

STRATEGIC ANALYSIS OF A MANUFACTURING FIRM

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ABSTRACT

Collins Manufacturing Company Limited has experienced a divergence from its traditional differentiation strategy which constitutes the need to review and revise its strategy to meet the changing needs of the market. Coupled with this is the impending loss of land due to the government bridge building project, scheduled to commence in the fall of 2005. If no action is taken, customer service levels will decline and the firm's reputation of premium quality service will be in jeopardy, putting the entire firm at risk of failure. This paper puts forth the recommended course of action to proceed with acquiring and expanding to the adjacent lot to the south of the current property. Expansion would include a new structure to house the highly differentiated service and customization division, leaving room in the main structure to operate a separate cost-based, mass production division.

EXECUTIVE SUMMARY

Collins Manufacturing Company Ltd. has been operating successfully in the van body building industry for over sixty years as a differentiator offering a premium product. Recent economic growth in the Vancouver area has spurred an increase in business for van body builders in the region. Along with rising demand, firms in the industry have seen an increase in price sensitivity among certain key customer groups. This shift has led some firms, including Collins to adopt a mixed strategy, keeping some differentiation oriented activities while replacing others in favour of cost-based activities. For Collins Manufacturing, this divergence from the traditional differentiation strategy constitutes the need to review and revise its strategy to meet the changing needs of the market.

Coupled with the need to update its strategy is the impending loss of land due to the government initiative to build a bridge spanning the Fraser river between Maple Ridge and Langley, scheduled to commence in the fall of 2005. Collins Manufacturing will be losing approximately twenty percent of its current property area, seriously impeding its ability to continue to conduct business under its existing strategy. If no action is taken, customer service levels will decline and the firm's reputation of premium quality service will be in jeopardy, putting the entire firm at risk of failure.

Of the options considered, the recommended course of action is to proceed with acquiring and expanding to the adjacent lot to the south of the current property. Expansion would include the building of a new structure to house a distinct service and customization division which is operated with a strong differentiation strategy. When

service and custom work has been moved to the new structure, the revision of the existing building can be undertaken. This re-engineering would have a focus on cost-based, mass production and would be operated as a separate business division from the service and customization division. Work cells would be relocated through-out the facility to increase efficiency and through-put. Minimal structural changes would be necessary, with the exception of the addition of a second paint booth along the south face of the current building.

Expanding to the adjacent lot will provide the firm with the opportunity to remain at the current location despite the loss of land. The separation into two distinct divisions will allow the firm to offer the best of service to its high-end quality seeking customers while controlling the cost of new units for price-sensitive, high-volume customers.

Implementation of this recommendation will likely move Collins Manufacturing towards a new level of growth and success.

DEDICATION

To Fleming Sondergaard, a great leader who left us too soon. Without your support this paper could never have been written. Your absence is felt every day at Collins.

To my husband, your support through this entire EMBA journey has been everything I needed it to be. I can only hope to repay you in kind in the future.

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CHAPTER 1: INTRODUCTION

1.1 Description of the Firm

Collins Manufacturing Company Limited is a relatively small manufacturing firm located in the Lower Mainland of British Columbia. Its primary business is in the sales, assembly and installation of van bodies for medium-duty straight chassis trucks. Collins also assembles and builds flat decks and other specialized bodies for these same chassis. The firm also provides parts sales and offers maintenance and repair services which complement its new body sales.

Collins is privately held by a very small group of shareholders and has been run very much as a family business. There is only one site, and on that site operations take place in one common building. The company employs approximately one hundred employees, of which Sales is eight percent, Finance is five percent, Operations is seven percent, with the remaining eighty percent of employees being tradesmen and labourers.

1.2 Current Strategy of the Firm

When founded in 1944, Collins Manufacturing was a custom body shop where local businesses could take their large trucks and have the cargo area custom built to suit their specific business needs. The quality of workmanship led to an outstanding reputation within the lower mainland as a premium provider of van bodies. The firm's strategy as a high-quality differentiator was adhered to for several decades with great success.

In the late 1960s, the firm began to make use of interchangeable components which resulted in lower costs and faster production. Increasing sales during the post-war economic boom found Collins Manufacturing exceeding capacity and relocating to larger premises. As business growth in British Columbia continued, the firm's sales also increased. With the introduction of aluminium components, the firm was successful in integrating further cost-saving and capacity increasing improvements.

Throughout these years, the firm's overall directive has not changed from the original differentiation strategy. By their own admission, the management of Collins Manufacturing had not reviewed their current differentiation strategy to ensure that its appropriateness is still valid.

1.2.1.1 Aligning Operations Activities with Corporate Strategy

In an informal survey of employees at Collins Manufacturing, it was found that there is a discrepancy between what strategy is intended by management and what is being done during day-to-day activities. Table 1-1 summarizes some of these differences.

Table 1-1: Strategy preferred (●) compared to observed (x).¹

Cost-based Provider Low Cost / Adequate Quality	Business Activity		Differentiation High Quality / Adequate Cost
	<u>Product Creation</u>		
Fast Follower	- x	- - ● - - - - - - - - - -	Innovative
	<u>Technology Development</u>		
Low activity	- x	- - ● - - - - - - - - - -	High activity
	<u>Organizational Structure</u>		
Centralized	x	- - ● - - - - - - - - - -	Decentralized
	<u>Product Mix</u>		
Economies of Scale	- - - - -	x - ● - - - - - - - - -	Economies of Scope
	<u>Manufacturing Style</u>		
Mass Production	- - - - -	x - - - - - - - - - ● - -	Highly Skilled / Flexible

¹ By Author, based on Bukszar, E. EMBA Strategy Seminar, Lecture Notes. Simon Fraser University, Vancouver, Spring 2005

Through discussions with upper management, it was noted that the company's overall strategy is to be a successful differentiator. They recognize that a significant portion of their customers are seeking more than just a premium quality product, with customization and flexibility being as important as high quality. To achieve both quality and flexibility, Collins employs highly skilled tradesmen. They incorporate cross-training to further broaden their employees abilities and encourage their employees to be more autonomous. Management feels that employees with more autonomy will be able to improve upon current processes to elevate quality outputs. These are all common activities for differentiated firms. The upper management was then asked to indicate where Truck-Can's activities would be positioned along a Cost-based/Differentiator scale. The results reveal that despite their overall intention to be a differentiator, management preference is for cost-based activities.

Beyond intended strategy, observation of daily activities by employees was also noted. These results support the finding that management preference at Collins is towards a more cost-based strategy. The survey indicates that there is an opportunity for Collins to review their corporate strategy and then implement it at the operational level so that daily activities reinforce the overall strategy. This level of proactive management is not common in the van body building industry and thus an improvement in this area would allow Collins to surpass its competitors.

1.3 Description of the Problem

An initial review of strategy at Collins has indicated that, contrary to their intention to be differentiators, demands of key customers are pushing the firm into a high-volume, low-cost strategy. The firm has responded to these requests by shifting

several activities towards more cost-based practices. The subtle shift in activities from those which facilitate differentiation to those which coincide with a cost-based strategy has been reactionary and not given much consideration by management.

While it is possible for a firm to naturally evolve from differentiator to cost-based provider in response to market shifts, two indicators have been identified that confirm the presence of a strategic problem at Collins Manufacturing: the firm has not been able to sufficiently lower costs along with prices and thus profit margins have been shrinking; and the firm has not been able to adequately increase throughput to meet the high-volume demands of their customers.

1.4 Relevant Issues that Define Scope

As with most firms, there are certain issues that are present that will significantly limit the range of options considered. The firm experienced a significant and unexpected loss with the recent passing of its president of over twenty years. The leadership and inspiration that the past president gave to the firm will be difficult to replace and his absence is felt with each key decision. Without a definite leader, it is difficult for any firm to commit to any long-range plans or strategies. A second challenge with identifying suitable options is the impending government initiative to erect a bridge spanning the Fraser river between Maple Ridge and Langley. This project will have a significant impact on the ability of the firm to conduct business. The current plan includes a seventeen percent loss in property size. This is a significant reduction in area for a firm that is already operating at capacity, resulting in a need to get better control of demand or relocate to a new location. At the time of this paper, the southern connector option for the bridge has not been finalized but is extremely likely to affect the firm directly. Therefore

the potential loss of property is being considered in this paper as a certainty. Loss of property, other unknown problems resulting from changes in traffic patterns, and the change in leadership of the firm limit the benefits of performing a detailed long-range strategic analysis. Therefore this project will be limited to short range plans of no more than three years.

1.5 Decision Criteria

Given the parameters stated in the previous section, there are three basic criteria required for one of the presented options to become the preferred option. The ideal strategy will permit the firm to continue operating over the next three years with no impact to customer service levels by insuring that capacity meets the desired level of demand. It will also provide for continued or improved shareholder wealth by maintaining or reducing expenses, both operating and capital. The final criterion is the need to keep the firm's reputation capital intact. The following chapter will discuss the reputation of the firm and how the relationships it has with its customers are key success factors that are very difficult for its competitors to duplicate.

1.6 Paper Structure

The paper is divided based first on the analysis of the environment of the firm, followed by the analysis of the strategic options for the firm. Chapter two will apply Ed Bukszar's adaptation² of Michael Porter's Five Forces Analysis to the van body building industry with the intent to reveal opportunities for the firm that complement existing key

² E. Bukszar's adaptation of M. Porter's Five Forces Analysis. EMBA Strategy Seminar, Lecture Notes. Simon Fraser University, Vancouver, Spring 2005

success factors. This external environment analysis will also show that the industry is able to support both cost-based and differentiated strategies.

From the findings of the external analysis three strategic options will be presented based on the criteria given in section 1.5. These three options will be analyzed using Crossan's³ Diamond-E Framework to assess how best each option meshes with the internal resources of the firm and with management preference. This will indicate which if any of the three strategic options is best suited for implementation at the firm.

The final portion of this paper is the recommendation and implementation plan based on the findings of the earlier chapters. This action plan will guide the management team to move forward with the recommendation should they choose to proceed. This includes proposed site layouts, estimated costs to complete, and rough timelines for key action items. The paper concludes with recommendations for measuring the success of the project after it has been implemented.

³ Crossan, M., Fry, J., Killing, J.P. Strategic Analysis and Action, Sixth Edition. Toronto, On., Can.: Pearson Prentice Hall, Toronto, 2005

CHAPTER 2: EXTERNAL ANALYSIS

In this section, the external environment of the firm will be analyzed to identify key success factors. This will be done by considering how potential new entrants, customers, suppliers, and possible substitutes increase or decrease the attractiveness of the industry. An attractive industry is one which is difficult to enter, where the power of customers and suppliers is minimal, and the range of substitute products is limited⁴. In the following subsections for the Five Forces Analysis, the influence of each force over the attractiveness of the industry will be indicated at the beginning of each section:

↑ = high

↔ = moderate

↓ = low

The degree of influence is indicated with the number of arrows shown (e.g. ↑↑↑ is very high, while ↑ is only a slight increase).

2.1 Five Forces Analysis: Van Body Building Industry

Four of the five forces which exert force or influence over the van body building industry include potential new entrants, customers, suppliers, and possible substitutes. Each will be discussed in sections 2.1.1 through 2.1.4. The fifth force comes from the interaction and degree of competitiveness between the various van body building firms in the regional industry. This will be discussed later in the chapter in section 2.3, after a review of the industry value chain.

⁴ Porter, M. On Competition. Harvard Business School Publishing, Boston 1998

2.1.1 Barriers to Entry (↑)

Initial considerations for entry into the van body building industry would indicate that there are very few barriers to entry. Product homogeneity and simplicity, along with minimal knowledge and financial requirements for entry would at first lead a prospective new entrant to perceive the industry as attractive. The importance of relationships and reputation trump these appealing features resulting in a high barrier to entry.

2.1.1.1 Homogeneous, Simple Product (↓)

The product may appear to be highly customized, but to the customer, the common van body is a rather homogeneous product. Van body design is relatively simple, comprising of a floor, sides, a front bulk head, roof, and a rear bulk head which contains the access door. As a result, the ability to reverse-engineer a van body is quite easy. New companies can easily acquire the competitor's product and determine how to produce a similar product without copying the exact design. Industry participants have been evolving their designs to incorporate the best aspects of competing products. This has resulted in a relatively homogenous product.

2.1.1.2 Initial Knowledge and Financial Investments (↓)

The prevalence of patents in the van body industry is quite low. A search of the Canadian Intellectual Properties Database⁵ revealed less than 10 relevant patents, most of which were filed in the 1980's and 1990's. In the lower mainland, there is only one patent held by one of the three lower mainland competitors. The protections entitled with this

⁵ Canadian Intellectual Properties Office. March 20, 2003. Government of Canada, March 13, 2005 <<http://patents1.ic.gc.ca/intro-c.html>>.

patented expired five years ago, eliminating its ability to provide competitive advantage to the patent holder.

2.1.1.3 Relationship management (↑↑↑)

The most important activity that current van body builders can participate in to ensure a high barrier to entry is effective relationship management with their customers and suppliers. With such a homogeneous product, it is difficult for customers to differentiate between firms based only on the van body. Customers resort to considering prior and existing relationships with the van body building sales team to decide what firm to patronize. This includes all after-market service and repair work. Customers who experience outstanding service and care are more likely to select the existing firm over a new firm with whom they have no prior relationship

Prior relationships are protected and nurtured with the utmost of care. Potential new entrants have to find a novel means of differentiating themselves from the existing competition. Because this is so difficult to accomplish in this rather mature industry, the most recent addition to the regional industry resorted to securing the employment of key sales and service personnel from the more established firms. This “stealing away” with key staff gained the new firm access to relationships that were stronger with the sales person than with the previous firm. As a result, firms have recognized the value of their sales teams and have endeavoured to ensure that each sales team member is content at their existing firms.

2.1.1.4 Key Success Factors: Barrier to Entry

The ease of duplicating design and inability to clearly differentiate the product makes it easy for a new company to enter the market and offer a comparable product. However, this feature is what gives rise to the key success factor that results in a rather high barrier to entry into the industry. This difficulty with differentiating physical products leads customers to base their purchasing decisions on other aspects such as prior relationships or reputation. A key success factor for the van body building industry is the ability to maintain existing relationships and capitalize on reputations; two offerings that are extremely difficult for a potential entrant to replicate, and increases the attractiveness of the industry.

2.1.2 Bargaining Power of Customers (↑↑)

There are three distinct customer groups in the van body building industry:

- Single Unit Customers
- Fleet Customers
- Chassis Dealers

Each has its own needs, and has its own distinct ability to influence the competitive forces within the industry. Combined, customers exert a moderate to high amount of force over the van body building industry.

2.1.2.1 Single Unit Customers (↔)

Single unit customers are a highly fragmented group of small business owners from a broad range of industries. They seek a van body of adequate quality; something with enough quality to last several years, but at a reasonable price. These customers also value short lead times because they typically do not have a second vehicle as backup and

usually have to rent a van until theirs is available. As small business owners they often keep their vehicles in service for more years than do fleet customers; eight to ten years compared with five to seven years. As a result of this longer vehicle life these customers interact with the van body building firm through parts and service.

Many of the individual components of one firm's van body are sufficiently unique to force parts customers to go directly to the original manufacturer to purchase replacement parts. This "one-source-only" environment severely restricts the customers' options. To change suppliers would require a new van body from a different builder. This high switching cost significantly reduces customer power for the life of the van body. The level of service during this post-purchase period greatly influences the opinion that the customer holds over the firm. Exemplary service at this time can increase customer loyalty and extend the high switching costs to the replacement purchase of the entire van.

The single unit customer is seeking a product that will endure the high levels of wear-and-tear that are inherent in the delivery-van environment. This durability must, however, be at a reasonable initial price and balanced against easily accessible and quickly replaceable parts that are not as durable. An example of this balance is in the van body interior wall lining. A very durable option is to have the wall lined with a metal skin. This comes with a significant initial installation cost. Most van bodies are built with simple plywood skin. While not as durable as metal, the plywood is very reasonably priced and replacement is simple and quick. As stated earlier, the single unit customer is highly fragmented and it is difficult for a van body builder to predict what level of durability the customer is seeking and/or

price sensitivity they have. Therefore the single unit customer has moderate power over the industry and is best served by a firm with the ability to be flexible. This group makes up approximately forty percent of customers to the van body building industry.

2.1.2.2 Fleet customers (↑↑)

The fleet customer comprises the next forty percent of customers to the van body building business. They usually order multiple units at one time (from as few as two, to as many as forty) and make several purchases of new units per year. The units are usually identical in configuration, allowing the builder to achieve efficiencies by reducing the learning curve for subsequent units, and to begin to take advantage of mass-production techniques. Fleet customers are also a very focused group with common needs and expectations which greatly increase the probability that the van body builder will be able to predict and meet or exceed those expectations with minimal investment. The market range for the fleet customer is much larger than the van body builder and thus their demands can sometimes exceed regional market demands. This offers access to other markets and potential sales that are very appealing to the van body builder. As a result, the fleet customer has a great deal of influence over the industry.

The fleet customer has a range of durability demands, based on the destination of the van. Commercial leasing units are of average durability, where ease and cost of replacement components is desired over whole-unit durability. Van leasing companies able to match the durability of the unit with the commercial lessee's needs. Wear and tear costs are incurred by the owner, but are subsequently extracted from the lessee. To satisfy the fleet customer's needs for durability, the repair and replacement price must only be

low enough that they are not contested by the lessee. For fleet customers who are intending the unit for public rental use, durability is desired over price. The unit owners are unable to predict the level of abuse that the unit will need to endure, nor are they easily able to extract repair and replacement costs from the lessee. Of the forty percent of fleet customers, direct-to-public units constitute approximately five percent. For both fleet customers, new unit price sensitivity is an issue. Because the potential sales that they bring to a van body building firm is significant, the fleet customer is able to exert force in getting the sale price reduced. Van body building firms that are unable to meet the price required, subsequently loose the sale. Therefore, the fleet customer is best served by a firm that is able to provide a competitively priced unit with adequate quality.

2.1.2.3 Chassis Dealers (↔)

This third group is somewhat unique in this industry. They do not sell to, and rarely buy from the van body builders, however, they exert significant influence over customers and builders. In this industry the chassis dealer is often the first point of contact with the customer, typically the small customer. When the customer purchases the chassis, they often arrange through the dealer to have the body built and mounted onto the chassis. In this case, the dealer is the customer. The dealer also acts as a distributor of the van body. Builders often assemble and mount van bodies on consignment for dealers to sell to customers who prefer to take possession of the van quickly in exchange for not being able to customize the van body. The dealer also acts as a reference when the customer takes possession of the chassis before any van body is installed, directing customers to potential van body builders. Small business customers will often ask the dealer to recommend a van body builder to them. If the relationship

between the cassis dealer and the van body builder is favourable, the dealer's recommendation can generate a new customer. Dealer influenced purchases account for twenty percent of the van body building business. The dealer seeks a van body building firm that can provide a competitively priced van body, of flexible quality, and delivered in the timeframe required be the dealer's customer.

2.1.2.4 Key Success Factors: Bargaining Power of Customers

While the single unit customer may be limited to buying from only one builder for the life of his or her van, the moment the van requires complete replacement, the options open up considerably. It is at this point in the customer lifespan with extremely low switching costs that the power of the customer increases. Successful firms recognize this need for eventual replacement and actively strengthen the customer's sense of loyalty to increase the probability that the customer will select the same firm when purchasing the replacement van body. This attention to relationships counteracts the low switching cost and reduces the power of the customer.

Solid performance and a good relationship between the van body builder and its fleet customer can lead the successful builder into new levels of growth within the current market and can introduce the builder to new markets outside its region. Successful firms recognize this and through active relationship management these firms seek to have their firm favoured in the bidding process for new fleet construction. Bid specifications that are written to favour one firm reduces the ability of competitors to undercut on contracts for a fleet series of units.

Production capacity also improves the possibility that the fleet customer will select the successful firm. Fleet customers have minimal tolerance for production delays.

Successful van body builders recognize this and manage their operations to ensure on-schedule production.

Successful van body builders recognize the value of the chassis dealer and work closely with him or her to meet the needs of the customer. Firms that view the chassis dealer as both customer and partner when working to secure a new customer improve their relationship with the dealer and increase the likelihood that that particular firm will be recommended by the dealer to the end customer.

When the competitive forces of all three customer groups are combined, they exert a medium level of force over the van body building industry and increase the attractiveness of the industry.

2.1.3 Bargaining Power of Suppliers (↓)

The suppliers to the van body building industry can be grouped into three categories; off-the-shelf, custom-made, and labour supply. They present a low to medium low level of competitive force over the industry.

2.1.3.1 Off-the-Shelf Parts (↓↓↓)

The majority of components used in the van body building industry are off-the-shelf parts purchased from component distributors, making them commonly available to all competitors. There are also several sources for these common parts which allows van body builders to have a cost-based buying strategy. With such low switching costs, this group exerts very low power over the industry.

2.1.3.2 Custom-Made Parts (↓)

In the van body building industry there are certain components that are custom made for each builder. Commonly, these include aluminum side panels, and extruded aluminum framing members. The designs of these components are specific to each competitor which gives a certain degree of power to the supplier and a slightly higher switching cost. Because the design of the custom part is owned by the van body builders, the switching cost can be defined as the amount of time it takes the next supplier to build a new die and jig and produce the part. With extruded aluminum, this is typically a delay of three to six weeks. With sheet aluminum, it is a delay of one to two weeks. For most van body builders, this delay can be mitigated by planning the timing of the switch to ensure sufficient inventory to carry them through until the new supplier begins to deliver. This helps maintain the low level of bargaining power that suppliers can exert on the van body building industry.

2.1.3.3 Labour Supply (↔)

Over the past several years, the labour pool for tradesmen has been such that supply exceeds demand. It was noted in a 2001 provincial government report that the trades sector was one of the few to have a labour surplus⁶. When considering the recent improvements in the provincial economy and the projected labour demands over the next ten years, the labour demand for highly skilled tradesmen is predicted to shift towards a

⁶ Pal, S., Stephens, K. "Notes on Labour Market Demand/Supply Conditions for Selected British Columbia Occupations". Victoria, B.C., Can. Government of British Columbia, Ministry of Advanced Education, Youth & Labour Market Services, August 7, 2001.
<www.aved.gov.bc.ca/labourmarketinfo/reports/demandsupplyconditions-selectedoccupations.pdf>.

severe shortfall⁷. This shortfall will increase the power of the labour supplier. This is not the case with trades helpers and general laborers. This sector is predicted to continue to have a surplus of supply helping to reduce the overall power exerted by labour suppliers over the van body building industry.

2.1.3.4 Key Success Factors: Bargaining Power of Suppliers

In this industry, successful firms engineer their products to maximize their options when sourcing supplies. In the case of over-the-counter parts, effective purchasing plays a significant role in keeping the power of suppliers low. Custom-made component suppliers only have increased power when the need to switch suppliers is sudden and poorly planned. Firms with active materials management processes in place, such as demand forecasting and materials resource planning can easily minimize supplier power. Engineering the product and the operations process to minimize the need for highly skilled labour is an effective way for successful firms to reduce the power of labour suppliers. By reducing the need for skilled trades and increasing the use of general labourers, the power that the labour pool can exert over the industry is kept to a minimum. All three main suppliers to the van body building industry are in a position of low bargaining power which increases the attractiveness of the industry.

2.1.4 Threat of Substitute Products (↔)

The majority of van body building industry products fall into two categories; the standard van body and the cutaway. The standard van body consists of two side walls, a

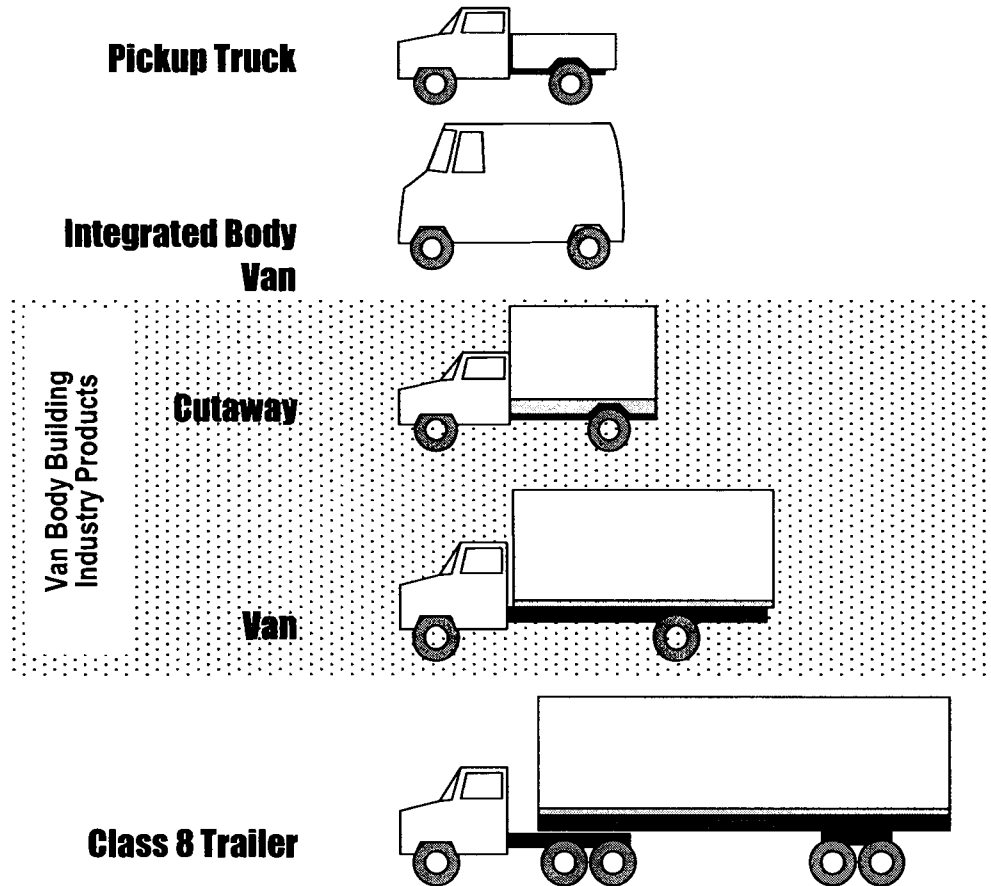
⁷ Kunin, R., et al, "Technical Report: 2010 Winter Games Labour Supply and Gap Analysis (British Columbia, 2003-2015)". Victoria, B.C., Can.: Roslyn Kunin & Associates, Inc. for the 2010 Winter Games Human Resources Planning Committee, October 15, 2005.
<www.labour.gov.bc.ca/skills/summary_2010labour_supply.pdf>.

roof, a floor, a solid front wall, and a rear opening with a door for loading and unloading cargo. This basic box is mounted onto the rear portion of the frame on a solid frame chassis approximately 3 inches behind the cab. There is no way to enter the van body from the cab. Once mounted, the box and the cab become the van. The van body can be as short as 12 feet or as long as 36 feet and can be easily modified to suit the needs of the customer. The cutaway van body is similar to the standard van. It consists of two walls, a roof, a floor, and a rear opening with a door. It differs from the standard van at the front wall where the box meets the cab of the truck. When mounted onto the frame of the chassis, the cutaway van body is placed flush against the cab of the truck. The front wall of the cutaway van body includes an opening that matches a similar opening at the rear of the cab. When complete, the opening creates a pass-through for the driver to access the cargo area from the cab of the truck.

Substitute products for the van body building industry are currently comprised of commercial vehicles which offer different load capacities at different price points. The smaller straight chassis vans compete in the commercial delivery truck market with integrated body vans. Rail and marine containers are not discussed in this paper. Their inability to provide inner-city delivery removes them from consideration as substitutes.

The commercial truck options that will be considered in this comparison are the pickup truck, integrated body van, and class-8 trailer. These three options are all viable substitutes for the products of the van body building industry; the cutaway, and the standard van (see figure 2-1).

Figure 2-1: Commercial Truck Options⁸



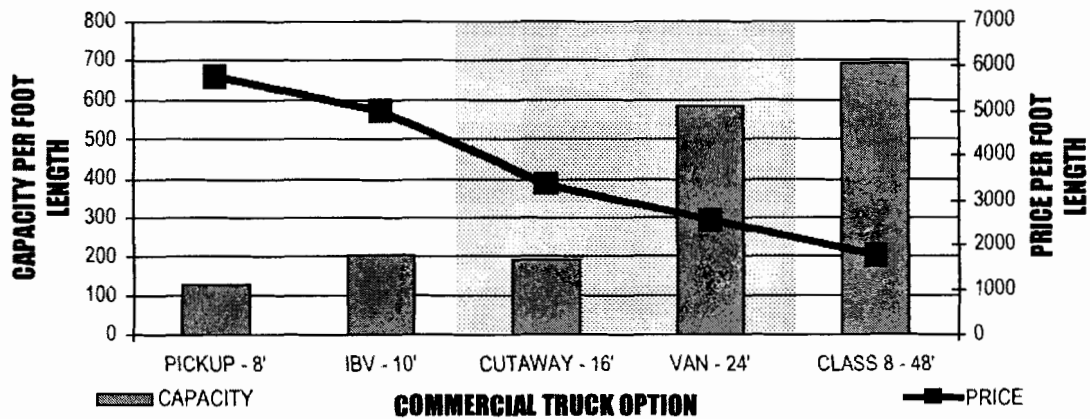
2.1.4.1 Pick-Up Truck (⇓⇓)

The standard heavy duty pick up truck is a potential substitute to smaller flat deck configurations. In comparison, their cargo space is smaller and less robust than the flat deck and it is more difficult to load and unload using a forklift, limiting the pickup truck as a viable substitute. Figure 2-2 compares the five options based on the capacity of the cargo area and the price of the vehicle (chassis and cargo area inclusive). To equalize the data, the units being compared are by the length in feet. As indicated in the graph, the

⁸ by Author.

price per foot of length of the pickup truck is the highest of all options while the pickup truck also has the lowest capacity per foot length. Thus, the pickup truck is only viable as a substitute for customers with very small payload requirements, where the extra value obtained in larger options would never be realized.

Figure 2-2: Price and Capacity Comparison of Commercial Truck Options⁹



2.1.4.2 Integrated Body Van (↑↑)

Like the cutaway the integrated body van permits direct access from the driver's seat to the cargo area, however, it differs in that the chassis, cab and body are all manufactured and assembled as a complete unit by the chassis manufacture. The integrated body van can range in size from minivan to full-size, extra height van. The capacity of these vans are limited, as is the volume of their enclosed cargo area based on the designs offered by manufacturers, and the difficulty in making after-market modifications. Recent innovations with taller vans have recently expanded their function of carrying cargo. As a result, the integrated body van is in direct competition with the smaller sized cutaways.

⁹ by Author, based on interview with Perrault, G. April 2005.

It is this substitute that presents the greatest threat to the van body building industry because the cutaway van body option is the most common entry point for the first-time van body purchaser. Current market prices indicate a slightly greater value per capacity-foot in the cutaway style van body (see figure 2-2). Provided market prices hold steady, the threat presented by the integrated van body will be minimal to the overall van body building industry because the price per foot length is still significantly higher than the cutaway style van body.

It is possible, in the near future that government intervention could result in this threat increasing. As the move towards better fuel economy and improved emissions in commercial vehicles becomes government regulated, it is the integrated body van manufacturers that will have the greatest control over the entire product. Van body builders act as final suppliers in the production process of a commercial van, and it is the final supplier who is ultimately responsible for ensuring that the final vehicle complies with all regulations, particularly when modifications are made. Installing a van body to a chassis is a significant modification that alters vehicle weight and aerodynamics which could potentially counteract systems designed to comply with regulations. Thus, van body builders would be at a disadvantage because they do not have the ability to modify the cab or the chassis, nor are they currently set up to monitor chassis performance changes that result in modifications made to the van body. The Integrated body van manufacturer controls the engineering of all three components, chassis, cab area, and cargo area, and is easily able to make adjustments in one or all three areas in order to meet or exceed regulations. This would give integrated body van builders a competitive advantage over van body builders for meeting emissions and fuel efficiency regulations.

2.1.4.3 Class 8 (↓)

These tractor and trailer combinations have the lowest price per foot of length and the highest capacity per foot of length of the various options (see figure 2-1). However, this only holds true if every load is at capacity. This level of efficiency is difficult to achieve for businesses involved in inner city deliveries. Their length, typically 48 or 53 feet long, is also challenging for inner city deliveries where navigation in tight quarters is common. It is these two challenges that limit the viability of the Class 8 tractor and trailer as a substitute to the longer straight chassis and van body.

2.1.4.4 Key Success Factors: Threat of Substitute Products

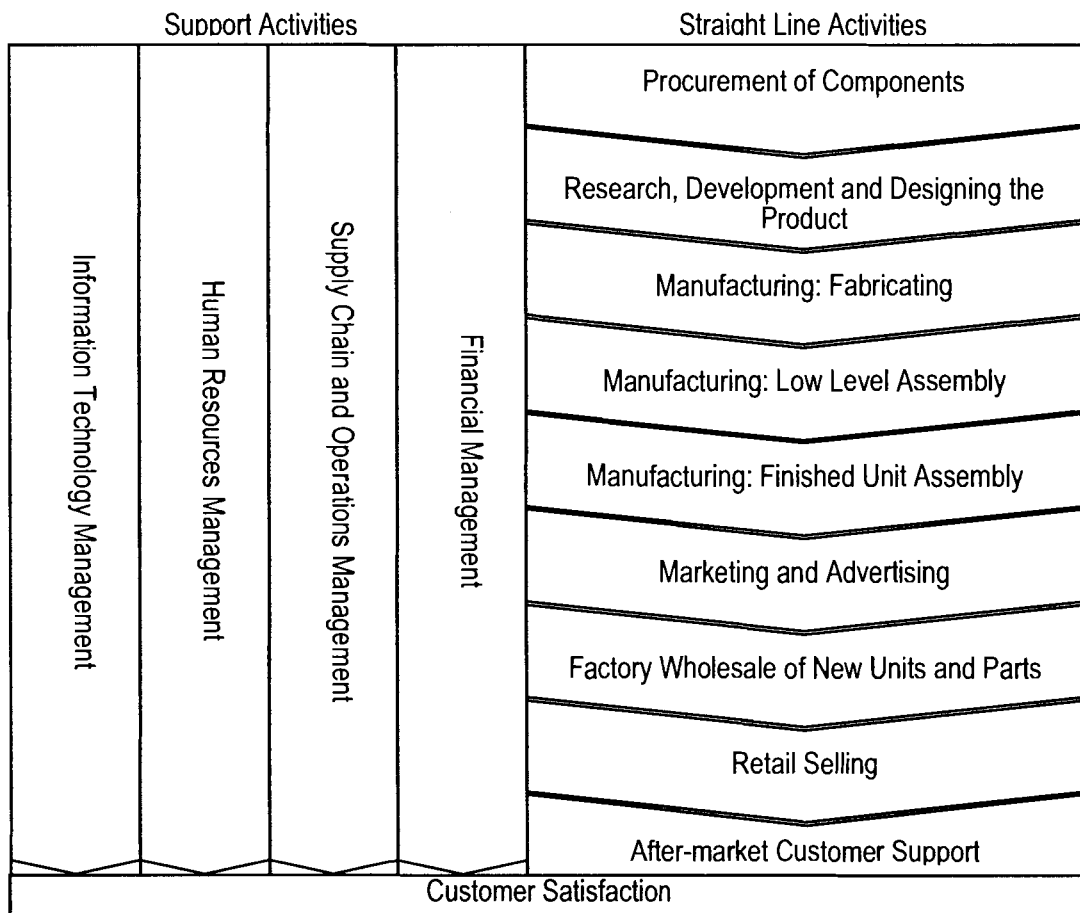
Successful firms minimize the threats presented by potential substitutes through their sales and marketing activities and subsequent research and development activities. Firms with excellent relationships with their customers are able to identify unmet needs quickly and translate that need into a viable product. This approach can greatly reduce the risk of being unexpectedly replaced by an innovative substitute. The Van Body Building Industry has few direct substitutes and has minimal potential threat from only one currently available substitute option, thus overall threat is low and this results in an increase to the attractiveness of the industry.

2.2 Van Body Building Industry Value Chain

Ed Bukszar's adaptation of Michael Porter's Value Chain gives an excellent context in which the value-added activities and key success factors of van body building industry competitors can be discussed. This adaptation has been further modified to represent the regional van body building industry. Summarized in figure 2-3, this value

chain separates activities by whether they are considered “straight line” or “support”. Straight line activities are in the direct product flow from materials coming into the industry domain, the many processes and activities performed to increase the value of that material, and the subsequent sale of the finished product to the customer. These steps along the value chain are discussed in section 2.2.1. The support activities are indicative of the internal environment of each firm and therefore, will be discussed in Chapter three.

Figure 2-3: Van Body Building Industry Value Chain¹⁰



¹⁰ By Author, based on E. Bukszar’s adaptation of M. Porter’s Value Chain Model. EMBA Strategy Seminar, Lecture Notes. Simon Fraser University, Vancouver, Spring 2005

2.2.1 Straight Line Activities

As stated earlier in this paper, Collins Manufacturing holds the general strategy of being a differentiator. In the previously submitted strategic analysis paper, it was noted that while differentiation is the intent of the upper management at Collins, the actual behaviours are more in line with that of cost-based provider. An analysis of the value chain for Collins reinforces the need for upper management to revisit their strategic intent and implementation.

2.2.1.1 Procurement of Raw Materials

Within the Van Body Building Industry the value chain begins with the sourcing of the materials which are used in the manufacturing and assembly of the van bodies. Collins sources their raw materials through supplier-distributors. Of note at this stage in the value chain is the ability to purchase in a manner that best complements the company's strategy. Firms which focus on differentiated strategies require a significant breadth of different raw materials and the ability to purchase infrequent, small quantities based on individual customer needs. Cost based firms concentrate their purchasing activities on a smaller range of components, but much larger quantities. Firms that practice just-in-time manufacturing are able to leverage the volumes required to negotiate frequent delivery in small quantities.

With the current differentiator strategy, Collins exhibits exemplary purchasing skills. The ability to source even the most obscure component helps to secure unusual service work and customization jobs. There is still room for improvement if Collins wishes to follow a cost-based strategy. Economic order quantities and other materials resource planning are not practiced at Collins, leading to inefficiencies that increase

costs. An increase in procurement planning would provide the necessary improvements to obtain an adequate level of performance.

2.2.1.2 Research, Development and Designing the Product

The research, development and design portion of the value chain for the van body building industry is underutilized. The product is considered to be mature with little need for innovation. The most recent product change took place in the early 1990's with the shift from steel towards aluminium, which allowed for faster production and a lighter product. However, the product is still essentially the same as it was prior to the change. The market is not demanding that firms innovate and thus the van body building industry has been maintaining the same range of products. The lack of market demand for innovation is allowing firms to compete without this added overhead expense. As a result, opportunities to improve and create a competitive advantage are missed

2.2.1.3 Manufacturing: Fabricating

The milling and fabricating of component parts is where the van body builders begin to add value to the process. Most firms fabricate a portion of their van body components. The degree to which the firm is involved at this level of the chain is related to the scale of the firm. It is cost prohibitive for smaller firms to invest in their own milling or metal fabrication equipment.

2.2.1.4 Manufacturing: Assembly

All firms in the industry participate in the lower-assembly stage of the chain. This is where firms begin to differentiate themselves from their competitors by modifying

their product and innovating designs that enable the firm to achieve their goals, be it cost-based mass production or highly customized differentiated products.

The finished unit is the key output for van body builders. It is around this activity that all other activities in the firm revolve. Cost-based firms focus on producing this unit with the least amount of cost possible, while differentiated firms concentrate on ensuring premium quality in the finished unit. Trade labour as an input to the process is important at this stage, as the calibre of skill is evident in the van body. The workmanship and quality of the finished van body is vital for the continued relationship between the firm and its customer.

The three competitors in the van body building industry in the Vancouver area all share similar manufacturing practices. Each firm is structured to increase manufacturing output while maintaining the highest possible degree of flexibility. The result for all three competitors is that they find themselves all attempting to combine both differentiation and cost-based strategies. Outside the region, there are larger van body building firms which have been successful in focusing manufacturing activities on a cost-based strategy. Other smaller firms are able to succeed by focusing on being highly differentiated and focusing on niche production of vehicles such as fire trucks or ambulances. Often, these firms operate in large markets where both exist and thus provide complimentary services to the customer base. The van body building industry within the lower mainland is relatively small and unable to support a firm which is highly specialized into one niche sector of the industry. Customers expect that differentiated firms are able to produce any form of van body needed through highly customized fabrication. They also expect that each firm is capable of producing a common base unit which is offered under a cost-

based strategy. It is this two-sided expectation that has led all three competitors in the regional industry to combine both differentiated and cost-based strategies to varying degrees of success.

With its history in differentiation, Collins has the ability to custom fabricate components and to produce highly customized finished units. This is the source of its reputation as a premium product provider. The problem for Collins is that its activities have recently become more in line with being a cost-based provider and are undermining that reputation. The firm's ability to produce a premium product at the promised time is challenged by the adequate or sub-adequate ability to mass-produce. The firm's ability to create tools and jigs that facilitate mass-production efficiencies is adequate, but does not give them any competitive advantage as it is an underutilized skill. Attempting to accommodate very limited space often leads the firm to compromises which minimize costs savings and affect downstream activities of mass fabrication and mass assembly. Collins does not have the proper equipment to fabricate components in a volume that is required to support mass-assembly. To remove this bottleneck, many components have been sub-contracted. While this speeds up production, it also increases the cost per component. In summary, Collins does not currently possess the key success factors for manufacturing under a cost-based strategy, identifying this as an area where there is clear opportunity to improve and develop an advantage over its competitors.

2.2.1.5 Marketing and Advertising

Marketing and advertising are present in the industry but not evident to the general public. Larger firms who are able to supply to a larger regional base will advertise in trade catalogues and most firms participate in regional trade shows.

Advertising is, however, not the core activity in the marketing of the van body industry. Relationship management is vital to a firm's success. Branding the unit is actively done in a manner that ensures that the owner is certain what firm produced his or her unit. This allows the owner to respond if asked what make of van body they have installed on their truck. This branding also encourages the extension of the relationship between the customer and the firm in the event that the customer requires service or when it is time to replace the unit.

2.2.1.6 Factory Wholesale of Finished Van Bodies, Parts, and Service

The primary way that van body firms sell their product is through factory direct sales. The regional nature of the industry means that geographic distance between customer and sales representative is quite small. This combined with the minimal need for a distribution network keeps sales activities close to home. Factory direct sales of parts and service also take place at this stage in the value chain. This is an opportunity for firms to extend their customer lifespan and foster further improvement of the customer-firm relationship. Parts and Service activities offer a service to the customer that allows the customer to extend the life of their van body, but more importantly, it extends the customer lifespan by continuing the relationship with the customer beyond the initial van body purchase.

2.2.1.7 Retail Selling

Retail selling is a small component of the van body building value chain. Commercial truck dealers will often request that a finished unit be kept on their lot to avoid missing out on that potential "rushed" sale. This is typically a consignment sale for

the van body builder, where possession of the van body remains with the van body builder until the unit is sold. Upon sale, the unit's ownership is transferred directly from the manufacturer to the customer. The commercial truck dealer will act as a de facto sales representative for the manufacturer, but this is only to secure the sale of the commercial truck on which the van body is mounted. Because customer needs vary greatly, there is a high level of customization in the van body building industry. As a result, it is unlikely that the customer at the dealership will find the van body unit to be perfectly matched to his or her needs. It is this demand for customization that discourages a make-to-stock strategy and thus severely limits retail sales activities.

During this final stage in straight line "value-adding" process, van body builder seek to further extend customer life-time by providing repair advise and future purchase planning. This is an extension of the relationship building that successful firms undertake to gain advantage over their competitors. For example, at Collins, the exemplary performance of the parts and service departments offer an opportunity for Collins to extent the purchasing life of the customer beyond the initial purchase. The service that is received by customers at this point in the relationship help to determine their sense of how well they have been "taken care of" by Collins. Customers who have had positive experiences with the parts and service departments are more likely to consider Collins when the unit needs to be replaced. Along with the sales department, the relationship management skills of the parts and service departments offer to Collins a competitive advantage over other firms in the industry.

2.3 Competitive Analysis

The fifth force which acts upon the van body building industry is the competitive force between industry participants. While the extended van body building industry takes place at an international level this paper will only be considering those competitors who actively participate in the lower mainland of British Columbia. This is because the van body building industry is highly regionalized. Freight charges discourage the shipping of the finished product great distances and customers shop locally to avoid such high freight charges. Current government regulations pertaining to the transport of semi-finished vehicles between Canada and the United States discourage cross-border business. Work must be completed within very narrow timeframes as the chassis is only permitted in the foreign country for a limited period of time. Production delays can cause serious problems down the road, and with the availability of local van body builders, customers avoid these logistic and bureaucratic difficulties by shopping locally.

2.3.1 Market Competitors

In British Columbia the van body building industry is relatively small. There are only two other firms who compete with Collins Manufacturing for van body building business in the region, both being relatively local. There are no major multi-national firms in this regional branch of the industry.

2.3.1.1 Intercontinental Truck Bodies – www.itb.ca

Intercontinental Truck Bodies (ITB) is headquartered in Surrey, British Columbia. This company is privately held and is owner operated. This firm has sales and operations facilities in British Columbia, Alberta, and Manitoba. Intercontinental Truck Bodies

appears to operate a more predominantly differentiated strategy. Its product offering is extensive for the industry. Besides van bodies and flat decks, they also offer specially modified truck bodies for Search and Rescue, Movie, Municipal, and Service. Intercontinental Truck Bodies also holds a patent (1089172, issued November 1980) for a specific side panel design that allows for faster assembly. There are no other patents held among the three firms. Like the other competitors in the regional industry, this firm is not purely differentiated. Intercontinental also strives to reduce costs and has implemented various processes which are more in line with being a cost-based producer, including the ability of each facility to mass-produce certain components to speed production at a given facility when fleet production is prioritized over local custom work.

2.3.1.2 Minoru Truck Bodies LTD. – www.minorutruckbodies.ca

Minoru Truck Bodies has been in operation for over 30 years and is located in Richmond, British Columbia. Like ITB, Minoru is privately held and is owner-operated. Of the three firms in the market, this firm is the smallest. Minoru appears to lean its strategy towards a more cost-based focus. Its product range is light and despite its small facility, Minoru is able to produce a significant quantity of basic van bodies at a reasonable cost. They are currently the greatest competitor to Collins for business from cost-minded customers.

2.3.2 Key Success Factor Comparisons

The van body building industry in the lower mainland enjoys a relatively stable level of rivalry. The three firms have been in business in the same region for several decades with no other local competition. Competition between the firms has focused

primarily around relationship and reputation building. Based on their activities, all three firms appear to be aware of the important of relationships. However, Collins Manufacturing has a strength in its capitalization of its reputation. Unlike competing firms, Collins actively participates in regional trade shows. Collins is also the only van body building to be represented in industry relevant governing bodies such as the British Columbia Trucking Association and the Canadian Transportation Equipment Association. Table 2-1 summarizes the key success factors for competing in the van body building industry

Table 2-1: Key Success Factors of the Van Body Building Industry¹¹

Key Success Factors	Collins Manufacturing	Intercontinental Truck Bodies	Minoru Truck Bodies
<u>Barrier to Entry</u>			
Relationship Management	Strong	Strong	Strong
Reputation Capitalization	Strong	Adequate	Adequate
<u>Bargaining Power of Customers</u>			
Relationship Management	Strong	Strong	Strong
Capacity for Fleet Customers	Adequate	Adequate	Weak
<u>Bargaining Power of Suppliers</u>			
Engineering Interchangeable Parts	Strong	Adequate	Adequate
Engineering for non-trade Labour	Weak	Adequate	Adequate
Sales Forecasting	Strong	Strong	Adequate
Materials Planning	Adequate	Adequate	Adequate
<u>Threat of Substitutes</u>			
Identifying Market Needs	Strong	Strong	Adequate
Innovation	Weak	Strong	Adequate
<u>Value Chain Items</u>			
Recognizing Core Competencies	Strong	Adequate	Strong
Aligning Operating Activities with Corporate Strategy	Weak	Adequate	Strong
Extending Customer Life-span	Strong	Adequate	Weak

¹¹ Based on interviews with Collins Manufacturing Management Team, April 2005

While its current strengths sets Collins apart from its peers, improving on existing threats are where Collins has the greatest opportunities to be an industry leader. In comparison to its competitors, Collins Manufacturing is weakest in three areas.

2.3.2.1 Engineering for Lower Labour Skill Sets

With the impending skilled labour shortage in British Columbia, it will be increasingly difficult for firms to find the experienced tradesmen that are required under their current operations process. Changes that increase simplicity can have two positive effects for Collins Manufacturing; simpler processes allow the firm to draw from a lower skilled labour pool, and simpler processes increase accuracy and speed of already existing employees. Process improvements are not common in the van body building industry, however, this a vital area of improvement for Collins Manufacturing, enabling the firm to avoid a staffing shortfall in the future. A secondary affect of increase productivity is increased capacity that is needed to serve the lucrative fleet customers. This is a weakness that Collins would be remiss to ignore the opportunity to improve.

2.3.2.2 Innovation to Meet Customer Needs

New Product Innovation is not a strong area for any of the three competitors. With its expanded product line for customized service vehicles, Intercontinental Truck Bodies receives the highest rank of “adequate” in this area. The challenge with the van body building industry is that its history of high customization has led firms to be complacent about innovation. It is perceived that there is little return on investment for innovation activities in an industry where the customer will tell you everything that they need in their product before you begin to make it. This allows firms to react to customer

requests. It doesn't allow for the possibility that the customer is not aware of all the possibilities. Improvement in the area of new product innovation for Collins would be a definite advantage over its direct competitors

2.3.2.3 Aligning Operations Activities to Corporate Strategy

Many of the operations oriented activities are diverging from the traditionally held differentiation strategy. This shift is due to incomplete decision-making by the management team. Customer service levels are considered, as are the potential for sales revenue to the exclusion of effect on operational efficiency. This unbalanced consideration has led to several conflicting smaller decisions, and a negative impact on profit margins. Including the need for operational efficiency when making corporate decisions will lead the firm towards a more balanced alignment of strategic activities and an improvement in the firm's profit margin.

2.4 Strategic Alternatives

Key success factors indicate that the industry would support both differentiated strategies and low-cost strategies. It's up to the firm to select the strategy which best suits their internal strengths. Given the decision criteria outlined in section 1.5, Collins Manufacturing has three possible alternative strategies. These options will be reviewed in the following chapter against industry key success factors, managerial preference and internal strengths and weaknesses of the firm to reveal the most suitable alternative for Collins.

2.4.1 “Status quo ante” ~ The Way It Was Before.

This first option is to intentionally reduce demand for units and thus scale back production to fit the existing capacity of the current site. Recent challenges with reduced profit margins and workload exceeding capacity are directly related to the unintended shift in daily activities away from differentiation and towards a more cost-based strategy. A return to a pure differentiation strategy would realign demand with the supply. The firm would increase prices and service only the most selective of customers. Increased marginal profit would offset the loss of high volume, low margin sales activities. This option limits the ability for the firm to grow or expand, but does meet the needs of upper management to maintain existing customer service levels.

2.4.2 Expand to the Adjacent Lot

The possibility exists to take over the lease on the property immediately adjacent to the Collins site. This parcel of land would increase total site area to fifteen percent over the original area. In the event that the bridge building project selects the south connector option which includes the loss of land to businesses along 199A Street, this additional parcel of land would result in a loss in area of only two percent.

Along with the expansion to the adjacent property, this option includes a revitalization of the firm’s differentiation strategy. A differentiation strategy would indicate that a structure for general purpose assembly or service area which facilitates flexible activities and highly customized outputs is ideal for expansion into the new site. A variation of this option would have the firm shift to a cost based strategy which would favour a structure that improves mass-production style assembly of a limited range of products. Thus, this option includes both cost-based and differentiation based strategies.

The new expansion to the adjacent lot would be designed as a differentiation-driven division of the firm while the structure on the original property would be redesigned to maximize cost-based benefits as the volume-driven division of the firm. Having two separate divisions would allow the firm to excel in providing the product offerings of both cost-focused fleet customers, and specialization-focused single unit customers.

2.4.3 Relocate to new Property

A third option to overcome the challenges with capacity and loss of site area includes relocating to a new site. While the most grandiose of options, it would also allow the firm to engineer the entire operations layout to suit the desired strategy based completely on their internal strengths. There would be no legacy structures or barriers to prohibit change in the operational process.

2.5 Chapter 2 Summary

The five forces analysis indicates that the industry is able to support both cost-based and differentiated strategies. External industry analysis indicates that Collins Manufacturing does not exhibit sufficient strategic competitive advantages to be able to make a strategic decision based only on this level of analysis. An internal analysis of the firm's strengths and weaknesses must also be considered when assessing the strategic alternatives. The following chapter will provide this level of analysis by considering which of the three presented strategic alternatives best suits the firms' internal capabilities.

CHAPTER 3: INTERNAL ANALYSIS

Based loosely on Mary Crossen's¹² Diamond-E Framework analysis, This chapter considers the inherent preferences of management at Collins Manufacturing and the internal strengths and weaknesses of the firm. These internal features will indicate which of the three suggested alternatives is most appropriate for the firm.

3.1 Managerial Preference

Despite all objective analysis supporting one option over another, it is still possible for managers to lean towards their own preferences. These preferences can be founded in corporate vision or personal cultures or beliefs. At Collins Manufacturing, there is a culture that favours stability and consistency. Change is approached cautiously and new processes are integrated only when absolutely necessary. It is with this filter that management will view both external and internal conditions when considering the three strategic alternatives being proposed. It is with this in mind that the third option is being considered first.

3.1.1 Option Three – Relocate

Managerial preference is strongly opposed to complete relocation at this time. While relocating to larger property has the benefit of starting from a clean slate without having to accommodate legacy structures, this is the only redeeming quality of option three. The firm is currently located in the Port Kells industrial area which is somewhat of

¹² Crossan, M., Fry, J., Killing, J.P. Strategic Analysis and Action, Sixth Edition. Toronto, On., Can.: Pearson Prentice Hall, Toronto, 2005

a commercial-vehicle cluster in the lower mainland with several related firms located within a 5 kilometre radius of Collins Manufacturing. This location gives rise to exceptionally high levels of service from suppliers which is passed along to the customers of Collins Manufacturing. Suitably sized property in this location or closer to Vancouver is beyond the capital expenditure limits of the firm at this time. Suitably sized land at a reasonable price would only be located several kilometres to the east. Relocating so far away from the Port Kells area would likely have a negative impact on customer service levels. Even if suitably sized and priced land were located within Port Kells, the construction of an entirely new facility would involve a level of capital expenditure greater than preferred by management at this time. It is with these drawbacks in mind that management at Collins has expressed strong preference to reject this option. Therefore, regardless of the merits included in the relocation option, it is being removed from the list of viable options at this point.

3.1.2 Option One – Status Quo Ante

The first option which is to stay at the same site and modify demand to match capacity initially appears to have the path of least resistance. No capital expenditures are required, which is appealing to upper management and all other resources required to be successful in the industry using this option are already present in the firm (discussed in detail in section 3.2, later in this chapter). There is concern by management that this option would see too great a loss of low margin customers that the increased profit margins from fewer high-end customers would not be able to compensate thus negatively affecting the company's bottom line. This option also concerns management because it drastically restricts the ability for the firm to grow in the future. For this option to be

acceptable to the management team at the firm, cash-flow and market analyses would need to be conducted at a detailed level that is beyond the scope of this paper.

3.1.3 Option Two – Expand to the Adjacent Lot

While the first choice for management at the firm is not to need to make such key decisions under these conditions, their second choice at this time is a preference towards expanding into the adjacent lot. The moderate amount of capital required to implement this option is within the means of the firm and is significantly less that would have been incurred had the firm been forced to relocated. The other significant quality of this option that appeals to the management team is the ability to improve service to both categories of customers; low-cost, high-volume fleet customers, and highly differentiated single unit customers.

3.2 Resource Requirements

After considering managerial preference, two viable options remain; staying in the same location, and expanding to the adjacent lot. The following section will consider the resources present in the firm and how they complement or detract from the two options.

3.2.1 Knowledge Management

Current knowledge management at Collins favours small firms. Knowledge such as standard operating procedures and information about customers and suppliers is stored in the heads of existing employees or in very inefficient paper filing systems. In the event that the employee leaves or simply forgets, that knowledge is lost forever. This method has made expansion of the firm challenging and speed limited.

During a previous growth spurt in the early 1990s, Collins implemented what was to be an ERP system to help manage their knowledge assets, with implementation and subsequent support being outsourced. The full ERP package has yet to be implemented the use of the ERP system has been limited to costing and finance. Customer relations and materials management information is still recorded and retrieved through paper files or the personal memory of employees.

The firm would benefit from improved access to customer information and faster, more accurate materials management in the event that the full ERP system were implemented. Differentiation strategies require a key success in having fast and accurate knowledge of each individual customer while cost-based strategies require a key success in timely access accurate materials requirements.

3.2.2 Human Resources

The human resources area is lacking at Collins manufacturing, but this has largely been due to the smaller size of the company. Many of the human resources functions have been shared by the management team, including hiring, coaching, and labour negotiations. There is one person in-house who tends to the payroll and benefits program. Many of the employees view this person as the *de facto* human resources person. This is often a cause of confusion or frustration when employees bring management based troubles to the payroll person. This person is neither equipped nor authorized to help in manager/employee challenges and this inability to help often leads to feelings of both resentment and hopelessness on the side of the employee. There is also limited avenue for mediated discussion at the managerial level which also results in negative experiences.

It is difficult for small firms to rationalize the overhead costs of a human resource person because the need for this expertise is not sufficient to justify a full-time position. This challenge can be overcome by employing the services of a part-time, or contracted human resources specialist. Collins has done just that by outsourcing a portion of their human resources responsibilities to a firm whose core capability is in that particular area.

Key human resource success factors required for option one (status quo ante) involve retaining the existing employee base and only replacing those lost through attrition. The mix of skilled tradesmen and general labourers would only need to be maintained. With the acquisition of a contracted human resources professional, the firm would acquire the skills needed to achieve this strategy. Option two (expanding) requires expansion of the current employee base and modification of the existing base. It would see a slight shift away from skilled tradesmen and an increase in the number of general labour employees. This shift would meet a great deal of resistance from the existing unionized tradesmen and the skills of an experienced human resources manager would be necessary to successfully implement such changes.

3.2.3 Supply Chain and Operations Management

By far this is the weakest link in the value chain at Collins. The completely manual means of entering, evaluating and scheduling all operations activities seriously undermines the firm's ability to function in a cost efficient manner. Ironically, Collins has possessed the means to efficiently plan for over ten years. The enterprise resource planning system (ERP) that is used for costing of jobs can also act as an effective planning tool for the operations department. However, the firm has yet to apply the system in a manner that is useful for operations planning. With a fully functioning ERP

system inventory levels and staff scheduling can come into line with the need to produce units on schedule with sales agreements. If this improvement is not undertaken, it is likely that production will fall behind schedule due to materials or labour shortages. Missed completion dates will tax customer relationships and undermine credibility when securing future sales contracts. Of all the support activities that Collins performs to add value to their product, the most valuable improvement would be the ability to better plan and evaluate operations activities.

Both alternatives share in the fact that efficient and accurate supply chain and operations management is vital for success. This skill is necessary in a differentiation strategy to achieve the broad range of raw materials and components required to service highly customized products and meet the needs of customers with variable requirements. It is also needed within cost-based strategies in order to maximize efficiency and minimize inventory costs.

3.2.4 Financial Management

Without having access to actual financial information, the assessment given that financial management is exemplary is based on a series of interviews with key managers at Collins who do have access to the information. Every interviewee agreed that the accounts receivables, accounts payables and overall financial management at Collins was exemplary compared with industry averages. This is likely due to the combination of sufficient information systems support and cohesiveness of the team that works on the finances at Collins. It was felt by several of the interviewees that the success felt at Collins in this area could be considered a core competency; difficult to replicate and the source of envy by their competitors.

Both alternatives require a degree of competency in this area. Option one, status quo ante, would expose the firm to a significant amount of risk because it involves decreasing the customer base. As a result, management would need to know quickly how successful the new strategy is working. This would require improvements in the existing information feedback process. The current process is adequate for existing operations, but is not sufficiently timely for Option two. Expanding to the adjacent lot would require minimal changes as the firm already possesses the skills involved in operating in a mixed strategy (both cost-based and differentiated).

3.3 Strategic Options Resource Requirements Review

The following tables summarise the comparison between the resources required to succeed at an alternative and those resources that are present at Collins. The intent is to provide an objective stock-taking of skills to assess the size of the gap which would need to be overcome to execute that alternative.

As indicated in table 3-1, Option one would require the firm to improve in materials requirement knowledge management and in operations planning to be successful. It is also weak on financial performance feedback and risk exposure. All other required skills are present in the firm. Expanding to the adjacent lot (see table 3-2) would require the firm to improve in materials requirement knowledge management and in operations planning to be successful. All other required skills are present in the firm.

3.4 Overcoming the Gap

Both options require improved knowledge management of materials requirements and for operations planning. These two shortcomings are related and can be

Table 3-1: Resource Comparison: Option One – Status Quo Ante

Resource	Option One Requirements	Firm Current Status	Gap [†]
Knowledge Management	Excellent level of customer relationship knowledge	Excellent customer relations knowledge, but poorly captured, limits growth	↔
	Adequate level of materials requirements knowledge	Inadequate level of materials requirements knowledge, poorly captured, undermines efficiencies	↓
Supply Chain and Operations Management	Excellent level of supply chain management to obtain range	Excellent level of supply chain management for breadth of raw materials and component sourcing	↔
	Adequate operations planning to obtain on-schedule production	Inadequate operations planning, on-schedule in not assured	↓
Human Resource Management	Adequate level of human resource management to maintain base	Adequate level of human resource management	↔
Financial Management	Conservative capital structure	Conservative capital structure	↔
	Significant need to access financial performance measures	Adequate access to timely financial performance measures	↓
	Significant risk exposure	Moderate risk tolerance	↓
	Negligible capital financing required	Access to moderate capital financing	↑

[†] ↑ = Firm Internal Skills exceed option Requirements

↔ = Firm internal skills meet option requirements

↓ = Firm Internal Skills are below option requirements. Improvement needed for success.

Table 3-2: Resource Comparison: Option Two – Expand to Adjacent Lot

Resource	Option Two Requirements	Firm Current Status	Gap [†]
Knowledge Management	Excellent level of customer relationship knowledge	Excellent customer relations and requirements knowledge, but poorly captured, limits growth	↔
	Adequate level of materials requirements knowledge	inadequate level of materials requirements knowledge, poorly captured, undermines efficiencies	↓
Supply Chain and Operations Management	Excellent level of supply chain management to ensure efficient supply	Excellent level of supply chain management for raw materials and component sourcing	↔
	Adequate operations planning to obtain on-schedule production	inadequate operations planning, on-schedule is not assured	↓
Human Resource Management	Adequate level of human resource management to expand existing base	Adequate level of human resource management.	↔
Financial Management	Conservative capital structure	Conservative capital structure	↔
	Adequate need to access financial performance measures	Adequate access to timely financial performance measures	↔
	Moderate risk exposure	Moderate risk tolerance	↔
	Moderate capital financing required	Access to moderate capital financing	↔

[†] ↑ = Firm Internal Skills exceed option Requirements

↔ = Firm internal skills meet option requirements

↓ = Firm Internal Skills are below option requirements. Improvement needed for success.

easily acquired by the firm by implementing the materials planning module of their current enterprise resource planning software. The current, disconnected functions would marry together with the operations planners signalling materials needs in a more efficient and timely fashion for procurement staff to make the necessary decisions.

The significant need for financial performance measures present in option one (status quo ante) could be overcome by improvements in internal reporting functions. The current process has been providing adequate reporting which, under current circumstances, is sufficient to meet the needs of the firm. The process is labour intensive and time consuming because the data repositories are not connected. Most information is only summarized into reports for upper management on a monthly basis. This frequency would need to increase to meet the needs of management. This increased need for reporting on performance is intended to assure management that the firm is performing despite the forced decrease in units sold.

The significant gap present in option one that eliminates it from consideration is the significant exposure to risk. The comfort level for risk that is held by the firm's management team will not change in the short time period of three years to which the strategy is limited. Therefore, the remaining viable option is to expand to the adjacent lot, and create two separate divisions, one for cost-based, high-volume production, and one for differentiated, highly customizable activities.

CHAPTER 4: RECOMMENDATIONS

Given industry needs, managerial preferences, and internal strengths, it is this author's recommendation that the firm proceed with option two, expanding into the adjacent lot. Considering the customer profiles of both fleet and single-unit customers, it is also recommended that the firm implement separation into two divisions: a cost-based, high volume production facility and a second high-end customization and service facility.

4.1 Implementation Plan

With this recommendation in hand, the remainder of this paper will outline an implementation plan to make this change a reality. It will encompass a general overview and description of the strategy, operational site layout, and a project timeline, including key action items. The implementation plan will conclude with a description of key performance measures that are also recommended to ensure success is achieved.

4.1.1 Overview

The current operational layout at Collins is a cross between fixed-position, process and cell layouts all of which is ideal for jobbing and project based manufacturing. This setup is not sufficient to meet the throughput demands of cost based producers. Collins has a forty to sixty percent customer base which will have its demands met through the existing operational setup. These are the customers who are requesting customization and low volume output. The remaining forty to sixty percent are seeking low cost but quickly produced products. They are currently not having their needs met

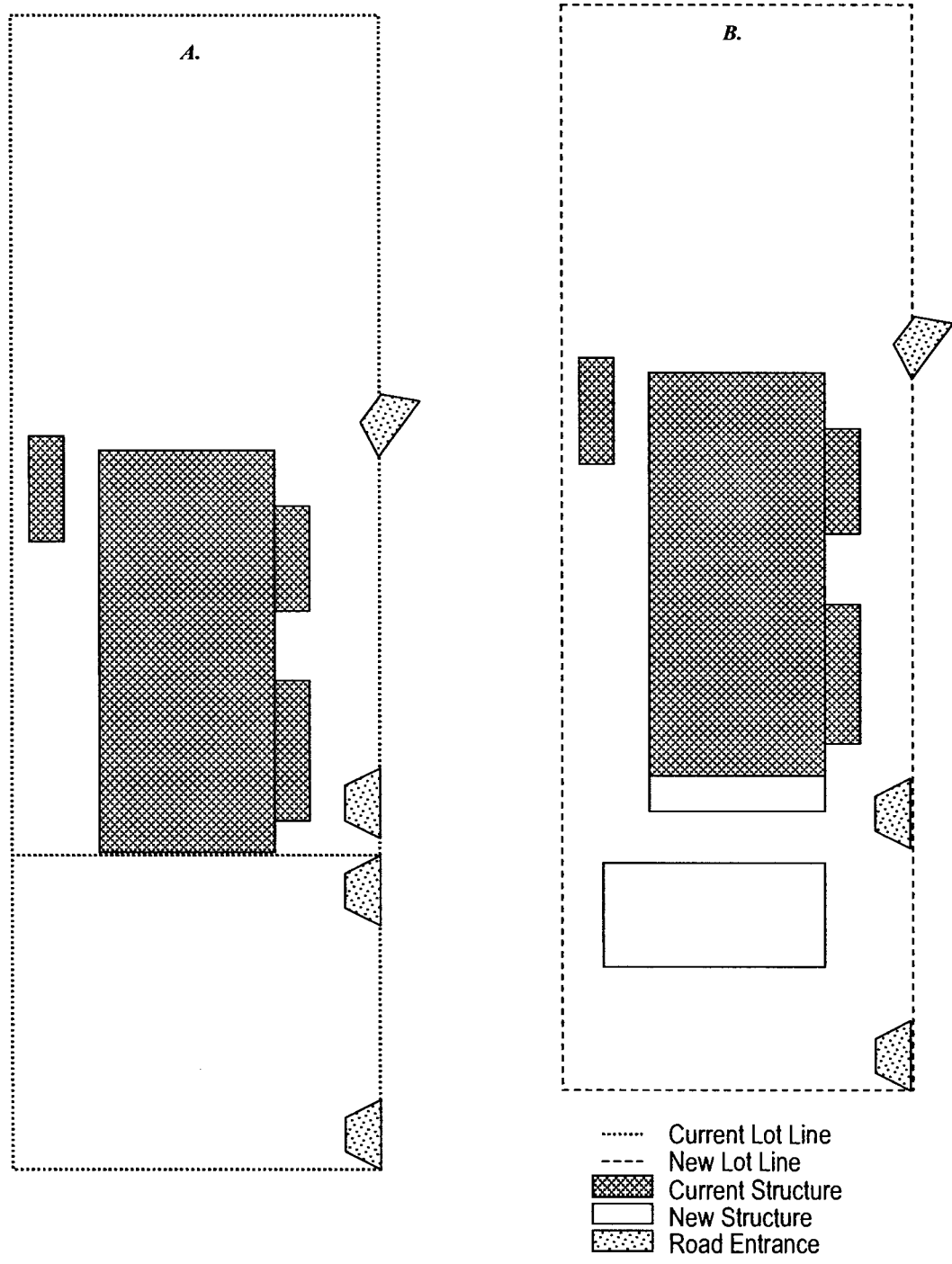
through the existing operational structure. With the newly acquired property to the south of the current site, it is recommended that Collins build a structure to specifically suit the demands of a high-end customization and after-market service shop. Out of this new structure Collins would operate the service and customization division of the firm.

Moving these specialty functions to a separate structure would free up the equivalent of 8 bays. This newly acquired space would then be used during a reengineering of the new product line, which would focus on mass-production techniques to reduce costs and increase output.

4.2 Site Layout

The lot adjacent to the current Collins site to the south is currently leased to a pallet manufacturing firm and is only semi-developed. The land is cleared and gravelled, but no permanent structures have been built on the land. It has been confirmed by Collins management that this property can be made available to them in the event that expansion is needed. Figure 4-1 (A) shows the current Collins site with the adjacent lot shown to the south (bottom). The permanent structures consist of one main building of approximately twenty thousand square feet and one storage out-building. With the reduced property limits and the acquisition of the adjacent lot, figure 4-1 (B depicts the recommended structural additions to both the main building and the adjacent lot. The main building would receive a second paint and drying booth along the full width of the structure while the adjacent lot would receive an entirely new building for the newly formed customs and service division. The change in property limits and the additional structures will modify vehicle traffic flow slightly. Figure 4-2 indicates fairly smooth flow with minimal overlap of traffic pattern

Figure 4-1: (A) Current layout of both lots (top) showing lot lines, property entrances, and permanent structures. (B) Proposed layout of both lots showing potential new structures. The total lot size is shown as decreased to take into consideration the loss of property to the bridge building project.¹³



¹³ By Author.

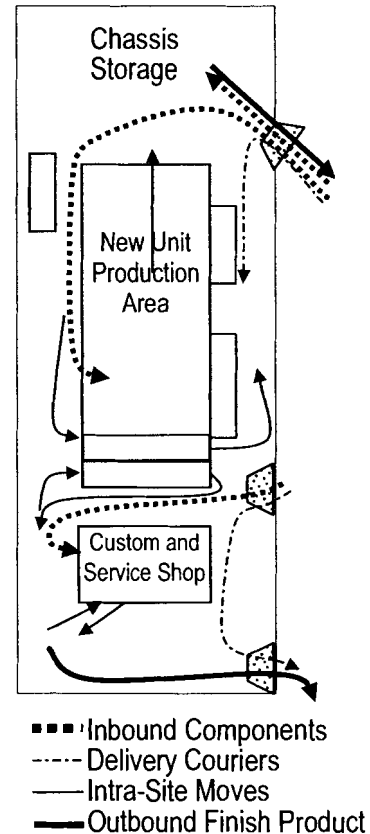
4.2.1 Vehicle and Material Traffic Flow

Traffic flow on the current site is challenging at the north end of the property. Chassis storage, new unit output and service area units are all moving about in the same small area. This presents challenges when units are not able to move from the production area because of an immobile service unit or when service activity is stopped so that a passageway can be made for a new unit to exit the mounting area. Figure 4-2 outlines the traffic flow based on the recommended separation of production and service into separate buildings.

4.2.2 Custom and Service Division Structure

Highly customized van bodies require highly flexible work spaces. Each project is constructed in one work cell. All processes occur around the van body with workers and materials being brought to the body. This form of production is consistent with other fixed- production project based manufacturing such as fire engines, ambulances, or airplanes. Because this work is in relatively small volume yet occupies an entire bay the duration of the project (two to three weeks), the financial lost opportunities of that space in the main structure are greater than the profits gained

Figure 4-2: Proposed Site Vehicle and Material Flow.¹⁴



¹⁴ By Author.

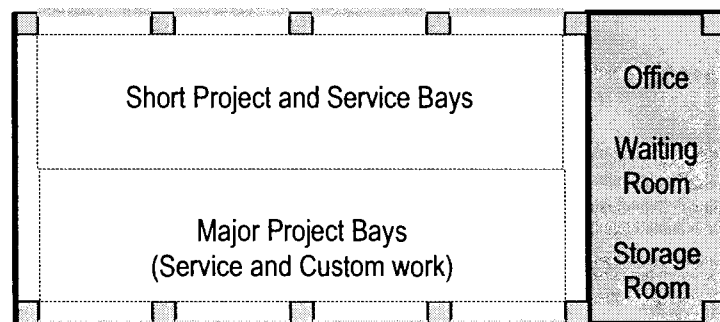
from the job. It is with this in mind that it is recommended that the custom projects be moved to the new service building on the south lot.

Service work at Collins involves both long, labour intensive rebuild projects and quick one-hour fixes. Because every job is slightly different the work space needs to be highly flexible. By improving the flexibility of the site and increasing the number of service bays, customer satisfaction will increase as the time to complete a service job decreases. Increased service throughput increases revenue and faster turn-around time translates into minimal lost productivity for customers and will increase the likelihood that the customer will select Collins in the future to buy or service a van body.

The service structure should be set up to make use of natural lighting and air currents as well as ensure maximum access to all service bays. The structure should consist of a small office and customer waiting area, and should include a secured tool and parts storage area. The installation of permanent overhead hoists are recommended during construction of the site. This will improve flexibility and improve worker safety and efficiency. Figure 4-3 provides a recommended basic floor plan for this future custom and service

structure. The office, waiting area and storage room should all be located at the front (west) of the building, which faces the street. This office area

Figure 4-3: Service Structure Floor Plan¹⁵



¹⁵ By Author.

would also contain washrooms, locker and lunch areas for the service employees. Service bays would then be located along the north and south facing wall, with the most frequently accessed bays to the south. This is to allow for shortest distance to the used unit storage area in the yard. Major custom projects and long term repair work would be located in the northern bays where access requires additional travel. Positioning the work in such a manner reduces the number of turns a driver needs to take to position the vehicle correctly. This reduces the risk of damage to the vehicle and improves overall efficiency of the employee because few turning decisions are required when navigating between storage and service bays. The entire area would be closed in with large sliding bay doors which would permit maximum air flow and light during operating hours and ensure site security during non-operating hours.

Beyond the physical structure, it is recommended that the service and custom division also be separate from the new unit production division in certain operations managerial functions. Purchasing, materials planning, and Production supervision will require the understanding and adherence to the differentiation strategy of the division to ensure the success of this business unit of the firm.

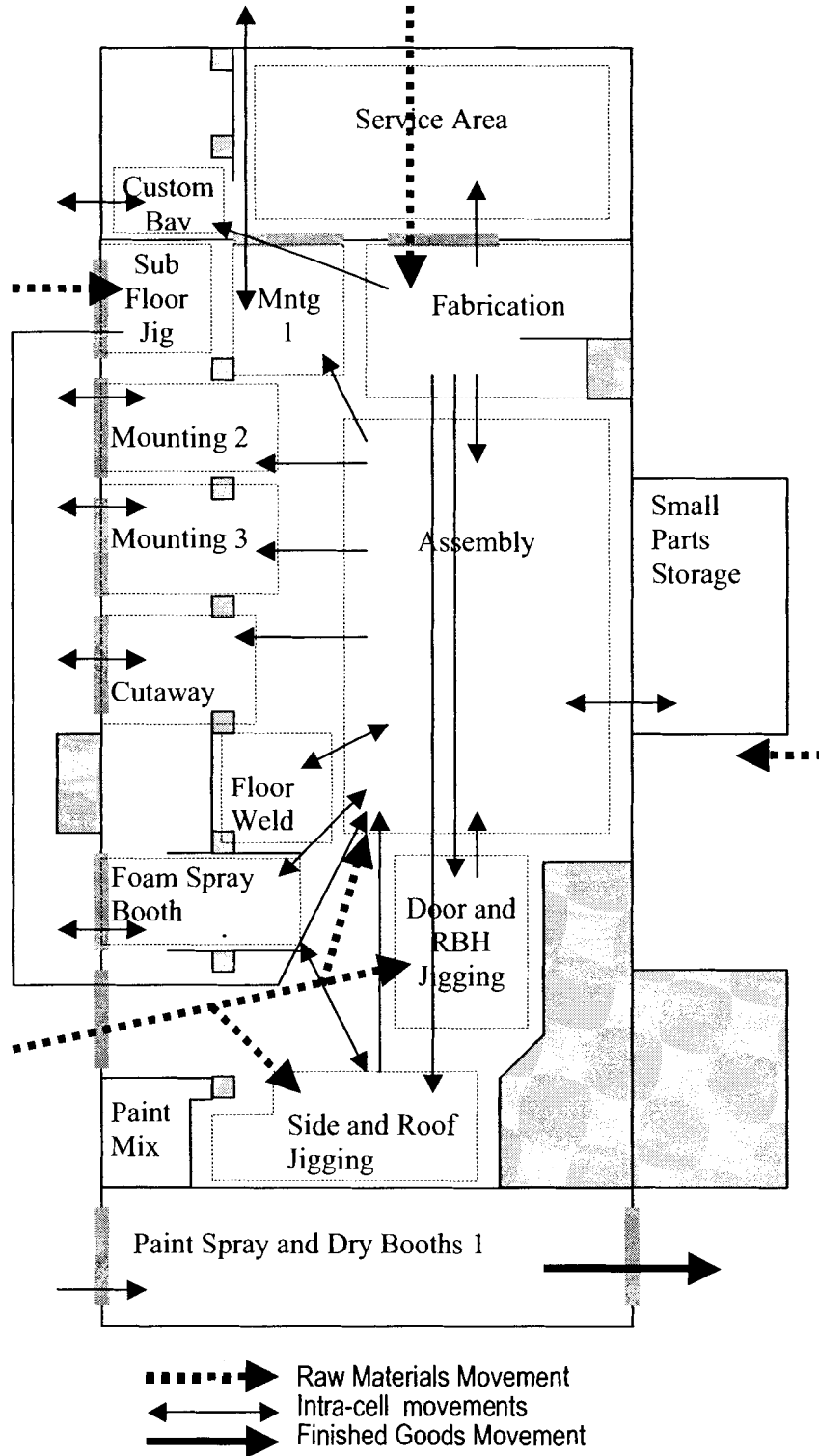
4.2.3 New Production Area – Main Structure

The current main structure houses new production. An overhang shelter erected at the north end of the building provides a sheltered area for the production of custom van bodies and most service work. Some service work, including after-market installation of lift-gates takes place in the mounting bays within the new production area.

As indicated in figure 4-4 the current location of the various production cells results in several overlapping traffic flows. Fabrication feeds into the jigging areas and into assembly. In it's current location, materials must cross the entire length of the plant to move from fabrication to jigging. The sub-floor jig is also a challenge as it is located in the opposite corner of the production area from where the sub-floor is combined with the sides and roof to start the assembly process. The output of the floor jig currently must exit the structure into the yard and travel by forklift to the opposite end of the structure. This is challenging because an access path must frequently be cleared to allow the sub-floor to pass into the assembly area.

With the removal of the service area and custom production to a separate structure, the new unit area in the main structure can be reorganized to improve materials and operations flow. Figure 4-5 shows recommended changes within the main structure floor plan. The layout is similar to the existing new unit area in that it makes use of product, process and fixed cell operation styles. The fabrication area remains a process oriented area but is relocated from the north-west corner to the south east corner. This change greatly reduces the distance traveled between the fabrication area and the jigging areas. The jigging areas remain as product oriented areas. They are repositioned to decrease the amount of travel between fabrication, jigging and the assembly area. In particular, the sub floor area is moved south several bays to improve access to the assembly area where the sides, floor and roof are all combined at the first stage of assembly. The foam spray bay would also be relocated to the paint bay area and a second paint bay would be erected along the south wall of the main building. Moving the foam

Figure 4-4: Current Operation Layout of Main Structure. Note the overlapping traffic flow of materials and non-adjacent production cells.¹⁶

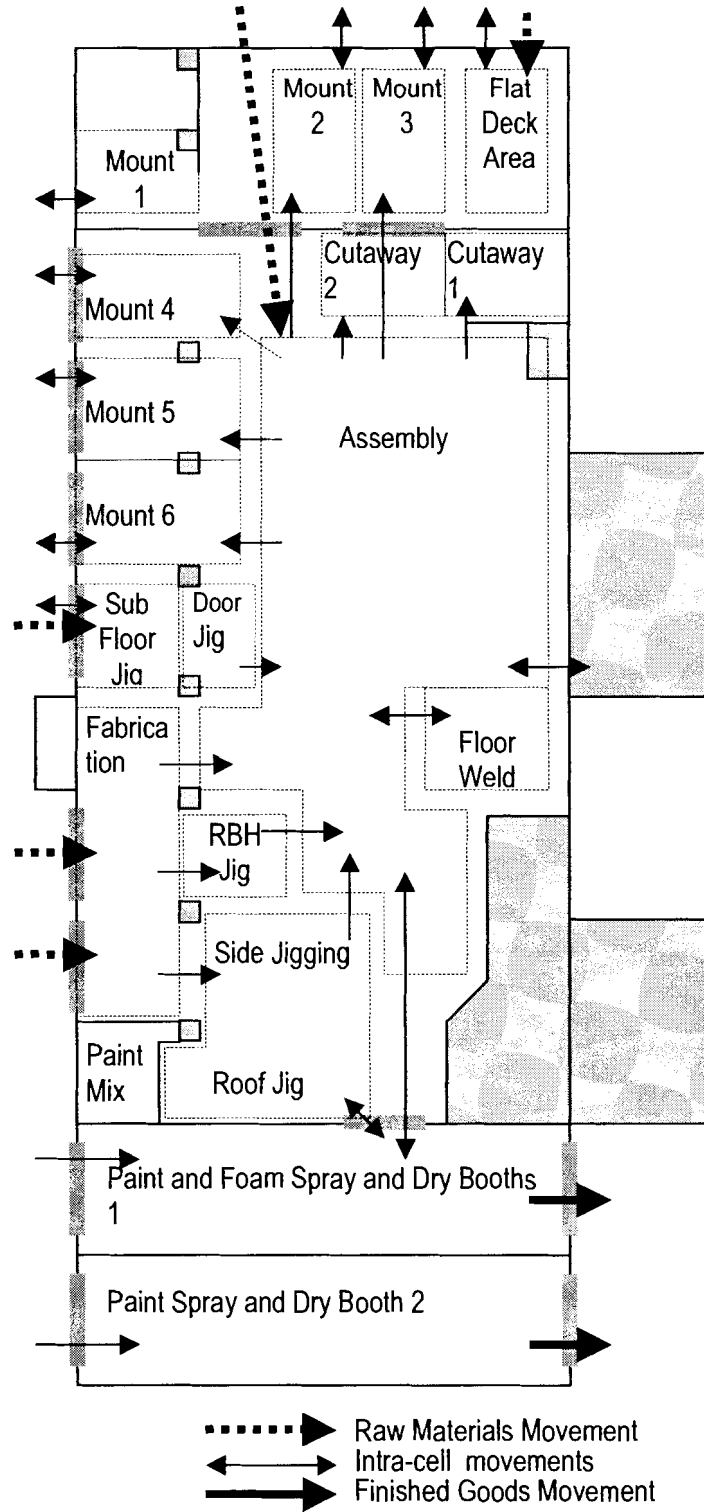


By Author¹⁶ By Author.

spraying to the paint area would move the process to an area where air filtering infrastructure is already installed. Insulated van bodies are sprayed during the assembly stage therefore access between the foam spraying area and the assembly area is required. Installing a sliding barn door between the first paint bay and the assembly area would allow for easy transfer of both van bodies and roofs when insulation is needed. With these changes in place, the north-east corner which previously housed the fabrication area is cleared for the fixed product assembly work cell for cutaway van bodies. In the current layout, there is room for only one cutaway in the dedicated mounting area. When demand for cutaways increases a second cutaway is mounted and assembled in a spare space to the west mounting bay 1 (figure 4-4). This current location is several bays away from the templates and components stored in the cutaway work cell. As shown in figure 4-5, the new cutaway area would easily be expanded to go from one cutaway to two. The other benefit to removing the service and custom areas under the north shelter is the addition of three new mounting bays, expanding to a total of six. This added mounting space will be needed when assembly throughput increases.

As with the service and custom shop division, it is recommended that the new unit production division have its own distinct managerial positions for purchasing, materials planning, and production supervision. The change from a historically differentiated strategy to a more clearly defined cost-based strategy will need to be reinforced in the daily activities of the division. This will be best achieved with staff who are able to focus on only one business strategy.

Figure 4-5: Recommended Operation Layout of Main Structure. Note removal of custom and service areas at north end of structure. Note improved material flow.¹⁷



¹⁷ By Author.

4.3 Estimated Costs

The estimated cost of implementing this recommendation is in the moderate range for what the firm is prepared to put forth. Expenses would include the acquisition of the property to the south, the erection of the new structure, and the repaving of the property. Within the existing structure, the only major expense would involve the addition of the second paint bay and the installation of the sliding barn door between the assembly area and the paint bay. Table 4-1 is a rough breakdown by item of the estimated cost to implement the recommendation.

Table 4-1: Estimated Implementation Cost

Expense	Estimate
Adjacent Property Purchase †	\$600,000
Paint Booth Expansion	\$40,000
Additional Barn Door ‡	\$3,500
New Service Structure ‡	\$150,000
Grading and paving lot †	\$50,000
Downtime Losses †	\$50,000
Total Estimated Cost:	<u>\$893,500</u>

† Based on comparable property list prices from www.icx.ca July 18, 2005 The Canadian Real Estate Association (CREA). Ottawa, Ontario, 2002.

‡ Based on recent similar expansion to current structure.

‡ Price estimates from www.steelbuilding.com Inc. July 6, 2005, North Little Rock, Arkansas 2005.

† Based on rates captured from www.invisiblestructures.com, Invisible Structures, Inc. Golden, Colorado, 2004.

† Based internal figures.

4.4 Timeline and Action Items

Given that the bridge building project is estimated to begin construction in late 2005, it is advised that Collins begin the implementation process as soon as possible. It is estimated that acquisition of the adjacent lot would take approximately three months, therefore the acquisition process should start immediately. An engineering firm would also need to be found for the design of the paint booth addition and new service structure design. During this time it is advised that the firm also commence the recruiting process to acquire the additional staff necessary for the larger facility, starting with the managerial and supervisory staff required. This will allow the new staff the opportunity to train with existing staff while planning and construction take place. Overlapping these three action items will reduce the total time needed to complete the project.

After acquisition is final construction of the new service structure can begin. It is estimated that this process will take approximately three month to complete. It is advised that the new structure and second paint booth both be complete and occupied before undertaking the reorganization of the new unit production area in the main structure. It is estimated that the reorganization of the main structure will take several days. When this reorganization is finished, the implementation of the recommended expansion would be complete.

4.5 Performance Measures

With every successful project there is the means to objectively measure that success. It is recommended that the firm implement the following performance measures to quickly ascertain if the expansion project and changes to the firm's business strategy are positively affecting the wealth of the firm's shareholders. Profit margin and asset

turnover are two important measures that are controlled by the daily activities of the middle management team at Collins Manufacturing. Timely access to these two measures can indicate to the staff the degree to which their activities are affecting the financial success of the firm.

4.5.1 Profit Margin – Profits over Sales

The profit margin is currently calculated by the firm in aggregate and broken down by each individual sales order. This information would need to also be separated out by whether the job took place within the service division or the new product division. A higher profit margin would be expected for the higher quality, lower volume differentiated work of the service and custom division, while the cost-based new product division would be expected to have tighter margins, which are compensated for through the higher volume of units sold.

4.5.2 Asset Turnover – Inventory Turns

Inventory turn is currently calculated and provided to the managerial team on an annual basis for the entire business. With this recommendation, it is advised that the inventory for new production be kept separate from the service and custom inventory. Combined with the separate recording of cost of goods sold for each division, it will be possible to calculate the inventory turns for both the differentiated service shop and the cost-based new production facility. If this recommendation is paired with the expanded use of the ERP system, the firm will be able to generate this measure on a by-period basis rather than only once a year, which will help the firm to recognize that each division is acting and succeeding according to their separate strategies. The cost based division

should have a much higher inventory turn than the service shop, which would be obligated to carry a broader range of components to ensure timely job turnover and excellent customer service levels.

4.6 Chapter Four Summary

The expansion of the firm to the adjacent lot will permit continued levels of service and offer the opportunity to grow with minimal capital expenditure, all while minimizing effort needed to reorganize. Implementation is possible with minimal lead time and completion of the project is possible within the time required. It is with these features in mind that this author puts forth this paper.

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