the raw materials warehouse. If the intake time is longer, it can help to stabilize work for the employees. If the intake time is shorter, it will get products into the warehouse sooner so they can be used in production.
- Training to Solve Breakdowns
 - Training for line workers can help to keep machines producing. This option has minor operational benefits and comes at a moderate financial cost to The Fresh Connection.
- Line Settings
 - Line settings include the number of shifts that produce juice for The Fresh Connection. Each shift requires that five workers are on the line. If major production changes are needed due to changing demand patterns, adding or removing a shift is an easy way to make these large changes.
 - Other line settings include adding SMED (Single Minute Exchange of Die) action or increasing line speed. Both of these settings incur a moderate financial cost. Adding SMED action reduces change over times between products while increasing line speed ramps up throughput.
- Finished Goods Warehouse Size
 - The Finished goods warehouse is rented out from a third party. As such, a certain amount of space (in pallets) is reserved every six months. A flat fee for the reserved space is charged per pallet. If finished goods inventory is above the amount of reserved space at any given time, a significant extra fee would be charged for exceeding the reserved space. A balance between having too much inventory space and too little inventory space must be found.
- Finished Goods Warehouse Employees
 - The number of employees that are permanently working in the finished goods warehouse can be changed. These workers are paid a flat fee for their services. If there

is not much work to be done, then these workers sit idle and incur unnecessary costs. If there is too much work to be done, extra workers must be brought on and incur significant extra costs. Workloads vary from day to day so a long term balance is required.

Sales – Hans

Hans is in charge of making all sales decisions for The Fresh Connection. While he is always looking to find new customers, he also must make decisions about sales agreements with each customer. On top of that, he sets rules that apply when there is a shortage of products and manages the types of products that are available to each customer.

For agreements with customers, Hans makes many decisions. Based on these decisions a negotiated contract index is set. The contract index is multiplied by a standard price to get the actual price that a customer pays. For example, a contract index of 1.01 means that the customer pays 1.01 times the standard product price for each product they purchase. The agreement decisions that Hans can make are:

- Service Level
 - The service level is the percent of order lines that are filled on time. If a customer receives a service level that is lower than the contracted level, The Fresh Connection is obligated to pay a large fee to the customer to compensate for late products. If the customer receives a service level higher than the negotiated service level, the customer pays The Fresh Connection a small bonus. Higher negotiated service levels get higher contract indexes.
- Shelf Life
 - The negotiated shelf life is the percentage of the total shelf life that a customer requires. For example, a 75% shelf life agreement with a customer would prohibit The Fresh Connection from sending products with less than 15 weeks of shelf life left to that customer (remember that the shelf life of finished products is 20 weeks). Products that are not sold to a customer before they fall below the smallest shelf life agreement are obsolete and get thrown away. A higher shelf life will increase the contract index while a smaller shelf life will lower the contract index.
- Order Deadline
 - The order deadline is the time of the day before which an order from a customer must be placed. A later order deadline will achieve a higher contract index, but it will make it harder for production to be adjusted to meet the order. An earlier order deadline will allow production more time to adjust, but will receive a lower contract index.
- Trade Unit
 - The trade unit is the increment at which the customer must place an order. Larger trade units will fetch smaller contract indexes while smaller trade units will bring in larger contract indexes. Both of these have varying implications for your finished goods inventory and for your transportation costs.
- Shortage Rules
 - Shortage rules establish how The Fresh Connection deals with customer orders in the event that they cannot satisfy all demand. Typically, the shortage rules are:

- Proportional
 - Available products are equally divided among the orders.
- First come, first served
 - Customers that ordered first receive finished products first followed by customers that ordered products second and so on and so forth until all products are gone.
- Customer Priority
 - If there is a shortage, The Fresh Connection prioritizes customers' orders based on a set priority level.

Notes from discussions with Primary Decision Makers

Recently Vinny has had discussions with his primary decision makers to find out how they are addressing falling returns. Vinny wants to know what each decision maker thinks the company needs to do to improve returns. Vinny also discussed each decision maker's previous decisions and their reasoning in an effort to better understand the situation.

Purchasing – Carla

Carla believes that the current situation is caused by small safety stocks in the raw materials warehouse. She says that this causes the company to spend more than necessary to get materials in the warehouse on a tight schedule. If Felix would set safety stocks higher in the raw materials warehouse, then she could reduce purchasing costs.

Carla's recent decisions have been focused on increasing delivery reliability. This has been in an effort to meet the production needs of the company given the safety stocks that have been set. She has increased service levels arrangements with some of her suppliers to help ensure that raw materials are in the warehouse in time for production.

Supply Chain – Felix

Felix believes that the falling returns are caused by a combination of low service levels, poor warehouse management and bad purchasing decisions. He says that William is unwilling to spend more on warehouse space and it is costing the company significantly extra to store materials. In order to meet the sales agreements, Felix needs to set the safety stock levels for both raw materials and finished goods to significantly higher levels than William thinks they should be.

Felix also believes that Carla is doing a poor job in purchasing. Felix knows that Carla is so focused on minimizing her purchasing costs that she forgets how important good service levels are. If she would be willing to pay a little more on purchasing decisions, she could find better suppliers to help meet company needs. This would reduce safety stock levels, keep warehousing costs down and improve service levels downstream.

Felix's recent decisions have attempted to maximize customer service levels by increasing safety stocks in the finished goods warehouse. This has been done against the wishes of William, who refuses to raise contracted inventory levels any further. Over the past six months, this has cost the company almost 20,000 euros extra in overflow warehouse space.

Felix would like to increase the raw materials warehouse safety stock to cope for Carla's poor purchasing decisions. Felix refuses to do this until William will agree to contract more storage space. Overflow storage for the raw materials warehouse was already exceeding 71,000 euros over the last six months. Getting William on board before increasing this safety stock is needed or huge extra costs will be incurred.

Operations – William

William thinks that the falling returns are due to Hans's sales agreements with customers as well as overly large safety stock levels in the finished goods warehouse and in the raw materials warehouse. William also thinks that Carla needs to find suppliers with shorter lead times.

William's finished goods warehouse workers threw away almost 90,000 euros in finished goods over the past six months because they expired before sales came in from customers. William blames this on Felix who raised safety stock levels for finished goods without considering expiration of products. Because of this, William refused to raise the allotted finished goods inventory levels to meet Felix's outrageous safety stock levels.

William spoke to Hans to reduce service level in an effort to reduce the need for finished goods inventory levels. Hans said that many of their competitors are offering this same service level and that reducing it further would cause significant drops in the prices that customers would be willing to pay.

Felix wants to raise safety stock levels in the raw materials warehouse, but William thinks that this would not be necessary if Carla made better purchasing decisions. Carla's suppliers are low cost, but they are very far away. If Carla would select closer suppliers, the company could reduce safety stock levels and therefore would require smaller warehouse space.

Over the past six months, William has continued to manage the operations of the company. William has also hired a new finished goods warehouse worker in an effort to reduce overtime costs and increase the service level given to customers.

Sales – Hans

Hans believes that the company is failing due to the inability of the rest of the team to do their jobs in a congruent manner. All of The Fresh Connection's sales agreements are based on industry averages and should be very achievable. Hans believes that the root of the problem falls on William and Felix. He believes that their inability to coordinate efforts has left discontinuities between the supply chain and operations of the company.

Customers have been exceptionally disgruntled with The Fresh Connection's performance over the past year and are looking to switch to a new orange juice supplier. In an effort to better manage customer orders, Hans has recently introduced a first come first served order management system. This is designed to encourage customers to order their finished goods earlier. Hans hopes that this will provide the rest of the team with some extra time to get orders together.

Financials

(This section details the financials for the last six months and the six months prior to that)

		Six month financial period ending on:	
		12/31/2016	6/30/2016
Return On Investment		-9.94%	-3.96%
Food & Groceries		1,297,902	1,297,902
LAND Market		632,821	632,821
Dominick's		698,240	698,240
Contracted sales revenue		2,628,963	2,628,963
Food & Groceries		-85,451	-134,538
LAND Market		-13,883	-23,079
Dominick's		-7,088	-10,498
Bonus or penalties		-106,421	-168,115
Realized revenue		2,522,542	2,460,848
Mono Packaging Materials		123,164	110,692
Trio PET PLC		342,386	307,931
Seitan Vitamins		2,469	2,295
NO8DO Mango		90,469	81,658
Miami Oranges		450,643	409,042
Purchase value		1,009,130	911,617
Bottling lines fixed costs		49,000	49,000
Permanent employees		200,000	200,000
Flexible manpower		112,116	66,670
Mixer fixed costs		31,250	31,250
Mixer variable costs		156,550	144,569
Production costs		548,917	491,489
Cost of goods sold		1,558,047	1,403,107
Gross margin		964,495	1,057,741

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Energy	166,961	150,904
Water	26,822	26,779
Other	146,619	146,619
Overhead costs	340,402	324,302
Interest components	12,445	11,181
Interest products	17,990	12,926
Interest on stock value	30,436	24,107
Pallet locations raw materials warehouse	90,000	90,000
Overflow raw materials warehouse	71,166	42,014
Outsourcing tank yard	27,750	26,055
Pallet locations finished goods warehouse	150,000	150,000
Overflow finished goods warehouse	21,375	607
Space	360,291	308,676
Costs of scrap	89,989	40,203
Risk	89,989	40,203
Stock costs	480,716	372,986
Permanent employees	100,000	100,000
Flexible manpower	12,345	6,612
Inbound handling	112,345	106,612
Permanent employees	100,000	80,000
Flexible manpower	6,287	3,725
Outbound handling	106,287	83,725
Handling costs	218,632	190,337
Order lines	275	271
Orders	1,375	1,353
Contracted suppliers	100,000	100,000
Inbound	101,650	101,624
Order lines	927	927
Orders	7,167	7,167
Outbound	8,093	8,093
Administration costs	109,743	109,717

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	Distribution costs	192,114	192,114
	Interest	25,841	25,479
	Indirect cost	1,367,448	1,214,936
	Operating profit	-402,953	-157,195
	Fixed	2,500,000	2,500,000
	Stock	405,808	321,424
	Machines	802,500	802,500
	Payment terms	344,546	339,725
	Investment	4,052,854	3,963,649

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Moving Forward

Now that Vinny has a good understanding of what is happening with his company, it is important for him to find his way back to profitability. Ideally he would like to boost his return on investment to the highest levels possible. To do this he will start by...

This section is your story as you take on Vinny's role and begin to play The Fresh Connection.

Additional Information – Decisions available in each level

		Level1	Level2
Financial Statements			
Financial Statements	Allow	Yes	Yes
Purchasing			
Supplier Market	Supplier Market	Yes	Yes
Agreements	Negotiate	Yes	Yes
Agreements	Trade unit	No	Yes
Agreements	Delivery Reliability	Yes	Yes
Agreements	Delivery Window	No	Yes
Agreements	Quality	No	Yes
Operations			
Inbound	Inspect	No	Yes
Inbound	Pallet Locations	Yes	Yes
Inbound	Permanent Employees	No	Yes
Inbound	Intake Time	No	Yes
Bottling	Solve Breakdowns Training	No	yes
Bottling	Number of Shifts	No	Yes
Bottling	SMED	No	Yes
Bottling	Increase Speed	No	Yes
Outbound	Pallet Locations	Yes	Yes
Outbound	Permanent Employees	No	Yes
Sales			
Agreements	Negotiate	Yes	Yes
Agreements	Service Level	Yes	Yes
Agreements	Shelf Life	Yes	Yes
Agreements	Order Deadline	No	Yes
Agreements	Trade Unit	No	Yes
Ord. Mgmt	Shortage Rule	Yes	Yes
Supply Chain Management			
Component	Safety Stock	Yes	Yes
Component	Lot Size	Yes	Yes
Production	Frozen Period	No	Yes
Product	Safety Stock	Yes	Yes

The present case study is based on The Fresh Connection supply chain simulation developed by Inchange (fka Involvation Interactive) between 2008 and 2016. Names and other narrative details in the story are fictitious and are not meant to represent any particular company.