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Although this case is often assigned as an MBA level group project,
I elected to complete it individually. It earned 99.5 marks.
In retrospect, I would add a time-phased implementation plan.

A621
Managerial Accounting

Baldwin Bicycle



Robin L. M. Cheung
Student #0024338
Professor D. Armishaw
Monday, February 11, 2002
A621 Management Accounting
McMaster University



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Suzanne Leister
Baldwin Bicycle Company
225 Byers Road
Miamisburg, OH 45342

February 10, 2002

Dear Ms. Leister:

As per your request, I have reviewed the Hi-Valu Challenger program proposal. At first glance, this proposal seems to provide attractive incremental revenues and earnings. It would certainly improve Baldwin's Return on Investment.

The terms of this proposal, however, deviate from standard practice. Hi-Valu insists that the bicycles be sold to them at a price lower than BBC's normal distributor prices to preserve Hi-Valu's margins. Further, bicycles would be shipped to Hi-Valu's regional warehouses on consignment and paid only when 120 days had elapsed or the bicycle was shipped to a Hi-Valu store, whichever occurred first. Payment would then be Net 30 days.

Relevant cost analysis revealed that the Challenger deal could be a lucrative source of incremental revenues, since the 25,000 additional units could be produced during plant slack time; however, as a discount value line, the Challenger program does not align strategically with BBC's best-cost provider strategy (Porter, 1980). Further, the initial capital outlay of \$787,000 for the project exceed BBC's available resources.

It is recommended that BBC pursue a short-term agreement with Hi-Valu or a competing discount retailer to produce the bicycles on more favourable credit terms, or to seek distribution of BBC's normal product line through alternative retail chains.

Should you decide to investigate further forming distribution alliances with other retail chains, please do not hesitate to contact me.

Sincerely,



Robin L. M. Cheung

Executive Summary

Baldwin Bicycle Company (BBC) is a mid-range full-line bicycle manufacturing company with 40 years' experience. BBC produced 98,791 units accounting for over \$10MM in revenues in 1982, with an expected 100,000 units for the next three years. Distributed exclusively through independently-owned retailers and specialty bicycle shops, BBC bicycles are known for their above-average quality. In May 1983, a rapidly-growing Northwestern discount retail chain, Hi-Valu, approached Suzanne Leister, VP Marketing, and proposed a private-label agreement.

Under this new program, BBC would manufacture the Challenger™ line of bicycles exclusively for Hi-Valu. The Challenger line was to be a low-cost value bicycle, sold at retail prices under BBC's normal product lines. This would result in expected cannibalization of an estimated 3,000 units but incremental sales of 25,000 units.

The terms of this proposal, however, deviate from standard practice. Hi-Valu insists that the bicycles be sold to them at a price lower than BBC's normal distributor prices to preserve Hi-Valu's margins. Further, bicycles would be shipped to Hi-Valu's regional warehouses on consignment and paid only when 120 days had elapsed or the bicycle was shipped to a Hi-Valu store, whichever occurred first. Payment would then be Net 30 days.

Relevant cost analysis revealed that the Challenger deal could be a lucrative source of incremental revenues, since the 25,000 additional units could be produced during plant slack time; however, as a discount value line, the Challenger program does not align strategically with BBC's best-cost provider strategy (Porter, 1980). Further, the initial capital outlay of \$787,000 for the project exceed BBC's available resources.

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Background



Company Analysis

Established in the 1940s, Baldwin Bicycle Company (BBC) was a manufacturer of upper mid-range bicycles. Its product line comprised 10 models, from beginner's models to deluxe 12-speed models. Although BBC distributes its bicycles through several independent retailers and sporting goods stores, it has not penetrated the discount retail chain segment. By 1983, BBC had attained sales revenues of about \$10 million per year although production was operating at 98,791 units in 1982—25% below its capacity of over 130,000 units per year. The congruency model, developed by Nadler and Tushman (1997), attempts to consider a

company's competencies within its native environment to derive feasible alternative courses of action.

Industry Analysis

By the 1980s, the bicycle industry had recovered from its nadir in the mid-1960s and 1970s; however, the recent explosion of more modern sporting goods "fads," such as the "Pogo Ball™" or the new wide skateboard hinted that the age-old bicycle would not recover the robust sales of the early 1970s. Appendix 1 outlines Porter's five-forces model (Porter, 1980) as it applies to BBC. This model aids in aligning alternatives within BBC's strategic orientation.

The Hi-Valu Proposition

A growing Northwestern US discount retail chain, Hi-Valu, approached BBC and proposed a private-label arrangement whereby BBC would produce a "Challenger" brand of bicycle for Hi-Valu. A seeming good fit, Hi-Valu estimates a requirement for 25,000 units per year—a number which would bring BBC's production up to capacity even in this depressed bicycle market.

Several of Hi-Valu's proposed terms, however, deviate from standard practices:

1. Hi-Valu would hold the units on consignment in its own warehouses and withhold payment until delivery to a specific store;
2. A bicycle would be paid within 30 days once a bicycle was shipped to a specific store or 120 days had elapsed in the regional warehouse;
3. Although the proposed Challenger line represented significantly increased costs to produce (Hi-Valu demanded customized designs for handlebars, seats, tires, and packaging) and BBC was not configured as Porter's low-cost provider, Hi-Valu would pay \$92.29 per unit—less than the wholesale price of an equivalent model—in order to preserve its own margins.





Practical Assumptions

A number of assumptions were considered in these analyses:

Variable Costs are Linear

This decision model assumes that variable costs, such as materials and labour, are linear over the relevant range; that is, there are no volume discounts on material, and that addition of more labour does not incur further costs.

Workers are Efficient

Although BBC is operating at approximately 75% of capacity, this model assumes that workers are not idle; rather, workers are individually working at full efficiency, but only enough workers to produce the quantity required are scheduled.

Hi-Valu's Estimates are Accurate

Knott estimated that 25,000 units per year would be sold; further, he speculated that a unit would sit in the warehouse, on average, two months, although Hi-Valu would purchase units in the warehouse for four months automatically. BBC's current inventory turnover ratio is 2.92, or approximately 4 months. Although Hi-Valu is a discount chain and would likely have a higher inventory turnover than BBC, which sells only through sporting goods and specialized bicycle stores, Knott himself stated that Hi-Valu did have difficulties forecasting bicycle sales.

Sales Levels are Consistent

Average sales price is approximated as the 1982 sales revenues distributed over 98,791 units:

$$\begin{aligned} \text{Average Sales Price} &= \frac{1982 \text{ Revenues}}{1982 \text{ Units Sold}} \\ &= \frac{\$10,872,000}{98,791 \text{ bicycles}} \\ &= \$110.05 \end{aligned}$$

Each bicycle was assumed to be sold for \$110.05. Although the BBC line comprises 10 diverse models, the average price was used in calculations.

Financial Analysis

Relevant Cost Analysis

Relevant Cost Analysis was employed to generate alternatives. Costs and revenues are considered relevant only if they apply to the scenario being considered and not otherwise.

Appendix 4 outlines the relevant cost analysis.

Given Hi-Valu's offer to purchase the units at \$92.29, this results in a unit contribution margin of \$23.09 (\$577,250.00 for 25,000 units). This amount, however, would be offset by an anticipated loss of 3,000 of BBC's regular units sold through traditional channels. Although it can be argued that this 3,000 unit decline in sales may happen even if BBC rejects the deal and a deal is struck with another bicycle manufacturer, it differs from the base scenario, which assumes that sales will remain in line with 1982 levels; therefore, the loss of sales is relevant. This would result in a loss of \$115,155.16 in sales (\$38.39 per bicycle over 3,000 units). Even absorbing this estimated 3,000-unit loss, BBC would realize a net revenue increase of \$457,094.84. This project, at least from the relevant cost/revenue point of view, is profitable.



Capital Requirements

If BBC accepts Hi-Valu's proposition, it will have to undertake significant increases in working capital to finance the Challenger program. According to Appendix 4, the additional relevant cost of the Challenger program would be \$31.51 per unit, or \$787,631.94 over the estimated 25,000 units per year.



Renegotiate Payment (Cash Flow) Terms

The abnormal terms imposed by Hi-Valu would expose BBC to unnecessary cash flow risks. Although the monthly expenditures would average \$65,645.83 per month, Hi-Valu would likely make its first payment for the first month's worth of bicycles (\$192,270.08) only three months into the deal (Knott estimated a two-month wait in the regional warehouse, then payment after 30 days). With a discount rate of 18%, this results in a present value of the yearly expenses of \$371,293.16 but a present value of cash inflows (at months 3, 6, 9, and 12) of only \$304,412.96. This yields a negative net present value of NPV= -\$66,880.20. Without taking time-value of money into account, this deal would be profitable for BBC, especially considering the depressed nature of the bicycle market; however, given an 18% discount rate, BBC must negotiate the terms of the agreement further. The current terms allow Hi-Valu to distribute most of its business risk to BBC, while BBC must bear the brunt of whatever drops in sales it would experience as a result of cannibalization. These terms are clearly unacceptable.

The following financial ratios compare BBC to a major US bicycle manufacturer, Huffy Corporation (NYSE: HUF) in FY2000.

Highly Leveraged Position

BBC is currently in a highly leveraged position. Its debt-equity ratio of 1.5 exceeds the rule-of-thumb standard of 1.0 by 50%. Huffy Corporation had a debt-equity ratio of 0.62; however, this may indicate that Huffy could be higher performing with more leverage. BBC's current inventory turnover is 2.92 times per year; each unit would be expected to sit in a warehouse for over four months. Compared to Hi-Valu's estimate, this is 100% longer. Huffy's FY2000 inventory turnover was 12.21 times. Given BBC's high debt-equity ratio and its mediocre performance, it is unlikely that it will easily obtain debt funding for the Challenger programme.



Mediocre Performance

BBC currently exhibits a total asset turnover of 1.34. It only realizes a return on assets of 3% and a return on equity of 8%--compared to the industry standard. Huffy had a return on assets of 15% in 2000. Its return on equity was 47%.

If BBC does not accept the proposed challenger program, it expects to see stagnant sales of 100,000 units for the next three years, resulting in a net income of



Strategic Analysis

Market Segmentation

BBC has not clearly segmented its market; further, it has yet to determine which segments it wishes to target, or how to position itself to its target markets. It appears that BBC is trying to cater to all customers by offering a full product line in the mid-range segment.

No Clear Competitive Advantages Delineated

BBC has been manufacturing bicycles for over 40 years; however, it has not identified any key competitive advantages that set it apart from other manufacturers. Its manufacturing efficiency is relatively low considering its return on equity is relatively low. It produces above-average quality but not “top-of-the-line” product. It produces 10 models from beginner models to deluxe 12-speed models. But it does not possess patentable technologies or processes that confer competitive advantage above its competitors. Further, BBC does not seem to have defined key success factors for its business model. It should first define its strategic orientation clearly, then define key success factors for its business model. It can then develop competitive advantages aligned with these factors. Without doing this, however, BBC is destined to remain a medial performer.



Alternatives

Accept Hi-Valu's Offer As Stated

Baldwin can accept Hi-Valu's offer as it is stated. Incremental revenues resulting from this deal would be beneficial, and since the plant can take on the incremental production without incurring additional fixed costs, the proposal would result in significant earnings increases for BBC. A major drawback of this alternative, however, would be securing the additional capital outlay required for at least two months + 30 days worth of bicycles for of materials, labour, inventory, and freight. The initial cash outlay required amounts to \$787,000. Since BBC does not have sufficient cash to finance the initial outlay, it should seek credit terms from its suppliers to share some of the initial risks and defray some of the initial costs until it begins to receive some payments from Hi-Valu. Because BBC already has a high debt-equity ratio, it is unlikely it will be able to secure bank financing; however, it may seek equity financing from its owners.



Accepting the offer would also align poorly with BBC's strategic objectives as they currently exist. Currently, BBC distributes above-average bicycles through independent



retailers and specialized bicycle stores. By accepting Hi-Valu as a discount distributor, its now-under-priced bicycles would comprise a significant proportion of its total operations, necessitating a restructuring of its operations. BBC lacks the economies of scale that are enjoyed by manufacturers with operations in lower-wage countries. It would not be feasible for BBC to change its orientation to compete in the discount bicycle segment unless it were to set up operations in a low-wage country. This is not a feasible option with its current resources.

Accept Hi-Valu's Offer with Renegotiation on Terms

Baldwin stands to benefit financially from the Hi-Valu private-label alliance; however, it is unlikely that BBC would be able to secure the significant capital outlay required to initiate the program. The terms imposed by Hi-Valu transfer all the business and financial risk to BBC. If the Challenger program were to fail, Hi-Valu would have up to five months to secure funds to pay BBC for its initial shipments, while the program could be cancelled much earlier. BBC has no such way to hedge its risks. It could seek out credit financing from its suppliers, but it is extremely unlikely it would be able to secure terms as liberal as those Hi-Valu proposes.



The fact that Hi-Valu seems to be able to impose such terms on BBC hints that it has proposals with other bicycle manufacturers lined up in case BBC rejects the proposal. Now that the bicycle market is at a low point, it is likely that if BBC passes up the offer, other manufacturers would appreciate the incremental revenues.

One thing BBC can do to increase its power at the bargaining table is to seek out similar arrangements with other discount chains competing directly with Hi-Valu. This would pressure Hi-Valu into relaxing its credit terms at the risk of losing the exclusive Challenger agreement; however, if other bicycle manufacturers do not do the same, Hi-Valu may simply court another manufacturer who is more desperate for the incremental sales, at the same draconian terms.

Seek Alliances with Other Discount Chains



Discount chains can provide BBC with lucrative incremental revenues if it decides to pursue the lower-priced segments; however, Hi-Valu's terms significantly disadvantage BBC and would expose it to much more financial and business risks than it should be. Given the current 18% discount rate, the Challenger program has a negative net present value, meaning that the opportunity cost of setting aside the initial capital outlay and agreeing to the unreasonable credit terms is greater than its returns.

Other discount chains may decide to enter into similar agreements as a response to the Challenger program. In-house private-label brands are popular among discount retailers, and it is likely that other chains may desire to enter into a similar arrangement with BBC. In this case, BBC would have increased bargaining power with Hi-Valu or its competitors, pitting the discount chains against one another in trying to secure a private label agreement. This would put pressure on the discount chains to relax their credit terms.



Recommendations

Segment → Target → Position “STP”

Baldwin Bicycle Company has yet to segment its market. It currently appears to treat its market as homogeneous. Without segmenting its market and selecting segments that align with its strategic objectives, BCC will spread itself too thinly, trying to please all customers and excelling at pleasing none.

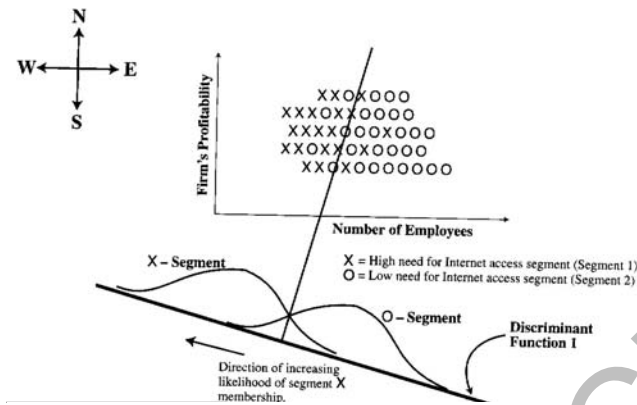


Figure 1 Discriminant Analysis Segmentation

particular segment will purchase a given product. This technique relies on a method similar to multiple linear regression, only instead of having a numerical dependent variable, the dependent variable is a nominal variable, such as “which product will a customer purchase?” or “will a customer purchase this product?” Relying on mathematical models such as the “multinomial logit” model or a “binomial logit” model see Appendix 4, this powerful segmentation technique can help BCC identify potential target segments.

Court Other Discount Retailers and Renegotiate Terms with Hi-Valu

Although the discount segment is not BBC’s selected strategic segment, obtaining incremental revenues through discount retailers is more of a tactical move to supplement its coffers until the bicycle market regains a stronger footing. It should explore alternative distribution arrangements (both private label and BBC branded) with other discount retailers.

It should be noted that discount retailers also sell upscale high quality products and do not restrict themselves solely to discount products. BBC should investigate the possibility of selling its regular products through discount retailers. With the growing popularity of discount chains, this could be a lucrative move without losing margins on the Challenger program.

Ward (1963) describes a quantitative method for identifying potential market segments based on marketing research data. Using statistical analyses known as “cluster analysis” and “discriminant analysis,” marketing research information can identify clusters of homogeneous customers and provide quantitative information with regards to how well respondents fit into each category. Another method, known as “choice-based” segmentation relies on such variables as geodemographics or previous purchase data to identify likelihood that a member of a



Figure 2 Child Trailer



Develop New Products that Lead to Competitive Advantage

BBC should also try to develop new products. Given the economic upswing of 1983, consumers will be more welcoming to innovative new products, such as the bicycle child trailer, skateboards, and scooters. Huffy Corporation produces these other unpowered or humanpowered vehicles as an extension to its bicycle product line since the technologies are related. Since the bicycle market is in a decline, alternative products could help supplement sales. These new products could be patentable providing up to 20 years of protection (from its international priority date of patent application) and therefore provide some means of competitive advantage. These products should be aligned with BBC's strategic objectives and match its key success factors. Skateboards and other human-powered devices are gaining popularity exponentially. These devices can leverage existing manufacturing capacity to exploit new markets.

Identify and Exploit Operating Efficiencies

BBC is currently realizing below-average returns on investment. This seems to indicate it is not making optimal use of its resources; further, it is heavily leveraged with a high debt-equity ratio, yet compared to Huffy Corporation, is not making efficient use of this capital. Operating inefficiencies should be identified through workflow analysis and Ishikawa diagrams. Pareto analysis through major inexpensive statistical software packages can help identify the few critical activities that are responsible for most of the inefficiencies. These can then be targeted. New performance objectives can be developed jointly with line managers and employees. These measures should be tracked closely to ensure they are followed.

Sensitivity Analysis

Must Achieve Incremental Sales of 25,000 Units

In order to make a significant difference, the anticipated sales of 25,000 units per year must be achieved. Sensitivity analysis reveals that if the depressed bicycle market results in sales of only 10,000 units being sold to Hi-Valu, return on investment would improve by only 0.72%. This is a significant risk because the bicycle market has been on a downswing, and further because of Hi-Valu's hesitancy to pay for bicycles until four months had passed in the warehouse.

If only 20,000 units were sold in 1983, net income would improve only 16%, resulting in a modicum of improvement to return on investment; however, this use of slack time would still be beneficial. According to MS Excel's solver, optimal increases in return on investment would be achieved by selling 32,930 Challenger units to Hi-Valu. This would completely use up production capacity. If Hi-Valu required any units additional to the 32,930, they should not be produced, because in order to do so, BBC would either have to give up production of its normal line (which has a higher contribution margin) or add additional plant capacity, which would require too large a capital outlay to be feasible.



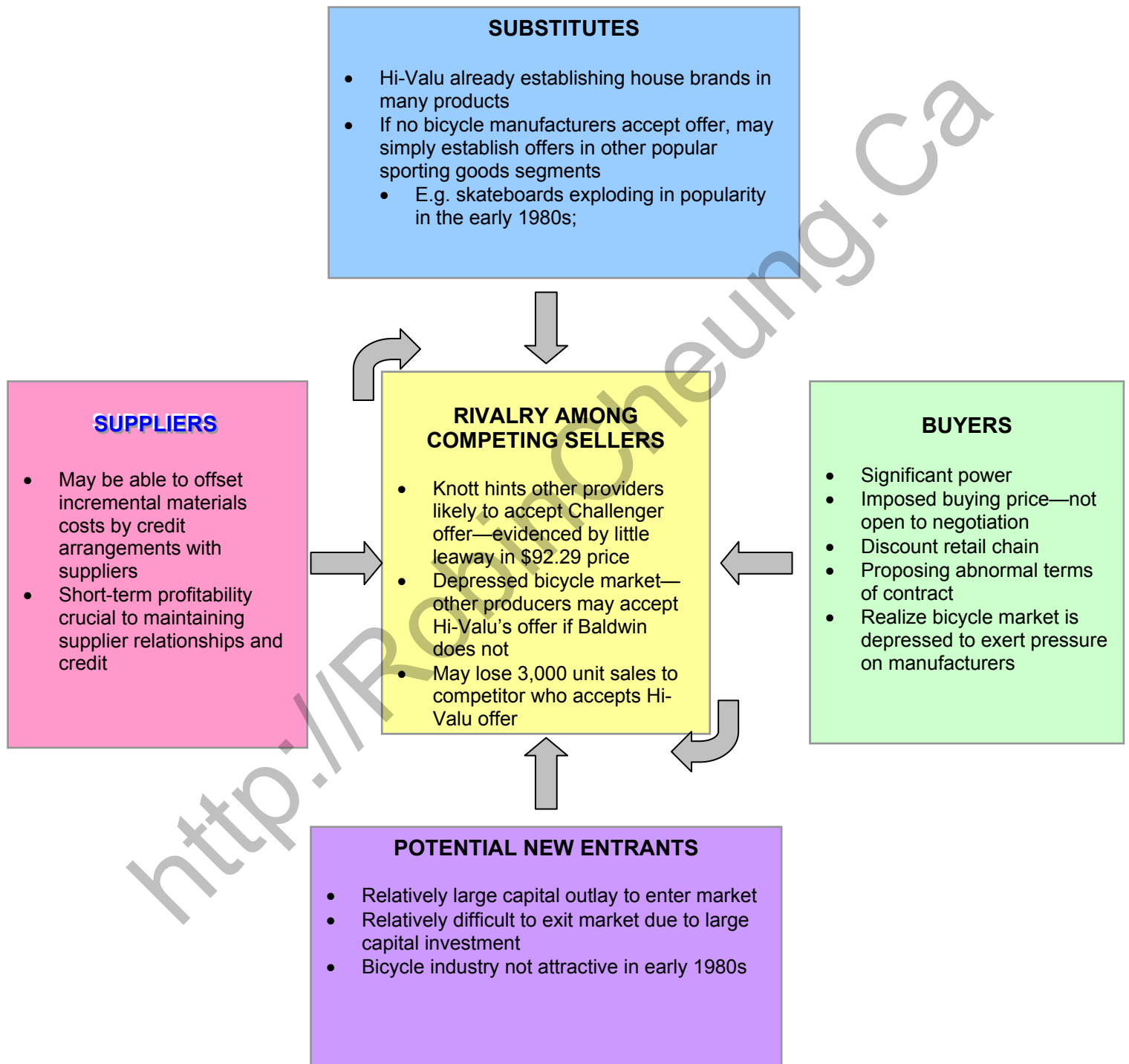
Appendix 1a: Company Analysis

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> ▪ Above-average reliability ▪ Established distribution channels ▪ Rent equipment as required ▪ Non-unionized workforce ▪ Student summer breaks closely match peak times ▪ Operating Leverage relatively low 	<ul style="list-style-type: none"> ▪ Apparent lack of bargaining power ▪ Relatively small to pursue low-cost provider segment: fewer economies of scale ▪ Too small to compete with multinational manufacturers
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> ▪ New wheeled sporting goods, such as skateboards, scooters, etc., can be introduced as new products 	<ul style="list-style-type: none"> ▪ Bicycle market depressed ▪ “Fads” (e.g. skateboards, “pogo balls,” and other sporting goods exploding in popularity in the 1980s) ▪ Comparison shopping: Customers may recognize BBC quality at lower prices and choose Hi-Valu models over BBC-branded models

PRODUCT	MARKET
<ul style="list-style-type: none"> ▪ Beginner’s bicycles to deluxe 12-speed models ▪ Above-average mid-range product 	<ul style="list-style-type: none"> ▪ Independently-owned retailers: <ul style="list-style-type: none"> ▪ Sporting goods stores, hardware stores ▪ Toy stores, bicycle shops ▪ Targets above-average mid-range bicycle market but not specialized (BMX, racing, etc.)
GOALS	COMPETITIVE ADVANTAGE
	<ul style="list-style-type: none"> ▪ Established manufacturing processes resulting in above-average quality

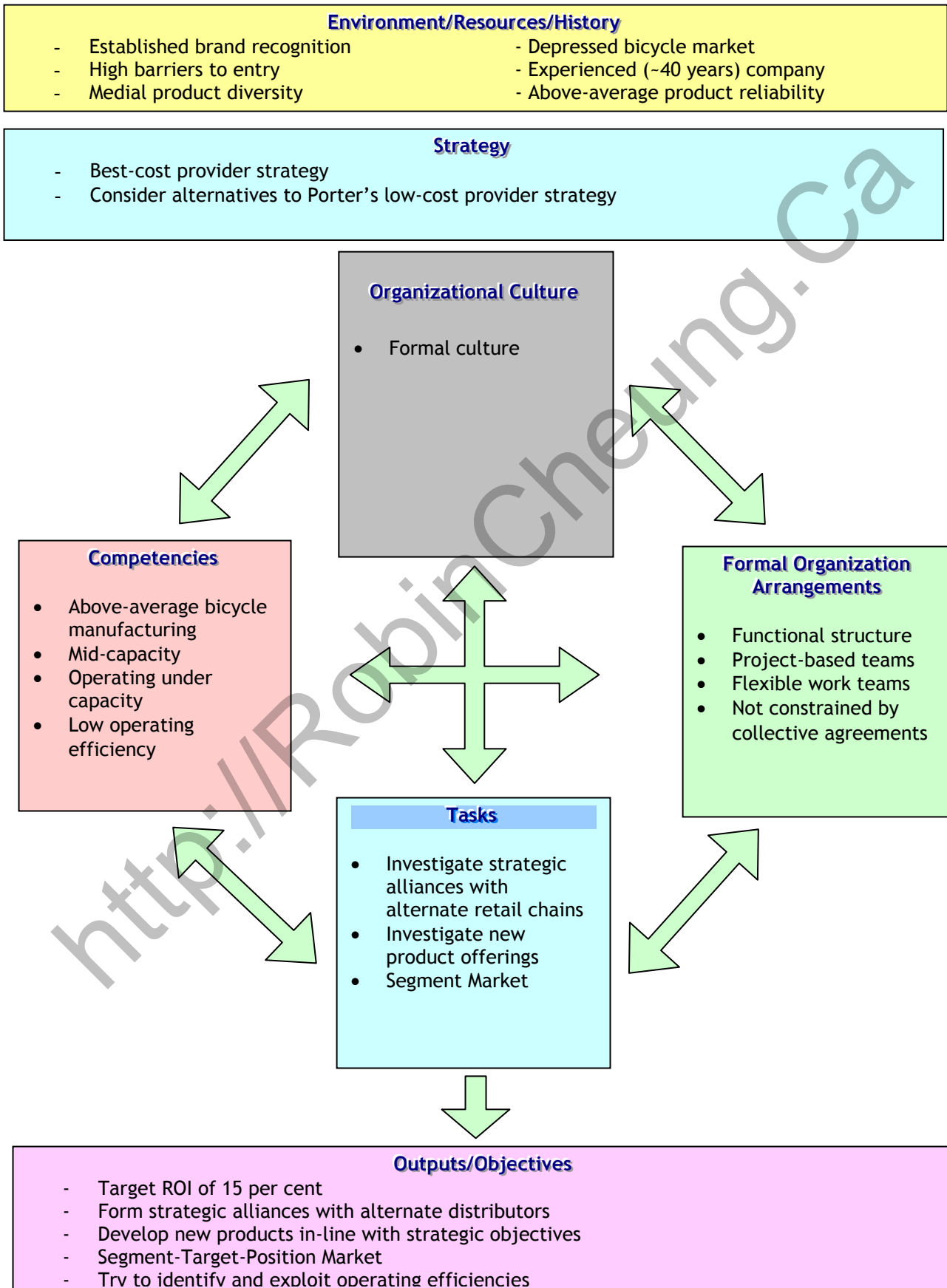


Appendix 1b: Porter's Five Forces Model





Appendix 2: Nadler and Tushman's Congruency Model





Appendix 3: Marketing Models

Segmentation Models

Various powerful quantitative models are available to segment a market based on marketing research data (cluster and discriminant analysis) or behaviour-based purchase data (choice-based segmentation through multinomial logit or binomial logit models). Although these models are easily implemented in software, computer resources were expensive and less available in 1982 than today.

The following represent these models:

Choice-Based Segmentation:

$$\text{Probability of Purchase} = \frac{1}{1 + \exp(b_0 + \sum b_i x_i)}$$

Where b = importance of variable
 X = value of variable

Ward's Cluster Analysis

Ward (1963) described a method of segmentation based on marketing research data. It is a hierarchical procedure where individuals are assigned a relatively to each other in a tree structure. Similar in concept to a linear regression, clusters are assigned such that the Error Sum of Squares (ESS) is minimized among all possible assignments:

$$\text{ESS} = \sum_{j=1}^k \left[\sum_{i=1}^{n_j} X_{ij}^2 - \frac{1}{n_j} \left(\sum_{i=1}^{n_j} X_{ij} \right)^2 \right]$$

Where X_{ij} represents the intent to purchase score for the i th individual in the j th cluster.
 K represents the number of clusters at each stage
 n represents the number of individuals in the j th cluster.

Perceptual Maps

BBC should consider constructing a perceptual map whereby bicycle offerings are developed and produced such that customers in the target segments view the bicycle as unique and valued more than a competitor's offering. One such map for BBC might be constructed with affordability (decreasing list price) on the Y-axis and a quantitative reliability measure on the X-axis, plotting the various BBC models against competitor's models.

References

- Nadler DA and Tushman ML. 1997. A congruence model for organization problem solving. In *Managing Strategic Innovation and Change: A collection of readings*. Oxford University Press. New York.
- Ward J. 1963. Hierarchical grouping to optimize an objective function. *Journal of the American Statistical Association*. **58**: 236-44.



FINANCIAL ANALYSIS

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Microsoft Excel - Relevant Cost

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	A	B	C	D	E	F	G	H	I	J	K	L
1	Relevant Cost Analysis of Proposed Hi-Valu Private Label Account											
2												
3												
4												
5	Marginal Revenue			\$	92.29							
6	Less Variable Costs											
7		Materials	\$39.80									
8		Labour	\$19.60									
9		Overhead	\$9.80									
10		Total Variable Costs:		\$	69.20							
11	Unit Contribution			\$	23.09							
12												
13	Contribution for 25,000 units:			\$	577,250.00							
14												
15	Less erosion of 3,000 units:											
16	Revenues		\$ 110.05									
17		Average Unit Cost	\$ 71.67									
18		Lost CM	\$ 38.39									
19	Net Revenue Erosion			\$	115,155.16							
20	One-time setup costs			\$	5,000.00							
21												
22												
23	Net Relevant Revenues			\$	457,094.84							
24												
25												
26												
27												
28												
29												
30												
31												
32												
33												
34												

40% of Overhead is variable

\$10,872,000 / 98,791 units

Not \$69.20 above because above includes Hi-Valu-specific items
Extract difference between COGS and cost above to get difference in materials

Relevant Cost Analysis / Required Capital Investment / Ratios / Income Statement /

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Baldwin Bicycle Company



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A	B	C	D	E	F	G	H	I	J	K	L	M
2												
3												
4	Variable Costs											
5	Materials		25,000	2 months:	4,166.67	\$ 39.80		\$ 166,833.33				
6	Work in process:		1000			54.50		54,500.00				
7	Finished Goods		500			69.20		34,600.00				
8	Goods at Hi-Valu		25,000	avg. 2 mo.	4166.66667	69.20		288,333.33				
9	A/R Net 30 Days		25,000	30 days	2083.33333	92.29		\$ 192,270.83				
10												
11					Total Relevant Assets			\$ 735,537.50				
12												
13	Relevant Asset Costs											
14	Record-keeping			1%		\$ 7,355.38						
15	Inventory Insurance			0.30%		\$ 2,206.61						
16	State Property Tax			0.70%		\$ 5,148.76						
17	Inventory-handling			3%		\$ 22,066.13						
18	Pilferage, shrinkage			0.50%		\$ 3,677.69						
19												
20					Relevant Asset Costs			\$ 40,454.56				
21												
22					Relevant Asset Costs			\$ 775,992.06				
23					Interest Expense per month			\$ 11,639.88				
24					Net Relevant Asset Costs			\$ 787,631.94				
25					Per bicycle			\$ 31.51				
26												
27	Cash Required per month		\$ 65,645.83									
28	Estimated Monthly Revenues											
29	From Operations		\$ 916,666.67									
30	Incremental		\$ 192,270.83									
31												
32	PV of CF for one year:		\$304,412.96	Assuming 18% discount rate								
33	PV of Expenses for one year:		\$371,293.16									
34	NPV		-\$66,880.20									
35												
Relevant Cost Analysis \ Required Capital Investment \ Ratios \ Income Statement												
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Income Statement
For the Year Ended December 31, 1983

	Dollars	000s of dollars
Sales Revenues	\$ 13,179,250.00	\$ 13,179
Cost of Goods Sold	9,775,000.00	9,775
Gross Margin	<u>3,404,250.00</u>	3,404
Selling and Administrative Expenses	<u>2,834,667.32</u>	2,835
Income Before Taxes	569,582.68	570
Income Tax Expense	<u>262,513.80</u>	263
Net Income	<u><u>\$ 307,068.89</u></u>	\$ 307

Increase over 1982: 20.42% in Net Income
 Return on Investment: 9.90%
 Improvement of ROI 20.39% over 1982



Key Financial Ratios

Return on assets	0.03
Return on equity	0.08
Inventory turnover	2.92
Accounts receivable turnover	-
Days to collect accounts receivable	-
Total Asset Turnover	1.34
Current ratio	0.54
Debt to equity ratio	1.50

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Microsoft Excel - Sensitivity

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Sensitivity Analysis: Less than 25,000 units per year

5	Marginal Revenue		\$ 92.29	
6	Less Variable Costs			
7		Materials	\$39.80	
8		Labour	\$19.60	
9		Overhead	\$9.80	40% of Overhead is variable
10		Total Variable Costs:	\$ 69.20	
11	Unit Contribution		\$ 23.09	
12				
13	Contribution for 10,000 units		\$230,900.00	
14				
15	Less erosion of 3,000 units:			\$10,872,000 / 98,791 units
16	Revenues	\$ 110.05		
17		Average Unit Cost	\$ 71.67	
18		Lost CM	\$ 38.39	Not \$69.20 above because above includes Hi-Valu-specific items Extract difference between COGS and cost above to get difference in materials
19	Net Revenue Erosion		\$115,155.16	
20	One-time setup costs		\$ 5,000.00	
21				
22				
23	Net Relevant Revenues		\$110,744.84	

Relevant Cost Analysis / Required Capital Investment / Ratios / Income Statement

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SENSITIVITY ANALYSIS: 10,000 UNITS INCOME STATEMENT

Income Statement For the Year Ended December 31, 1983

	Dollars
Sales Revenues	\$ 11,794,900.00
Cost of Goods Sold	8,737,000.00
Gross Margin	<u>3,057,900.00</u>
Selling and Administrative Expenses	<u>2,546,266.93</u>
Income Before Taxes	511,633.07
Income Tax Expense	<u>235,805.52</u>
Net Income	<u><u>\$ 275,827.56</u></u>

Increase over 1982: 8.17% in Net Income
Return on Investment: 8.89%
Improvement of ROI 8.17% over 1982