

CANAAN GROUP: PORT METRO VANCOUVER CONTAINER TRANS-LOAD SERVICE

Professor Fraser Johnson wrote this case solely to provide material for class discussion. The author does not intend to illustrate either effective or ineffective handling of a managerial situation. The author may have disguised certain names and other identifying information to protect confidentiality.

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Immediately after parking his Tesla Model S in the company parking lot, Patrick Lo, president and chief executive officer (CEO) of Canaan Group in Vancouver, British Columbia, grabbed his briefcase and walked briskly to his office to begin work on a project that he felt offered a great deal of potential. It was still early in the morning on Monday, January 11, 2016, and Patrick was finalizing his analysis of a proposed trans-loading facility, which would be located 340 kilometres inland from Port Metro Vancouver. If the new venture operated as Patrick hoped, it would simultaneously offer a lower-cost transportation alternative for exporters and significantly reduce greenhouse gas emissions in the Lower Mainland. Despite the potential opportunities, there were three important hurdles to overcome before successfully launching the new operation. First, he needed co-operation from exporters and their shipping companies to provide sufficient throughput of containers. Second, agreement from CP Rail to provide service, at a competitive rate, was essential. Third, he would need to successfully negotiate a long-term lease for the proposed site to justify the investment that would be required.

As Patrick examined the data from the pilot project that he ran in late 2015, he began to consider the significant impact that the new terminal could have on the local transportation network. However, he was most excited about the positive environmental impact of the project:

Similar to Elon Musk's Tesla, I am trying to introduce an innovation that has the potential to dramatically change my industry. It could represent a real game changer for the way that companies transport their products to the port. If I can get the model to work, it will be a green story that can benefit the Lower Mainland. However, I can't implement this new venture without the support of the other stakeholders in the supply chain.

Patrick felt that he had collected enough information to make a decision. If he decided to proceed, Patrick would need a plan on how to engage the various stakeholders to ensure success.

CANAAN GROUP

Founded in 1981 by Paul Lo, Patrick's father, as a freight forwarding company, Canaan Group (Canaan) had grown to be one of the largest privately owned logistics companies in Canada. It provided an extensive range of services for its customers, including global air and sea freight, customs brokerage, warehousing and distribution, fully integrated courier service, cargo insurance, trade-aid consulting, real estate development, and venture capital financing. Headquartered in Richmond, BC, the company also had offices in Calgary, Toronto, Montreal, and Los Angeles.

Canaan Shipping Company handled approximately 50,000 TEUs each year, across a wide range of product categories.¹ Trans-Pacific shipments represented about 60 per cent of Canaan's volume, while the balance was split among Trans-Atlantic, South American, and Intra-Asia routes.

PORT METRO VANCOUVER²

Port Metro Vancouver was Canada's largest port. Operated by the Vancouver Fraser Port Authority, it moved approximately CA\$510 million³ in freight each day, supporting close to one in every five dollars of trade in goods that flowed through Canada. The port offered a broad range of cargo-handling services, supported by 27 marine cargo terminals, and was organized across five business sectors: automobiles, break-bulk, bulk, container, and cruise.

Located on the southwest coast of British Columbia, Port Metro Vancouver managed approximately 16,000 hectares of water, more than 1,000 hectares of land and approximately 350 kilometres of shoreline. It ranked as the third largest port in North America in total tonnage moved (140 million tonnes) and sixth in terms of total annual TEU volume (2.9 million). Exhibits 1 and 2 provide a breakdown of inbound and outbound cargo handled at the port. Coal, forest products and grain, specialty crops, and feed accounted for 63 per cent of the tonnage handled at the port. Trade with China, Japan, South Korea, India, and the United States were the principle destinations for freight, collectively accounting for slightly more than one-half of the total tonnage handled (see Exhibits 3 and 4).

The port managed an extensive network of rail lines and truck routes to efficiently move product. It was responsible for 680 kilometres of rail line and 1,560 kilometres of truck routes on its property. Although the total TEU volume was evenly split between rail and truck transport, inbound freight for export relied on trucks for approximately three-quarters of the TEU volume, while approximately 70 per cent of products imported were handled by rail, and about 92 per cent of imports eventually ended up on rail as part of their journey to their final destination. A bitter month-long strike by container truck drivers virtually shut down the port in March 2014. The strike ended when the provincial government tabled back-to-work legislation.

Three Class 1 railroads served the port — CN Rail, CP Rail, and BNSF Rail. CN Rail and CP Rail were set up to provide on-dock service at the container and cargo terminals. Loading and unloading on-dock

¹ TEU is a logistics term that stands for twenty-foot equivalent unit, which is a measure of a ship's capacity. One TEU is equivalent to a standard international shipping container, which is 20 feet long, 8 feet wide, and 8.5 feet high, for a volume of 1,360 cubic feet.

² Port Metro Vancouver, accessed February 12, 2016. www.portmetrovancover.com; *2015 Ports & Logistics Annual*

reduced freight handling, which improved transit times, decreased the potential for damage, and lowered overall costs for the shipper. Reducing the amount of inbound freight handled by truck represented an opportunity for Port Metro Vancouver in the following two ways.

First, reducing port-related air emissions was a major initiative. In 2007, it partnered with government agencies and stakeholders to develop the Northwest Ports Clean Air Strategy, which had two primary objectives: 1) Reduce diesel particulate matter emissions per tonne of cargo by 75 per cent by 2015 and 80 per cent by 2020, and 2) Reduce greenhouse gas emissions per tonne of cargo by 10 per cent by 2015 and 15 per cent by 2020. The port had invested in an air quality-monitoring infrastructure to capture and record changes in air quality.

Second, noise levels at the port were a major concern. In 2014, 55 per cent of the complaints received through the port's community feedback line were related to noise from terminals, tenants, vessels, trucks, and rail movement.

THE CACHE CREEK TERMINAL OPPORTUNITY

A major issue facing Port Metro Vancouver was congestion and capacity constraints. In its strategic planning document, *Port 2050*, the ability to grow the capacity at the port was identified as a key constraint facing the organization. The availability of land in the Lower Mainland and the ability of the supply chain to efficiently use the facilities were seen as the two most important factors affecting future growth.⁴

In 2014, British Columbia exported \$12.4 billion in forestry products and \$2.3 billion in agriculture products.⁵ A significant portion of these products was shipped to overseas markets through Port Metro Vancouver (see Exhibits 2 and 4). Trucks were most frequently used for the delivery of forestry and agricultural products to the port from the interior of the province, contributing to congestion on local highways and in the port infrastructure. Patrick estimated that that each year there were approximately 260,000 FEUs of lumber and logs and 230,000 FEUs of pulp trucked from Western Canadian producers to Port Metro Vancouver.⁶

Cache Creek Terminal (Cache Creek) was a 220-acre⁷ privately owned inland trans-load and storage terminal located approximately 340 kilometres northeast of Vancouver. Joseph Russo was the president and CEO of Cache Creek, and had purchased the property in 2004, hoping to develop it into a trans-load facility. Joseph was a successful entrepreneur who had spent most of his career working in real estate.

Cache Creek was adjacent to CP Rail and CN Rail mainlines, with approximately 9 kilometres of track on the property that provided service to the CP Rail mainline. It was the closest large trans-loading terminal outside the Vancouver Lower Mainland. In January 2016, the primary services provided by Cache Creek were fleet management (e.g., rail car storage) and bulk storage (e.g., commodities, fertilizers, and industrial products).

Cache Creek completed a \$6 million infrastructure project in 2014 to add a connection to the CP Rail mainline, increase railcar storage capacity, and add new trans-load facilities and support tracks. It received \$3 million from the Canadian federal government to help fund the project.

Patrick felt that Cache Creek represented an opportunity to create a container trans-load operation, where truckload shipments of forestry and agricultural products would be trans-loaded into containers and transported to Port Metro Vancouver via rail. He believed his trans-load model provided an opportunity to simultaneously reduce congestion in and around the port, lower costs, and improve sustainability performance. Patrick was familiar with similar operations at the Fairview Container Terminal at the Port of Prince Rupert, BC, and at the Inland Port in Greer, South Carolina, which provided trans-load rail service to and from the Port of Charleston. Located approximately 200 miles inland from the Port of Charleston, the Greer facility used Norfolk Southern Railway's main rail line, handling approximately 60,000 TEUs per year. Since its opening in 2013, the Greer facility had helped to relieve congestion at the Port of Charleston while improving efficiencies. Patrick described how the Cache Creek facility would change the flow of product to Port Metro Vancouver:

Our supply of empty containers is from Eastern Canada, and the delivery cost is \$500 each. When describing my vision for the container trans-load operation at Cache Creek, I like to use the example of delivering lumber from a mill in Kamloops, BC, to a ship at Port Metro Vancouver. Under the current system, the truckload of lumber would make a 350-kilometre journey from Kamloops to a consolidation yard in Vancouver owned by the mill's third-party logistics (3PL) supplier, where it would sit in inventory. In the meantime, an empty container would be moved from the railway yard to the 3PL consolidation yard and the lumber would be trans-loaded into the container. When a firm delivery date is set through the port's reservation system, the lumber would then be shipped to the dock. I estimate the variable costs of this supply chain model are about \$2,380 per container [see Exhibit 5].

The Cache Creek Terminal model can reduce the number of movements and take advantage of lower-cost rail transportation. First, since CP Rail services Cache Creek, empty containers arriving from the east can be dropped off at the terminal, thereby avoiding the need to truck containers to consolidation yards. Cache Creek is approximately 90 kilometres from Kamloops, which is about a quarter of the cost of trucking the load to Vancouver. We can trans-load the lumber in the container and ship it from Cache Creek via rail to the port. If we can get enough volume to make this worthwhile for the railway, my estimate is the rail transportation costs should be about \$400 per container. Based on my estimates, the costs of shipping a container of lumber can be reduced by approximately one-quarter, netting a savings of \$655, excluding Canaan's fees [see Exhibit 5].

A second advantage is the environmental benefits from substituting rail transport for trucks. Not only will it help relieve congestion on the roads and at the port but CO₂ [carbon dioxide] emissions for rail, on a tonne-per-kilometre basis, are about 15 per cent of trucking. I estimate that at full volume, the Cache Creek container trans-load operation will provide an environmental benefit equivalent to removing 12,300 cars per year off the road in the Lower Mainland. This can be a win-win from both an efficiency and environmental perspective.

THE PILOT PROJECT

To demonstrate the viability of the new venture, Patrick ran a pilot project from mid-July to the end of September 2015. Working with CP Rail and Hapag-Lloyd, a large shipping line, Canaan shipped 30

containers of pulp and lumber each week from Cache Creek to Port Metro Vancouver. Patrick's objective was to demonstrate the viability of the proposed model by validating operational efficiencies and on-time delivery performance. Performance of the pilot project had gone well, confirming Patrick's assumptions for handling costs and delivery lead times (see Exhibit 5).

Based on the results of the pilot project, Patrick planned on a three-phase implementation schedule. The start-up phase would involve one train per week carrying 200 FEU containers. Phase 2 would double the volume with two shipments per week. When the project was running at full volume in the third phase, Patrick expected Cache Creek to operate six days per week, with one shipment of 200 FEU containers to the port each day. The new trans-load operation would require 5 acres of land at Cache Creek.

Canaan would need to commit resources to support container-handling operations, scheduling, and administration. A yard manager and administrative staff for the trans-loading operation at Cache Creek needed to be hired. Canaan would also need to purchase office equipment and put in a computer system. The yard would require container-handling equipment, which could be leased, and a new pad for container storage would need to be installed. The material handling equipment would include two container stackers, each with capacity of 20 moves per hour for both unloading empty containers and loading full containers. Patrick estimated that fixed overhead costs for administrative costs, including salaries, administrative expenses, and lease payments would be \$75,000 per month. The number of material handling operators in the yard would be driven by container volume, and labour costs would be recovered through fees charged to the shipper (e.g., the \$400 container stuffing fee; see Exhibit 5). Initial capital costs were expected to be \$200,000.

PREPARING FOR NEGOTIATIONS

Patrick's concerns turned to aligning the stakeholders' collective interests and finalizing a deal that would make Cache Creek a viable trans-load operation. Patrick described the situation:

We need to get CP Rail committed to the project at a competitive rate. They charged a fee of \$900 per container during the pilot because of the small volumes. I expect a fee in the \$400 range would be more reasonable for phase 1. At full volume, I would expect the rate to be even lower.

The segment of the market with the best potential is export of forestry products and agriculture products, such as grain and other crops. The major shipping companies, such as Hapag-Lloyd, Yang Ming Marine Transport Corporation, "K" Line, Maersk Line, and China Ocean Shipping Company (COSCO Group), manage transportation for the producers and their customers. They will need to be convinced of the benefits of using Cache Creek before making changes to their supply chain. In my discussions with Hapag-Lloyd during the pilot project, we had discussed a preliminary total price of \$1,825 per container shipped through Cache Creek, as established by the cost structure set up in our base model [see Exhibit 5].⁸

I will need to negotiate a lease with Cache Creek, but it will need to be structured in a manner to share the benefits and risks. We paid Cache Creek \$1,000 per acre per month during the pilot. If the project moves ahead, in addition to \$5,000 per month in rent, they are expecting a royalty fee for each container shipped as compensation for using the Cache Creek rail network. However, I

⁸ The shipping fee of \$1,825 is the base model. The trucking cost in line 2 of Exhibit 5 would change based on the location of the producer and the shipping fee would be adjusted accordingly. For example, if the trucking fee was \$150 instead of \$250, the price to the shipper would be \$1,725 instead of \$1,825.

am not prepared to enter into a long-term lease where Canaan assumes all of the risks. I believe there is enough opportunity in this project where all the stakeholders can come out ahead. We need to set a fair arrangement for the royalty fee based on our success in growing the business.

Canaan brings a combination of relationships with the producers, shipping lines and the railways, and 35 years of experience in global logistics. We have the expertise and capabilities to manage a large trans-loading operation that will make this operation a success.

As Patrick reviewed the data from the pilot study, he wondered what his next step should be. With which stakeholder should he start his negotiation? What were his bargaining strengths and weaknesses? Were there other stakeholders that should be engaged? Patrick knew that success would depend on the willingness of each party to share the benefits and risks, and he wondered where to start.

**EXHIBIT 1: PRINCIPAL COMMODITIES — INBOUND CARGO FOR 2013 AND 2014
(IN METRIC TONNES)**

Commodity	2013	2014
Chemicals, base metals, and minerals	9,831,083	11,036,067
Consumer and related goods	5,474,762	5,644,872
Machinery, vehicles, construction, and materials	4,389,984	4,858,696
Forest products	3,784,769	3,579,434
Petroleum products	2,449,887	1,841,745
Processed food products	705,777	752,737
Animal products, dairy, and produce	559,380	586,282
Grain, specialty crops, and feed	171,678	181,117
Fertilizers	18,594	25,620
Coal	208	300
Total	27,386,122	28,506,870

Source: Port Metro Vancouver, *Statistics Overview, 2014*, 9, accessed February 12, 2016, www.portmetrovancover.com/wp-content/uploads/2015/03/2014-statistics-overview.pdf.

**EXHIBIT 2: PRINCIPAL COMMODITIES — OUTBOUND CARGO FOR 2013 AND 2014
(IN METRIC TONNES)**

Commodity	2013	2014
Coal	38,171,011	38,105,611
Forest products	24,164,723	23,294,876
Grain, specialty crops, and feed	19,336,134	23,168,623
Fertilizers	9,446,650	9,961,923
Chemicals, basic metals, and minerals	4,738,680	6,062,738
Petroleum products	5,371,478	5,525,025
Consumer and related goods	2,201,873	2,171,933
Processed food products	1,434,562	1,140,004
Machinery, vehicles, construction, and materials	1,021,821	993,081
Animal products, dairy, and produce	735,896	698,142
Total	106,622,828	111,121,956

Source: Port Metro Vancouver, *Statistics Overview, 2014*, 10, accessed February 12, 2016, www.portmetrovancover.com/wp-content/uploads/2015/03/2014-statistics-overview.pdf.

**EXHIBIT 3: PRINCIPAL TRADING ECONOMIES — INBOUND CARGO FOR 2014
(IN METRIC TONNES)**

China	7,461,278
United States	2,104,743
South Korea	1,530,060
Morocco	915,051
Taiwan	698,729
Japan	679,226
Mexico	596,663
Hong Kong	444,135
Thailand	415,413
India	237,060

Source: Port Metro Vancouver, *Statistics Overview, 2014*, 13, accessed February 12, 2016, www.portmetrovancover.com/wp-content/uploads/2015/03/2014-statistics-overview.pdf.

**EXHIBIT 4: PRINCIPAL TRADING ECONOMIES — OUTBOUND CARGO FOR 2014
(IN METRIC TONNES)**

China	24,149,633
Japan	15,795,649
South Korea	12,382,309
India	4,981,500
United States	4,852,856
Brazil	3,600,859
Chile	2,656,862
Indonesia	2,405,304
Taiwan	2,361,706
Bangladesh	1,329,078

Source: Port Metro Vancouver, *Statistics Overview, 2014*, 13, accessed February 12, 2016, www.portmetrovancover.com/wp-content/uploads/2015/03/2014-statistics-overview.pdf.

EXHIBIT 5: FINANCIAL ANALYSIS OF VARIABLE COSTS

	Current	Cache Creek Model
1. Empty container shipped from Eastern Canada and repositioned at Vancouver rail yard	\$ 500	\$ 500
2. Truck lumber to trans-load yard	1,050	250
3a. Truck empty container from rail yard to trans-load yard	140	–
3b. Internal rail movements	–	75
4. Container stuffed at trans-load yard	400	400
5. Container delivered to dock	140	400
6. Dock charges and reservation fees	100	100
7. Dock demurrage and 3PL storage fees (average)	50	–
Total	\$ 2,380	\$ 1,725

Note: 3PL = third-party logistics supplier
Source: Company files.