

NOVA INCORPORATED: CASE D
LOCAL OUTSOURCING OF PRODUCTION FOR
PERFORMANCE IMPROVEMENT

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NOVA MANUFACTURING INCORPORATED: Case D
Local Outsourcing of Production for Performance Improvement

By many measures, the "Born-Again" process and the Velocity initiatives have now been successful. With the consolidation and focusing of the factories, the institution of TQM throughout the value chain, the pruning of the product line, and the slashing of overhead, Nova's plants and the distribution centers are once again *very* profitable. Nova's 1993 income statements in Figure 1 show that the revenue slide of the past decade has finally been reversed. Further, as projected by the production plans and financial proformas of Figure 2, marketing believes that sales volume will grow by an additional 7% next year if the plants can reliably maintain a one day lead time and if the central warehouses can provide a fill rate of 99% .

As further signs of progress, total inventories in the factories, pipelines and distribution centers have been cut to 61 days. Inventory records are updated in real time. Procurement decisions are made with up-to-the-moment knowledge of pending customer orders and current inventory levels. Customers are served more reliably, in less time and with lower cost than by any one else in the industry. Nova has, in fact, become the best-in-class!

As the new year begins, John Fisher sees an opportunity to take some long overdue and much deserved vacation time, and perhaps even a chance to reacquaint himself with the game of golf. He opens the morning mail to find the following memo from Claudio Spiguel proposing to improve customer service in South America with no increase in Nova's cost. The logic seems reasonable. He turns to you for advice.



NOVA MANUFACTURING, INC.
"Your Global Assembly Supplier"

MEMORANDUM

TO: John Fisher, CEO

FROM: Claudio Spiguel, President, Nova South America

DATE: January 5, 1994

SUBJECT: Improving Customer Service and Nova Profitability

Attached is a copy of your recent memo on Stockouts and Customer Service ,as well as, a copy of Larry Judge's memo on improving return on investment. Sometimes it takes a combination of reminders like this to shake us loose from old habits. . . to drive home the point that we can't make marginal changes if we seek major improvements. Let me explain. First, I am sure that my South America operations were a significant contributor to your memo. While we have strived in the past to maintain generous inventories of finished goods in an attempt to provide superior service to our customers, we have found that deliveries from Cincinnati and London are so unreliable that if ever we do stockout of a part, we may be out of stock for an extended period. Therefore my initial reaction to your memo was to increase inventory by increasing my cycle stocks and raising my reorder points to "safer" levels. While I knew this was expensive, it seemed to be the right thing to do for our customers.

But then later, Larry Judge's memo on RONA arrived. It reminded me that customer service was not the only goal for Nova managers to attend to. Making a "fair profit" for our share holders on

the assets they had provided us with was also important. Since inventories are the greatest of the assets under my local control and their holding costs contribute heavily to our operating expense, inventory reduction is my key lever for RONA improvement. With the current measurement system, I am torn between the goals of inventory reduction and customer service. When I improve one the other gets worse.

When I shared this dilemma with a cousin who runs a manufacturing firm here in Sao Paulo, he asked for a sample of each of the products that Nova sells in South America. After reverse engineering our ten products, he designed a manufacturing process to build each and lined up a set of local suppliers. He has now offered me the following contract. If I guarantee to purchase from him all Nova products sold in South America during the next 5 years, he will make the capital investment required to manufacture these products. He will sell the products to me at our current Nova transfer price, quoted in dollars to eliminate Nova's exposure to Brazilian currency fluctuation, and he will guarantee the price for the 5 years (which Cincinnati will not do for me). Moreover, he will require no minimum order size and he will guarantee 1 day delivery of any order quantity up to 2% of annual demand. Finally, he will pay all transportation costs and will guarantee that product quality will meet or exceed Nova's existing standards.

This is the answer to a prayer. He will own the pipeline stock, and I will need only 2 days of safety stock and 1/2 day of cycle stock. My fill rates will jump from 65% to 99.9% and my transportation costs will go to \$0.00. From your perspective, the risk of profit erosion from the wild currency fluctuations that we have experienced in recent years will be eliminated. I estimate that my RONA bonus will exceed 40%, and he feels that he will make an acceptable profit. This is a win-win-win situation.

Do I have your approval to sign the contract and proceed with this new alliance?

Attachments: 2



NOVA MANUFACTURING, INC.
"Your Global Assembly Supplier"

MEMORANDUM

TO: All Nova Distribution Center Managers
FROM: John Fisher, CEO
DATE: November 29, 1993
SUBJECT: Stockouts and Customer Service

In the last two weeks I ran into a board member and then a college classmate, who each informed me that during the past year their company had attempted to buy our products on several occasions when we were out of stock. As a result they were forced to go to a competitor. Without having details on products, regions and dates, they assured me that the problem was real and getting worse. They wondered if Nova was backing out as a supplier to their industry.

Not only is this an unacceptable way to run a company which is focused on customer service, it is personally embarrassing to me. Let me be blunt. If you can not represent Nova better in your region by satisfying basic customer demand, I will be forced to find someone who can. Our board meets again in nine weeks and I plan to attend a school reunion in three months. I am sure that I will be given an update on our current service levels. I will tell you what I find.

Attachment 1



NOVA MANUFACTURING, INC.
"Your Global Assembly Supplier"

MEMORANDUM

TO: All Nova Distribution Center Managers
FROM: Larry Judge, CFO
DATE: December 15, 1993
SUBJECT: Lean Production

To survive in our increasingly competitive business environment, it is imperative that we all strive continuously to improve financial performance. Return on net assets, RONA, is a traditional and important measure of the effectiveness with which productive assets are deployed by a company's management. I have therefore decided to establish this year's RONA numbers as a benchmark for company performance. Hereafter, monthly RONA numbers at each location will be used as a barometer to measure performance improvement as we move forward during the new year.

I will calculate your 1993 RONA and will tie your compensation to your ability to improve it in 1994. The company improvement goal of 4% *must be* met by all locations. Managers who exceed this goal will receive a salary bonus percentage equal to twice their percentage improvement beyond 4%. I know you will each do the right thing.

Attachment 2

Figure 1a. NOVA 1993 INCOME STATEMENTS

Consolidated

	<u>Annual</u>
Sales Revenue	28,306,750
Cost Of Goods Sold	6,762,578
Finished Goods Inventory Value (starting)	806,950
Add Cost Of Goods Manufactured	3,916,143
Raw Material Inventory Value (starting)	61,000
Raw Material Purchases	148,400
Raw Material Handling Costs	4,932,493
Transportation Costs	855,249
Cost Of Materials Available For Use	4,077,243
Deduct Raw Materials Inventory Value (ending)	1,515,500
Cost Of Materials Used	2,405,353
Direct Labor	612,200
Manufacturing Overhead	8,610,296
Depreciation	15,372,875
Other	6,226,505
Total Cost Of Goods Manufactured	9,146,370
Cost Of Finished Goods Available For Sale	19,160,380
Deduct Finished Goods Inventory Value (ending)	607,450
Cost Of Goods Sold	2,571,700
Gross Margin On Sales	3,179,150
Operating Expenses	
Selling	
Picking , Packing, Handling and Transportation	2,998,300
Central Warehouse and DC Fixed Overhead	600,000
Total Selling Expenses	190,620
General And Administrative	2,904,549
Administrative Overhead	6,693,469
Engineering Overhead	9,872,619
Raw Material Inventory Holding Costs	
Finished Goods Inventory Holding Costs (DC + Fac.)	
Total G&A Expenses	
Total Operating Expenses	68,169
Interest Expenses	457,280
Short Term Interest	525,449
Long Term Interest	8,762,312
Total Interest Expenses	3,167,214
Income Before Income Taxes	5,595,098
Income Tax Expense	
Net Income After Income Taxes	

Figure 1b. NOVA 1993 INCOME STATEMENTS

Factories

	<u>US</u>	<u>Europe</u>	<u>Total</u>
Sales Revenue	10,626,458	9,405,793	20,032,250
Cost Of Goods Sold			
Finished Goods Inventory Value (starting)	883,367	1,086,254	1,969,621
Add Cost Of Goods Manufactured			
Raw Material Inventory Value (starting)	394,510	412,440	806,950
Raw Material Purchases	1,823,465	2,092,678	3,916,143
Raw Material Handling Costs	34,500	26,500	61,000
Transportation Costs (Inbound)	86,800	61,600	148,400
Cost Of Materials Available For Use	2,339,275	2,593,218	4,932,493
Deduct Raw Materials Inventory Value (end/r)	264,873	325,503	590,376
Cost Of Materials Used	2,074,402	2,267,715	4,342,117
Direct Labor	795,500	720,000	1,515,500
Manufacturing Overhead			
Depreciation	1,694,564	710,789	2,405,353
Material Handling, Tooling, Utilities, €	305,500	306,700	612,200
Total Cost Of Goods Manufactured	4,869,965	4,005,205	8,875,170
Cost Of Finished Goods Available For Sale	5,753,332	5,091,458	10,844,791
Deduct Finished Goods Inventory Value (ending)	882,911	1,085,009	1,967,920
Cost Of Goods Sold	4,870,421	4,006,450	8,876,871
Gross Margin On Sales	5,756,036	5,399,343	11,155,379
Operating Expenses			
Selling			
Picking And Packing	26,250	28,500	54,750
Central Warehouse Fixed Overhead	412,000	351,000	763,000
Total Selling Expenses	438,250	379,500	817,750
General And Administrative			
Administrative Overhead	458,100	360,300	818,400
Engineering Overhead	300,000	300,000	600,000
Raw Material Inventory Holding Costs	102,020	88,600	190,620
Finished Goods Inventory Holding Costs	863,068	763,906	1,626,974
Total G&A Expenses	1,723,188	1,512,806	3,235,994
Total Operating Expenses	2,161,438	1,892,306	4,053,744
Interest Expense			
Short Term Interest	11,478	14,105	25,583
Long Term Interest	88,480	74,000	162,480
Total Interest Expense	99,958	88,105	188,063
Income Before Income Taxes	3,494,640	3,418,932	6,913,573
Income Tax Rate	34%	41%	
Income Tax Expense	1,188,178	1,401,762	2,589,940
Net Income After Income Taxes	2,306,463	2,017,170	4,323,633

Figure 1c. NOVA 1993 INCOME STATEMENTS Regional Distribution Centers

	US	Europe	EB	SA	AP	Total
Sales Revenue	7,815,950	6,705,100	5,145,450	4,693,800	3,946,450	28,306,750
Cost Of Goods Sold						
Inventory Value (starting)	848,140	715,690	1,039,184	1,179,900	1,010,044	4,792,957
Add Cost Of Goods Purchased						
Purchases	5,656,950	4,730,900	3,754,250	3,402,100	2,488,050	20,032,250
Handling Costs	27,500	26,500	22,500	20,500	18,500	115,500
Transportation Costs (Inbound)	99,800	134,000	107,000	48,900	47,500	437,200
Total Cost Of Goods Purchased	5,784,250	4,891,400	3,883,750	3,471,500	2,554,050	20,584,950
Cost Of Merchandise Available For Sale	6,632,390	5,607,090	4,922,934	4,651,400	3,564,094	25,377,907
Deduct Inventory Value (ending)	649,451	536,829	1,058,545	1,133,119	880,642	4,258,585
Cost Of Goods Sold	5,982,939	5,070,261	3,864,389	3,518,281	2,683,452	21,119,322
Gross Margin On Sales	1,833,011	1,634,839	1,281,061	1,175,519	1,262,998	7,187,428
Operating Expenses						
Selling						
Warehouse Fixed Overhead	432,700	359,300	385,700	256,000	375,000	1,808,700
Total Selling Expenses	432,700	359,300	385,700	256,000	375,000	1,808,700
General And Administrative						
Administrative Overhead	480,300	522,100	360,500	432,700	384,300	2,179,900
Inventory Holding Costs	194,835	161,049	317,563	339,936	264,192	1,277,575
Total G&A Expenses	675,135	683,149	678,063	772,636	648,492	3,457,475
Total Operating Expenses	1,107,835	1,042,449	1,063,763	1,028,636	1,023,492	5,266,175
Interest Expense						
Short Term Interest	6,495	5,368	10,585	11,331	8,806	42,586
Long Term Interest	50,000	34,800	41,600	106,000	62,400	294,800
Total Interest Expense	56,495	40,168	52,185	117,331	71,206	337,386
Income Before Income Taxes	668,681	552,222	165,112	29,552	168,299	1,583,866
Income Tax Rate	34%	41%	40%	35%	28%	
Income Tax Expense	227,352	226,411	66,045	10,343	47,124	577,274
Net Income After Income Taxes	441,330	325,811	99,067	19,209	121,175	1,006,592

Figure 2.
1994 PRODUCTION PLANS and
FINANCIAL PROFORMAS

	Finished Goods Part Number									
	1	2	3	4	5	6	7	8	9	10
North American DC										
US Factory	8568	4632	744	0	0	144	0	48	24	0
European Factory	0	0	0	1416	264	0	72	0	0	0
European DC										
US Factory	0	0	1008	0	0	552	0	24	24	0
European Factory	5568	3576	0	864	1008	0	216	0	0	0
Eastern European DC										
US Factory	0	0	1056	0	0	312	0	48	48	0
European Factory	4152	2688	0	720	744	0	192	0	0	24
South American DC										
US Factory	2760	1872	1224	0	0	696	0	240	120	0
European Factory	0	0	0	744	264	0	432	0	0	72
Asia Pacific DC										
US Factory	0	0	1800	0	0	312	0	528	312	0
European Factory	816	552	0	312	168	0	792	0	0	216
US Factory	11328	6504	5832	0	0	2016	0	888	528	0
European Factory	10536	6816	0	4056	2448	0	1704	0	0	312
Total	21864	13320	5832	4056	2448	2016	1704	888	528	312

**Where Distribution
Centers Get Their
Products
(Units)**

**Where Products
Are Manufactured
(Units)**

Return on Net Assets by Location

Distribution Centers

	RONA	Revenue	Net Income	Tax	Fixed Costs & Interest	Variable Costs
North America	10%	7,862,760	231,240	119,124	1,164,330	6,348,067
Europe	22%	6,848,760	349,798	243,080	1,082,617	5,173,264
Eastern Europe	13%	5,664,960	270,501	180,334	1,115,949	4,098,176
South America	11%	5,239,920	244,599	131,707	1,145,967	3,717,647
Asia Pacific	12%	4,377,960	283,655	110,310	1,094,699	2,889,296
Total		29,994,360	1,379,793	784,555	5,603,561	22,226,450

Factories

	RONA	Revenue	Net Income	Tax	Fixed Costs & Interest	Variable Costs
North America	26%	11,204,102	1,232,451	634,899	4,319,523	5,017,229
Europe	39%	10,759,687	1,058,036	735,245	3,320,415	5,645,991
Total		21,963,789	2,290,487	1,370,144	7,639,938	10,663,219

Corporate

	RONA	Revenue	Net Income	Tax	Fixed Costs & Interest	Variable Costs
Nova Corporate	20%	29,994,360	3,670,281	2,154,700	13,243,499	10,925,880

Balance Sheets

	Factories			Distribution Centers						Nova Corporate
	US	Europe	US	US	Europe	Eastern Europe	South America	Asia Pacific		
Assets										
Current Assets										
Cash	7,977,726	5,214,005	4,009,701	2,896,927	4,079,144	4,707,104	3,907,982	32,792,589		
Accounts Receivable	2,329,181	2,844,707	2,150,701	1,815,607	2,730,794	2,833,895	2,235,562	16,940,447		
Inventories	33,612	23,684	65,523	57,073	47,208	43,666	36,483	307,249		
Raw Material	0	0	786,276	684,876	566,496	523,992	437,796	2,999,436		
Finished Goods	1,147,784	1,410,512	649,451	536,829	1,058,545	1,133,119	880,642	6,816,881		
Long Term Assets	264,873	325,503	0	0	0	0	0	590,376		
Property	882,911	1,085,009	649,451	536,829	1,058,545	1,133,119	880,642	6,226,505		
Plant	5,648,545	2,369,298	1,859,000	1,081,320	1,348,350	1,873,209	1,672,420	15,852,142		
Equipment	325,000	280,000	370,000	165,000	327,000	440,000	320,000	2,227,000		
Liabilities	1,870,000	865,800	810,500	560,700	585,300	740,300	780,000	6,212,600		
Current Liabilities	3,453,545	1,223,498	678,500	355,620	436,050	692,909	572,420	7,412,542		
Short Term Debt	1,557,057	1,422,313	788,666	570,068	692,967	1,497,627	916,104	7,444,801		
Accounts Payable	451,057	497,313	163,666	135,068	172,967	172,627	136,104	1,728,801		
Payroll Due	114,778	141,051	64,945	53,683	105,854	113,312	88,064	681,688		
Other Accruals	280,708	292,359	31,740	25,866	20,491	18,588	14,446	684,200		
Long Term Liabilities	44,203	54,448	63,481	51,733	40,982	37,176	28,893	320,915		
Long Term Debt	11,367	9,455	3,500	3,786	5,640	3,550	4,700	41,998		
Shareholder's Equity	1,106,000	925,000	625,000	435,000	520,000	1,325,000	780,000	5,716,000		
	1,106,000	925,000	625,000	435,000	520,000	1,325,000	780,000	5,716,000		
	6,420,669	3,791,692	3,221,035	2,326,859	3,386,177	3,209,478	2,991,879	25,347,788		

U.S. Factory

Proforma Income Statements

	Finished Goods Product Number													
	1	2	3	4	5	6	7	8	9	10				
Units Sold	27,096													
Total Expenses	9,336,752													
Factory Margin	20%	20%	20%	0%	0%	20%	0%	20%	20%	0%	0%	0%	0%	0%
Transfer Price	365.36	383.43	478.88	0.00	0.00	475.61	0.00	549.61	628.40	0.00	0.00	0.00	0.00	0.00
Sales Revenue	4,138,794	2,493,810	2,792,812	0	0	958,834	0	488,058	331,794	0	0	0	0	0
Variable Expenses	1,796,980	1,070,286	1,398,068	0	0	418,631	0	203,015	130,250	0	0	0	0	0
Material (including transportation & handling)	944,577	547,696	909,234	0	0	224,490	0	110,274	70,809	0	0	0	0	0
Direct Labor	852,403	522,590	488,834	0	0	194,141	0	92,741	59,440	0	0	0	0	0
Fixed Expenses	1,610,226	983,896	907,761	0	0	372,960	0	200,424	144,298	0	0	0	0	0
Allocated Manufacturing Overhead	624,250	377,742	347,627	0	0	132,391	0	62,397	39,528	0	0	0	0	0
Allocated Depreciation (% util'n)	496,530	304,412	281,872	0	0	109,661	0	52,385	33,575	0	0	0	0	0
Material Handling, Tooling, Utilities, etc (% units produced)	127,720	73,331	65,754	0	0	22,730	0	10,012	5,953	0	0	0	0	0
Allocated Fixed Overhead	985,976	606,153	560,134	0	0	240,569	0	138,027	104,770	0	0	0	0	0
Picking And Packing (% direct labor)	10,124	6,207	5,806	0	0	2,306	0	1,101	706	0	0	0	0	0
Central Warehouse Fixed Overhead (% direct labor)	158,899	97,417	91,125	0	0	98,190	0	17,288	11,080	0	0	0	0	0
Administrative Overhead (% direct labor)	176,679	108,318	101,321	0	0	40,240	0	19,223	12,320	0	0	0	0	0
Engineering Overhead (equal)	50,000	50,000	50,000	0	0	50,000	0	50,000	50,000	0	0	0	0	0
Raw Material Holding (% direct labor)	34,104	20,908	19,558	0	0	7,767	0	3,710	2,378	0	0	0	0	0
Finished Goods Holding (% direct labor)	102,156	62,629	58,584	0	0	23,267	0	11,114	7,124	0	0	0	0	0
Unabsorbed Direct Labor (% units produced)	280,045	160,788	144,175	0	0	49,838	0	21,953	13,053	0	0	0	0	0
Unabsorbed Depreciation (% units produced)	173,970	99,885	89,565	0	0	30,961	0	13,638	8,109	0	0	0	0	0
Operating Income	731,588	439,628	486,983	0	0	167,243	0	84,619	57,247	0	0	0	0	0
Interest Expense	41,789	23,993	21,514	0	0	7,437	0	3,276	1,948	0	0	0	0	0
Short Term Interest (% units produced)	4,799	2,755	2,470	0	0	854	0	376	224	0	0	0	0	0
Long Term Interest (% units produced)	36,991	21,238	19,044	0	0	6,583	0	2,900	1,724	0	0	0	0	0
Total Expenses	9,336,752	2,078,175	2,327,343	0	0	799,028	0	406,715	276,495	0	0	0	0	0
Income Before Income Taxes	689,799	415,635	465,469	0	0	159,806	0	81,343	55,299	0	0	0	0	0
Income Tax Expense 34%	234,532	141,316	158,259	0	0	54,334	0	27,657	18,802	0	0	0	0	0
Net Income After Income Taxes	455,267	274,319	307,209	0	0	105,472	0	53,686	36,497	0	0	0	0	0

European Factory

	Finished Goods Product Number									
	1	2	3	4	5	6	7	8	9	10
Units Sold	10,536	6,816	0	4,056	2,448	0	1,704	0	0	312
Total Expenses	8,966,406	2,110,405	0	1,862,541	960,166	0	693,506	0	0	222,585
Factory Margin	20%	20%	0%	20%	20%	0%	20%	0%	0%	20%
Transfer Price	355.03	371.55	0.00	551.05	470.67	0.00	488.38	0.00	0.00	856.10
Sales Revenue	3,740,644	2,532,486	0	2,235,049	1,152,199	0	832,207	0	0	267,102
Variable Expenses	1,902,309	1,279,748	0	1,327,968	593,125	0	418,187	0	0	124,754
Material (including transportation & handling)	898,515	587,786	0	884,427	283,904	0	195,582	0	0	73,378
Direct Labor	1,003,794	691,962	0	443,440	309,221	0	222,606	0	0	51,376
Fixed Expenses	1,179,015	807,446	0	520,861	358,704	0	269,516	0	0	96,769
Allocated Manufacturing Overhead	327,219	220,269	0	137,459	89,437	0	63,694	0	0	13,631
Allocated Depreciation (% util'n)	202,320	139,468	0	89,378	60,417	0	43,494	0	0	9,932
Material Handling, Tooling, Utilities, etc (% units produced)	124,899	80,800	0	48,082	29,020	0	20,200	0	0	3,699
Allocated Fixed Overhead	851,796	587,178	0	383,402	269,267	0	205,822	0	0	83,138
Picking And Packing (% direct labor)	10,508	7,244	0	4,642	3,237	0	2,330	0	0	538
Central Warehouse Fixed Overhead (% direct labor)	129,420	89,215	0	57,173	39,868	0	28,701	0	0	6,624
Administrative Overhead (% direct labor)	132,849	91,579	0	58,688	40,924	0	29,461	0	0	6,799
Engineering Overhead (equal)	50,000	50,000	0	50,000	50,000	0	50,000	0	0	50,000
Raw Material Holding (% direct labor)	42,741	29,463	0	18,881	13,166	0	9,478	0	0	2,188
Finished Goods Holding (% direct labor)	120,018	82,734	0	53,020	36,972	0	26,616	0	0	6,143
Unabsorbed Direct Labor (% units produced)	298,748	193,268	0	115,008	69,413	0	48,317	0	0	8,847
Unabsorbed Depreciation (% units produced)	67,512	43,675	0	25,990	15,686	0	10,919	0	0	1,999
Operating Income	659,320	445,292	0	386,321	200,370	0	144,504	0	0	45,580
Interest Expense	35,880	23,211	0	13,812	8,336	0	5,803	0	0	1,062
Short Term Debt (% units produced)	5,744	3,716	0	2,211	1,335	0	929	0	0	170
Long Term Interest (% units produced)	30,135	19,495	0	11,601	7,002	0	4,874	0	0	892
Total Expenses	8,966,406	2,110,405	0	1,862,541	960,166	0	693,506	0	0	222,585
Income Before Income Taxes	1,793,281	422,081	0	372,508	192,033	0	138,701	0	0	44,517
Income Tax Expense 41%	735,245	173,053	0	152,728	78,734	0	56,867	0	0	18,252
Net Income After Income Taxes	1,058,036	249,028	0	219,780	113,300	0	81,834	0	0	26,265

European Distribution Center

	Finished Goods Product Number									
	1	2	3	4	5	6	7	8	9	10
Units Sold	12,840	3,576	1,008	864	1,008	552	216	24	24	0
Total Expenses	6,255,881	1,624,333	594,874	554,174	562,792	325,313	125,846	17,133	19,229	0
Selling Price	480	495	600	640	650	720	740	750	740	0
Sales Revenue	2,672,640	1,770,120	604,800	552,960	655,200	397,440	159,840	18,000	17,760	0
Variable Expenses	1,984,456	1,334,914	489,974	479,846	478,169	287,896	107,252	14,392	16,366	0
Contribution To Fixed Expenses	688,184	435,206	114,826	73,114	177,031	129,544	52,588	3,608	1,394	0
Allocated Fixed Overhead	430,312	278,232	101,747	71,825	81,469	55,891	17,918	2,666	2,788	0
Regional Warehouse Fixed Overhead (% units sold)	155,809	100,067	28,207	24,177	28,207	15,447	6,044	672	672	0
Administrative Overhead (% units sold)	226,406	145,407	40,987	35,132	40,987	22,445	8,783	976	976	0
Inventory Holding Costs	48,097	32,758	32,553	12,316	12,275	17,799	3,091	1,019	1,141	0
Operating Income	257,873	156,974	13,079	1,489	95,561	73,854	34,669	942	-1,394	0
Interest Expense	17,419	11,187	3,153	2,703	3,153	1,727	676	75	75	0
Short Term Interest (% units sold)	2,328	1,495	421	361	421	231	90	10	10	0
Long Term Interest (% units sold)	15,091	9,692	2,732	2,342	2,732	1,496	585	65	65	0
Total Expenses	2,432,186	1,624,333	594,874	554,174	562,792	325,313	125,846	17,133	19,229	0
Income Before Income Taxes	240,454	145,787	9,926	-1,214	92,408	72,127	33,994	867	-1,469	0
Income Tax Expense (41%)	98,586	59,773	4,070	-498	37,887	29,572	13,937	355	-602	0
Net Income After Income Taxes	141,868	86,014	5,856	-716	54,521	42,555	20,056	511	-867	0

Eastern European Distribution Center

Finished Goods Product Number

	1	2	3	4	5	6	7	8	9	10
Totals	9,984	2,898	1,056	720	744	312	192	48	48	24
Units Sold	4,152	2,898	1,056	720	744	312	192	48	48	24
Total Expenses	1,924,876	1,295,822	650,833	489,188	440,781	193,707	118,865	35,201	39,522	25,329
Selling Price	495	560	620	655	700	710	750	760	745	815
Sales Revenue	2,055,240	1,505,280	654,720	471,600	520,800	221,520	144,000	36,480	35,760	19,560
Variable Expenses	1,484,919	1,007,629	515,059	402,965	355,449	153,464	96,498	28,520	32,450	21,823
Contribution To Fixed Expenses	570,321	497,651	139,661	69,235	165,351	68,056	47,502	7,960	3,310	-2,263
Allocated Fixed Overhead	418,255	274,143	130,254	83,060	81,443	38,613	21,364	6,430	6,821	3,380
Regional Warehouse Fixed Overhead (% unit)	160,399	103,842	40,795	27,815	28,742	12,053	7,417	1,854	1,854	927
Administrative Overhead (% units sold)	149,919	97,058	38,130	25,998	26,864	11,266	6,933	1,733	1,733	867
Inventory Holding Costs	107,936	73,243	51,329	29,247	25,837	15,294	7,014	2,842	3,234	1,586
Operating Income	152,066	223,508	9,407	-13,825	83,907	29,444	26,138	1,530	-3,512	-5,643
Interest Expense	21,702	14,050	5,520	3,763	3,889	1,631	1,004	251	251	125
Short Term Interest (% units sold)	4,402	2,850	1,120	763	789	331	204	51	51	25
Long Term Interest (% units sold)	17,300	11,200	4,400	3,000	3,100	1,300	800	200	200	100
Total Expenses	1,924,876	1,295,822	650,833	489,188	440,781	193,707	118,865	35,201	39,522	25,329
Income Before Income Taxes	130,364	209,458	3,887	-17,588	80,019	27,813	25,135	1,279	-3,762	-5,789
Income Tax Expense (40%)	52,146	83,783	1,555	-7,035	32,007	11,125	10,054	512	-1,505	-2,307
Net Income After Income Taxes	78,219	125,675	2,332	-10,553	48,011	16,688	15,081	767	-2,257	-3,461

South American Distribution Center

Finished Goods Product Number

	Totals	1	2	3	4	5	6	7	8	9	10
Units Sold	8,424	2,760	1,872	1,224	744	264	696	432	240	120	72
Total Expenses	4,863,614	1,375,295	971,479	764,948	528,128	166,094	433,970	278,405	170,771	96,687	77,838
Selling Price		525	600	640	680	720	745	770	780	740	850
Sales Revenue	5,239,920	1,449,000	1,123,200	783,360	505,920	190,080	518,520	332,640	187,200	88,800	61,200
Variable Expenses	3,717,647	1,018,116	725,979	593,559	418,659	129,035	336,597	217,208	135,424	78,067	65,004
Contribution To Fixed Expenses	1,522,273	430,884	397,221	189,801	87,261	61,045	181,923	115,432	51,778	10,733	-3,804
Allocated Fixed Overhead	1,028,636	318,737	219,427	154,342	99,107	33,382	87,679	55,179	32,004	16,949	11,830
Regional Warehouse Fixed Overhead (% unit)	256,000	83,875	56,889	37,197	22,610	8,023	21,151	13,128	7,293	3,647	2,188
Administrative Overhead (% units sold)	432,700	141,768	96,156	62,871	38,216	13,580	35,750	22,190	12,328	6,164	3,688
Inventory Holding Costs	339,936	93,095	66,382	54,274	38,281	11,799	30,778	19,861	12,383	7,138	5,944
Operating Income	493,637	112,147	177,795	35,460	-11,846	27,663	94,244	60,252	19,772	-6,216	-15,635
Interest Expense	117,331	38,442	26,074	17,048	10,363	3,677	9,694	6,017	3,343	1,671	1,003
Short Term Interest (% units sold)	11,331	3,712	2,518	1,646	1,001	355	896	581	323	161	97
Long Term Interest (% units sold)	106,000	34,729	23,556	15,402	9,362	3,322	8,758	5,436	3,020	1,510	906
Total Expenses	4,863,614	1,375,295	971,479	764,948	528,128	166,094	433,970	278,405	170,771	96,687	77,838
Income Before Income Taxes	376,306	73,705	151,721	18,412	-22,208	23,986	84,550	54,235	16,429	-7,887	-16,638
Income Tax Expense (35%)	131,707	25,797	53,102	6,444	-7,773	8,395	29,593	18,982	5,750	-2,760	-5,823
Net Income After Income Taxes	244,599	47,908	98,619	11,968	-14,435	15,591	54,958	35,253	10,679	-5,126	-10,814

Nova Corporate

Finished Goods Product Number

	1	2	3	4	5	6	7	8	9	10
Units Sold	21,864	13,320	5,832	4,056	2,448	2,016	1,704	888	528	312
Total Expenses	52,968	24,169,390	2,363,776	1,086,846	973,524	888	573,848	383,721	298,450	281,640
Sales Revenue	8,598,819	5,473,531	3,172,759	2,711,520	1,674,720	1,480,680	1,328,040	714,720	405,240	281,640
Variable Expenses	10,925,860	6,953,760	3,828,120	2,711,520	1,674,720	1,480,680	1,328,040	714,720	405,240	281,640
Material (including transportation & handling)	3,745,859	2,387,971	1,439,242	1,359,005	613,887	441,822	439,749	218,743	143,710	135,892
Direct Labor	1,869,662	1,173,420	950,408	915,564	304,666	247,681	217,143	126,002	84,270	84,516
Fixed Expenses	4,932,547	1,856,197	1,214,551	443,440	309,221	194,141	222,606	92,741	59,440	51,376
Allocated Manufacturing Overhead	12,718,051	4,657,304	2,963,832	1,661,572	608,165	620,199	510,310	341,516	232,156	157,720
Allocated Depreciation	2,435,644	951,469	347,627	137,459	89,437	132,391	63,694	62,397	39,528	13,631
Material Handling, Tooling, Utilities, e	1,823,444	698,850	281,872	89,378	60,417	109,661	43,494	52,385	33,575	9,932
Allocated Fixed Overhead	612,200	252,619	65,754	48,082	29,020	22,730	20,200	10,012	5,953	3,699
Picking And Packing	10,282,407	3,705,835	1,313,945	827,818	518,728	487,808	446,616	279,119	192,628	144,089
Central Warehouse Fixed Overhead	54,750	20,632	5,806	4,842	3,237	2,306	2,330	1,101	706	538
Regional Warehouse Fixed Overhead	763,000	288,318	91,125	57,173	39,868	36,190	28,701	17,288	11,080	6,624
Factory Administrative Overhead	1,808,700	685,761	242,649	133,252	82,998	72,711	79,684	45,216	26,970	17,061
Regional Warehouse Administrative Overhead	818,400	309,527	101,321	58,688	40,924	40,240	29,461	19,223	12,320	6,799
Engineering Overhead	2,179,900	830,709	283,547	162,731	100,497	94,452	92,483	51,422	30,242	18,957
Raw Material Holding	600,000	100,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
Finished Goods Holding at Factories	204,343	76,844	19,558	18,881	13,166	7,767	9,478	3,710	2,378	2,188
Finished Goods Holding at Regional Wareh	590,376	222,174	58,584	53,020	36,972	23,267	26,616	11,114	7,124	6,143
Unabsorbed Direct Labor	1,277,575	351,594	227,615	148,433	65,966	80,076	68,627	44,455	30,646	25,033
Unabsorbed Depreciation	1,403,453	578,793	144,175	115,008	69,413	49,838	48,317	21,953	13,053	8,847
Operating Income	581,909	241,482	89,565	25,990	15,686	30,961	10,919	13,638	8,109	1,999
Interest Expense	6,350,429	2,212,757	727,306	387,238	452,668	418,659	377,981	154,461	29,374	-11,972
Short Term Interest	525,449	195,656	71,945	39,494	22,053	24,825	23,465	13,588	7,856	4,839
Long Term Interest	68,169	25,719	8,691	5,388	3,262	2,884	3,034	1,580	929	620
Total Expenses	457,280	169,936	63,254	34,106	18,790	21,942	20,430	12,008	6,927	4,219
Income Before Income Taxes	24,169,380	8,598,819	3,172,759	2,363,776	1,244,105	1,086,846	973,524	573,848	383,721	298,450
Income Tax Expense	5,824,980	2,017,101	655,361	347,744	430,615	393,834	354,516	140,872	21,519	-16,810
Net Income After Income Taxes	2,154,700	751,486	215,721	142,503	170,195	139,256	129,161	45,957	8,157	-777
	3,670,281	927,188	439,640	205,241	260,420	254,577	225,355	94,915	13,362	-16,034