Case study

Customer-oriented cost cutting: process management at Volvo

Susanne Hertz
Johny K. Johansson and
Flip de Jager

The authors

Susanne Hertz is an Associate Professor at the Stockholm School of Economics, Stockholm, Sweden.
Johny K. Johansson is based at Georgetown University, Washington, DC, USA.
Flip de Jager is a Process Manager at Volvo Car Corporation, Gothenberg, Sweden.

Keywords

Order cycle, Supply chain, Process management, Distribution

Abstract

Drawing on an in-depth case study of the Volvo automobile company's strategy in the early 1990s, before the Ford takeover in 1999, this paper demonstrates how policies designed to reduce inventory costs and slim the distribution pipeline can affect a business' network of suppliers and distributors in unexpected ways. It also shows how the implementation of cost reducing reengineering projects naturally lead to sub-optimization and a need to consider higher-level processes. In the Volvo illustration a manufacturer's reengineering of its distribution chain evolved into a complete recasting of its order fulfillment process, and an adoption of a process management structure. The paper traces the effects on the network of distributors and dealers and shows how Volvo's new structure curtails the distribution role of foreign sales subsidiaries and shifts their tasks towards market analysis, demand forecasting and customer service in foreign markets. It also shows how a process management perspective impacts a firm's value chain, marketing function and organizational structure. In the end, the case demonstrates how a division can cut costs and still become more customer-oriented – and become a more valuable asset for a diversified corporation.

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Introduction

This paper is about the way Volvo, the Swedish car maker, in the early 1990s adapted its production and distribution systems to deal with a triple threat: a demand decline in its major markets, intensified global competition in the automobile industry, and a cost structure way out of line when benchmarked against leading competitors (see for example, Womack *et al.*, 1990, pp. 101-2). In addition, Volvo's single ace-in-the-hole, a planned merger with Renault, the French automaker, was called off at the last minute in 1994. Volvo became one of the "still surviving, but barely" small automakers until acquired by Ford Motor Company.

It is an interesting story, considering that Volvo, both before and after the Ford takeover, shows strength in revenues and loyal market shares, plus a strong return on assets. Our aim is not to tell the whole corporate story in detail, in all its financial and managerial aspects. Rather, the aim is to map out the organizational network and consequent marketing effects of a radical strategic change in the Volvo Car Company (VCC), then the most prominent division of the Volvo corporation. The story tells how VCC pushed a limited distribution reengineering project into an overhaul of its main value-creating activities through a relentless process and customer focus. The paper explains how the changeover was accomplished, and how the end result was an increased reliance on a network structure with roving process managers, and a shift to a process management structure. It shows how a relatively small car maker managed to stay alive and do well in an increasingly globalized industry characterized by significant large-scale advantages.

To develop the story we started by interviewing VCC managers and affiliated firms directly or indirectly part of the distribution network in Europe (primarily sales subsidiaries and distributors, but also some dealers). As we learned more, our focus shifted from the distribution chain alone to the larger order fulfillment process, including production and supplier repercussions, and the changing role of the marketing function. Individuals in the production plants, in purchasing at the Gothenberg headquarters, and several independent suppliers were interviewed. In total about 40 personal interviews were conducted in the six-year

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period between 1994 through 2000, although most of the story takes place in the years up through 1995 when the VCC rebuilding effort and the reorganization were essentially completed.

The starting position

Volvo Car Company (VCC) designs and builds passenger automobiles. Before the Ford takeover, the business unit was a division in the Swedish-based Volvo corporation. The major transportation divisions within AB Volvo were Volvo Cars, Volvo Trucks, Volvo Buses, Volvo Construction Equipment, Volvo Penta, and Volvo Aero. During the 1980s, the corporation also entered several unrelated business areas, including food processing. At the time, Volvo was the largest corporation in Scandinavia. Table I gives the basic financial data for the 1985-1995 decade.

VCC is a small car maker in global terms, producing only slightly above 350,000 passenger cars annually, far below the million-plus scale of companies such as Toyota, GM or Nissan, and also smaller than competing BMW (600,000) and Mercedes (650,000). Its durable and safe cars target a high-end niche, just below the luxury class, and with a special focus on families with small children. VCC's main assembly plant is located at Torslanda, outside of Gothenberg, Sweden. The company also has manufacturing units in Gent, Belgium, and in The Netherlands, a joint venture with Japanese automaker Mitsubishi.

As with most auto manufacturers, the production units of VCC can be viewed as nodes in a large network of parts and components suppliers, transport companies, distribution units and foreign sales companies, and automobile dealers in the various markets. The main organizations in the network are depicted in Figure 1.

While the suppliers and the dealers are mainly independent entrepreneurs, Volvo owns several of the sales companies and one transport company in the network. In addition, the suppliers often rely on Volvo for most of their sales, and most of the dealers sell only Volvos and possibly one other automobile make.

In the mid-1980s, with strong demand in key markets, production was, for all practical purposes, the main consideration of VCC executives. The head office and production units together put pressure on suppliers to keep prices low, deliver on time, and provide high quality. The Volvo transport subsidiary organized and coordinated the shipments of cars worldwide, negotiating rates and schedules with independent shippers and truckers. The foreign sales companies took orders from dealers, stocked and delivered autos to dealers locally, and managed the dealer network. Although the majority of the sales companies were wholly owned subsidiaries of VCC, three national sales companies were independent. For example, Volvo cars in the UK were distributed by a UK company called Volvo Concessionaires, controlled by the Lex group which also owned several dealerships.

Based on forecasts from the various foreign sales companies, manufacturing planned production well ahead of the sales. The cars were largely produced to inventory, whether at the production site, in transit, at the sales companies, or at the dealers. Customer-ordered cars were simply placed at the end of an ongoing production run. Local marketing efforts usually involved joint promotional campaigns by dealers and the foreign sales companies along with limited corporate advertising material mainly consisting of product descriptions. Although the prevailing buying process in Europe involved customer ordering, and a wait of about six weeks, the dealers often sold cars "off-the-lot" by offering discounts on models in stock.

In the mid-1980s, the number of finished autos in the network at any point in time was about 70,000 units and total annual sales worldwide reached around 280,000 cars (excluding medium-sized cars produced in the alliance with Mitsubishi). The company could sell from stock alone for more than 14 weeks, not an unusually large figure for a car producer until the Japanese lean manufacturing methods reduced the stock to as low as three weeks (Womack *et al.*, 1990, p. 187). The hidden costs of finished goods in inventory and in the channels were high and rising.

The initial distribution project

Around 1986, faced with these high costs, increasing competition and maturing markets in its segments, VCC embarked on a pan-European program to simultaneously reduce

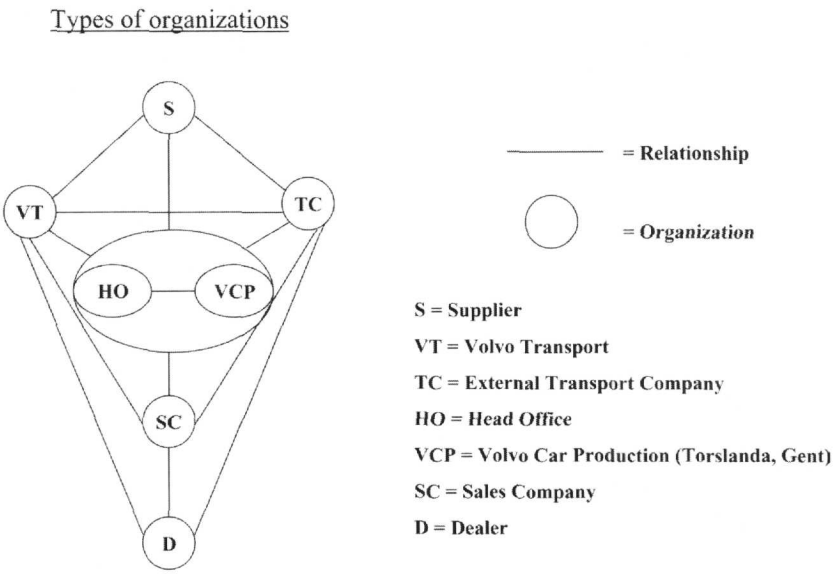
Table I Volvo group financial statistics – balance sheets (SEK M)

	Year									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Assets										
Liquid funds	17,777	22,497	15,632	18,470	17,585	18,779	21,760	21,442	24,449	23,306
Receivables	12,346	12,724	13,945	15,837	15,718	17,065	19,519	27,424	30,545	28,906
Inventories	18,235	16,561	19,401	18,830	18,316	16,705	18,368	21,390	23,380	23,929
Current assets	48,358	51,782	48,978	53,137	51,619	52,549	59,647	70,256	78,374	76,141
Investments in bonds		1,664	3,956	3,455	2,854	928				
Restricted deposits in Bank of Sweden	1,180	1,721	4,034	5,293	2,072	41	2			
Long-term assets	22,644	22,895	29,983	36,258	45,552	53,230	57,358	64,260	60,208	62,558
Total assets	72,182	78,062	86,951	98,143	102,097	106,748	117,007	134,516	138,582	138,699
Liabilities and shareholders' equity										
Current liabilities	31,548	31,368	34,500	42,846	48,712	47,778	59,386	74,958	72,212	59,769
Long-term liabilities	15,709	17,077	18,727	17,244	17,794	20,120	23,981	25,784	22,200	27,125
Minority interests	132	340	484	414	300	4,986	3,919	6,686	838	605
Shareholders' equity	24,793	29,277	33,240	37,639	35,291	33,864	29,721	27,088	43,332	51,200
Total liabilities and shareholders' equity	72,182	78,062	86,951	98,143	102,097	106,748	117,007	134,516	138,582	138,699
Assets pledge	2,959	1,943	1,997	2,427	2,417	2,641	4,114	4,613	6,527	5,434
Contingent liabilities	2,830	3,417	3,095	2,986	3,270	4,691	6,808	8,656	7,581	7,450
Statements of income (SEK M)										
Sales	84,090	95,520	96,639	90,972	83,185	77,223	83,002	111,155	155,866	171,511
Costs and expenses	–75,699	–83,845	–87,255	–83,470	–79,597	–74,930	–81,785	–105,465	–141,388	–156,831
Depreciation and amortization	–2,062	–2,213	–2,293	–2,685	–3,021	–3,129	–3,29	–3,777	–5,107	–5,656
Operating income (loss) before nonrecurring items	6,329	6,462	7,091	4,817	567	(836)	(1,902)	1,913	9,371	9,024
Nonrecurring items	193		113	313	–2,450		–1,450	–1,600		1,215
Operating income (loss)	6,522	6,462	7,204	5,130	(1,883)	(836)	(3,352)	313	9,371	10,239
Income from equity method investments				1,015	1,322	599	96	–1,788	2,193	1,402
Financial income and expenses										
Dividends received	81	125	166	22	31	15	50	62	1,126	351
Gain (loss) on sales of securities, net	137	1,186	47	126	116	2,026	131	504	4,243	1,180
Interest income (expense)	345	677	952	734	46	(1,167)	(1,138)	(1,432)	(525)	197
Other financial income (expense)	445	561	(126)	(60)	41	166	(536)	(301)	(30)	(321)
Income (loss) before taxes and minority interests	7,530	9,011	8,243	6,967	(327)	803	(4,749)	(2,642)	16,378	13,048
Taxes	–3,074	–3,272	–3,200	–2,145	–719	–560	138	–468	–2,783	–3,741
Minority interests	–36	–74	–103	–35	26	439	1,291	–356	–365	–45
Net income (loss)	4,420	5,665	4,940	4,787	(1,020)	682	(3,320)	(3,466)	13,230	9,262

distribution costs ("slimming the pipeline" in the company vernacular) and increase its customer satisfaction ratings. The program was entitled "Distribution '90" to signal the target year of its completion.

To reduce costs inventories were to be lowered at various points in the distribution channel, especially at the European sales subsidiaries. For example, sales companies were directed to close down warehouses they deemed unnecessary. They were also to assist in the shipping of cars directly to at least the larger dealer organizations. The resulting drop in order-to-delivery times was to lead to

Figure 1 Simplfied network of the Volvo Car Company



increased customer satisfaction. In the typical European system for higher-end automobiles, new car buyers visit dealers to specify the model and the options desired, and wait up to six weeks for an ordered car to be delivered. A simple way to increase satisfaction would be to deliver the car ahead of the standard six weeks.

However, as implementation started, the Volvo executives faced several obstacles. The most immediate threat was to job security of individuals in the various network organizations. For example, bypassing the foreign sales subsidiaries' role as distributors of the vehicles in the different countries met with considerable consternation and confusion. After all, asking foreign sales subsidiaries to help direct cars directly to dealers seemed tantamount to a request for them to assist in their own demise.

Another sticking point was the traditional strength of the existing network. Volvo had long emphasized the longstanding and trusting network relationships between the company and its suppliers and dealers. The new strategy implied arms-length accountability in many of these relationships; this, to many participants, pointlessly jeopardized the company's traditional strength in committed dealers and distributors.

The consequent lack of locally committed individuals was exacerbated by general rather than specific objectives. To encourage local initiatives and preserve individual motivation, the program suggested the broad objectives and tentative guidelines for implementation, but left the precise actions up to the individual "on-the-spot". And the company avoided setting explicit quantitative goals, still following its traditional management style.

The upshot was that although valuable lessons were learned, and some progress was made, the "Distribution '90" project did not meet expectations. Towards the end of the decade, the project was an acknowledged failure in internal discussions.

The second project

In 1990 an ambitious three-year pan-European program building on the experiences of "Distribution '90" – this one without an advertised title – was launched with three very specific goals:

(1) *Lead time reduction to 28 days.* The customers should not have to wait more than four weeks for the model ordered anywhere in Europe. Based on marketing research findings, a six-week period was acceptable across the luxury car competitors, but a four-week wait would give Volvo a significant edge. This goal reiterated and made more specific the "Distribution '90" goal.

(2) *Delivery precision at 95 per cent.* The ordered cars should be delivered at the time promised in at least 95 per cent of the cases. Focus group research had shown that for many customers delivery precision was more important than

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shorter lead-times. The political vagaries of continental shipments in Europe and the possibilities of truckers' strikes, shipping boycotts and other unforeseeable events made 100 per cent delivery precision a priori impossible, but the company should aim for at least a 95 per cent target.

(3) *100 per cent customer based production.* No car would be built without a firm order from a customer. This most dramatic step, inspired by successful implementations of such systems in other industries, involved a major rethinking not only of distribution but also of production and marketing. Basing production plans simply on received orders for models was deemed feasible on the basis of the "Distribution '90" experience. To succeed with direct shipments from factory to dealers, it had become necessary to establish direct communications lines between dealers and factory. It seemed logical to follow through, by feeding customer specifications at the dealers directly into the plants' production schedules.

The 28 days' lead-time target was based on a rough calculation which suggested that four weeks could be reached without extensive reengineering of existing processes and network linkages in the European markets. This time the lead-time reduction specified explicitly how many days in the order-to-delivery process would be allowed for each stage of the process. For the 28 days project the split between different stages was as follows:

$$\text{RS} \xrightarrow{1\text{ day}} \text{FK} \xrightarrow{2\text{ days}} \text{PP} \xrightarrow{10\text{ days}} \text{EOL} \xrightarrow{3\text{ days}} \text{FC} \xrightarrow{6\text{ days}} \text{CAD} \xrightarrow{6\text{ days}} \text{RD}$$

where RS = retailer sale, FK = factory knows, PP = production plan, EOL = end of line, FC = factory complete, CAD = car arrival to dealer, RD = retail delivery.

These specifications and other detailed – and quantitative – objectives were presented in a "White book '90-'91". The main purpose was to avoid making the same mistakes as in the previous project, to motivate the individuals internally and in the network, and to simply communicate more clearly and openly with the people affected. Top management visited local organizations to present the project and to impress upon managers the need for a collective effort. The goal was to develop a more positive attitude among the different managers involved and counter the view that the project was simply another intervention in their business.

The Renault mis-alliance

With severe sales slumps in the whole European market in the early 1990s, the new project gained a level of legitimacy among network members which "Distribution '90" never had enjoyed. The credibility was further enhanced by events connected with the planned Renault alliance.

In addition to the efforts to cut costs and increase customer satisfaction, Volvo top executives had pursued large-scale advantages through joint agreements with other automakers, including Japanese Mitsubishi and French Renault (a pursuit which continued even before the Ford takeover, as the mid-1998 Volkswagen talks demonstrated). The Mitsubishi alliance had already led to the production and marketing of a smaller size Volvo model, from a plant in The Netherlands. The need for a wider product line also led Volvo to initiate talks about a merger with Renault, France's largest automaker. Volvo's upper end product line was well complemented by Renault's main strength at the lower end. As the talks progressed, Volvo started selling off unrelated businesses to focus on autos, engines, and related products. These talks broke off suddenly in late 1993, when the board of directors of Volvo refused to proceed with the merger, anticipating cultural clashes between French and Swedish managerial styles (apparently less of a concern with a Ford takeover because of Ford's strong record with British Jaguar). The CEO of Volvo, well-respected Pehr Gyllenhammar, had staked his reputation on the merger, and was forced to leave the company.

Having lost the chance to create a larger unit through a Renault merger, the company could no longer count on the scale advantages in procurement, assembly and distribution that came with size. Staying in a rarefied niche in the market would most likely mean downsizing and huge layoffs. Top management led by new CEO Sören Gyll seemed caught between a rock and a hard

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place. Not surprisingly, expert observers prophesized the demise of the company. Now the second expanded project took on a "do or die" aura. Rather than relying on scale economies to create the required productivity and cost improvements, the company and its network members would be forced to survive through reengineering and faster innovation. The cost reducing efforts already underway were to be intensified, eliminating unnecessary stocks, lowering in-process inventories and reducing manufacturing costs. On the customer side, loyalty and satisfaction coupled with increased new product development efforts were to help the company renew itself. The customer-based production strategy, although a radical departure from tradition, would be a key competitive advantage.

From flows to processes

As the implementation speed redoubled, company management soon realized the need to integrate the work on the separate goals of the project. It was important, for example, that the new push towards speed and delivery precision not compromise quality and, in turn, jeopardize satisfaction. While parts and components suppliers were held to tighter timetables, they were also expected to maintain or even improve quality. Customer-based production was the first step in the order fulfillment process and was therefore closely tied to changes within the lead-time project. While production planning became more complex, and the need to handle variety on the assembly line increased, workers were expected to maintain performance levels and speed. "100 per cent totality" became a new watchword in the organization, signifying a complete commitment to excellence.

At the same time, the tracking of customer reactions showed that, as anticipated, lead-time reduction was very important for the success of customer-based production. Consequently, when lead-time reduction progressed ahead of schedule and the actual lead-time approached 30 days, management proclaimed another 50 per cent reduction in lead-time to 14 work days. Whether this was a realistic target or not was not analyzed at this point. In reengineering fashion, the process from retail sale to retail delivery was restructured by eliminating some steps as follows:

$$\text{RS} \xrightarrow{1\ \text{day}} \text{PP} \xrightarrow{7\ \text{days}} \text{EOL} \xrightarrow{2\ \text{days}} \text{FC} \xrightarrow{4\ \text{days}} \text{RD}$$

With the increased pressures of going to 14 days, process cycle times had to be reduced an average of 50 per cent. Some processes were now measured in terms of hours and minutes rather than days, spurred by the continuous improvement process (*kaizen*) of the Japanese.

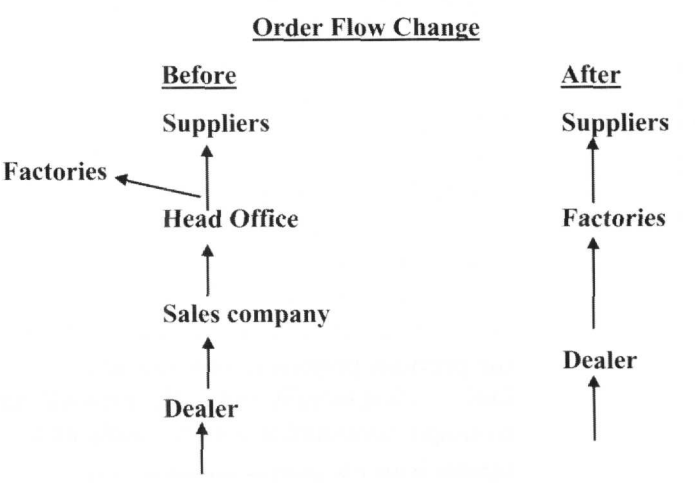
The experiences and results emerging from the implementation of the project were instrumental in widening the focus from lead-time reduction to an integrated order fulfillment process. The move towards a process management view was inspired especially by the restructuring of the various flows involved.

The order flow

Major changes were introduced in the order flow for the European market. Figure 2 shows the before-and-after patterns.

Before 1990, dealers sent the orders to the local sales companies. The local sales companies would consolidate the orders monthly before sending them to the head office. From the head office they were forwarded to the production units. The head office would assign the assembly unit, and on receipt the factory would simply place the orders into the production plan. This meant that the incoming orders would fall at the end of the current batch of cars being assembled. Since production planning aimed for smooth operation, the cars in the plan were built

Figure 2 The order flow in VCC's network



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according to forecast rather than on the basis of a firm customer order.

Ideas for how to reduce lead-times emerged naturally once the delays in such a process had been identified. "Avoid the consolidation at the sales companies, and send the orders in direct", was one example. Or, another idea that turned out to be critical for the implementation of customer-based production, "Simply place the customer-ordered cars ahead in the production schedule." As can be seen in Figure 2, the new process was also considerably simplified. Some units, in particular the sales companies and the head office, no longer played a role in the order flow. The dealers sent the customer orders directly to the production units using the computer terminals installed at the site. The customer could, in fact, virtually talk directly to the factory, for example when a change in the specifications of a vehicle already ordered were discussed.

The new ordering system was not quite as "lean" as Figure 2 suggests. For example, in order to service the dealers effectively, the factories have had to establish new "service desks" manned by three or four people where the orders and inquiries from dealers are handled. Furthermore, although the sales companies and the head office had only limited distribution roles to play, they were important for control and "troubleshooting" in special cases, and for setting the conditions for the flow of orders and cars. And they have taken on a larger role in market analysis, joint promotions, and customer service (see "The changing role of the sales companies" section below).

Physical distribution

The shipment of parts, components and assembled cars was also simplified considerably. Figure 3 shows the main flows before and after the changes.

As can be seen in the Figure, the foreign sales subsidiaries were no longer part of the distribution of cars. The assembled cars were to be shipped directly from the factory to the dealers. The former national warehouses and storage areas were closed down. The warehouses at the plants in Gothenberg and Gent were turned into terminals with modern shipment facilities. With customer-ordered production and shorter lead-times, few warehouses were needed.

The emphasis in physical distribution throughout the network was shifted from large consolidated volumes to a focus on speed, reliability, and frequency of shipments. This affected suppliers considerably. Just-in-time deliveries became the norm, and quality levels of parts and components had to be guaranteed by the supplier. With customer-based production, the factories began operating with planning schedules of less than a week, and only about five working days' assembly could be scheduled in advance. The new requirements placed great demands on the communication and distribution channels linking the suppliers to the factories. In fact, problems with maintaining this tight schedule consistently later forced management to extend the horizon from 5 to 8-10 days.

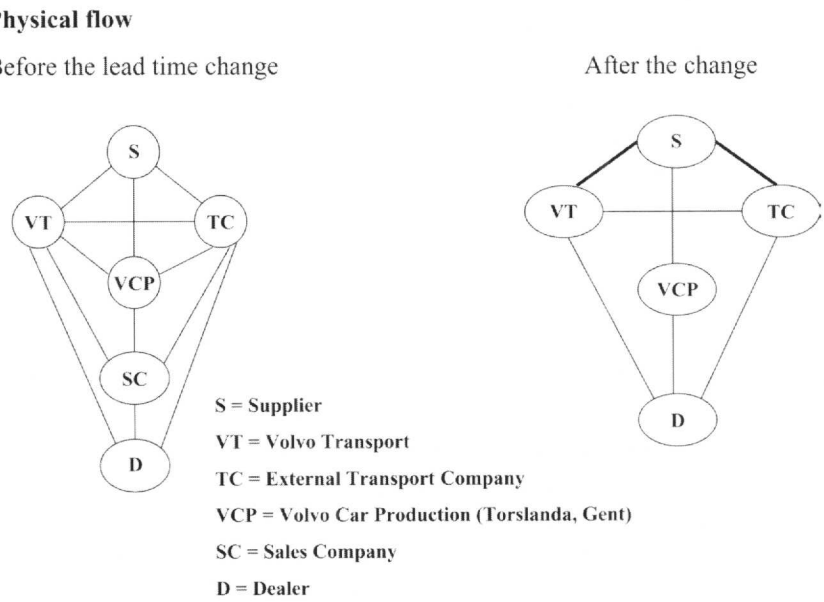
The overseas shipments from the factories to the various European markets were greatly accelerated. Five more sailings a week to the European continent from Gothenberg were added for assembled cars as well as for parts and components. The shipments were concentrated nightly to accommodate close of business in Sweden, just in time for the next day start of work in Gent and elsewhere. Terminals and shipping offices were open through the night. For emergency shipments and when speed was of utmost importance, air and special trucking services were used. In the early transition stage to 14 days delivery time, the air express company TNT even created a special flight to service Volvo needs.

Support processes

As throughout the network, communication channels were critical for reducing the time of the physical distribution. A pre-advice system was created so that the dealers could get early notification of which cars they could expect delivered the next day, enabling them to alert the customer. And to maintain schedules and increase delivery reliability, dealers were asked to maintain night hours so cars could be delivered at any time in a 24-hour period. In order to get the suppliers and transport companies to perform according to the tight schedule VCC had to renegotiate all contracts with regard to terms of delivery and transportation.

Other flows in the order fulfillment process were affected as well. Payments from customers were still made at delivery, which meant that the buyer had to have funds available earlier than before when lead-times were longer. The dealers had to provide more convenient credit support, leading the Volvo

Figure 3 The physical flow in VCC's network



Finance subsidiary to become actively involved at a much earlier stage. At the same time the financing of cars-in-process and in inventory became simplified, with much lower volumes and less risk.

The ownership flow was simplified. Now HQ did not take the title to the finished cars during distribution from factory to sales companies. Instead the sales companies owned the cars pro forma during the transport to the dealers, while Volvo Transport was only responsible for transportation. The sales companies invoiced the dealers. Supplier relations were still managed by the factories and the head office jointly, while head office was responsible for negotiations combining demands from different factories. However, the transport contracts were all negotiated by Volvo Transport centrally.

The demand for closer coordination between units and the need for efficient communication and sharing of information meant that an improved communication network across independent network members became essential. The company continued the upgrading of its information system technology, and extended assistance to independent dealers and suppliers who need hardware, software and training in the use of the technology.

All units involved in a particular process, such as the physical shipment of the finished cars, are able to access the same data base to ascertain the status of any one order. In particular, with customer-based production Volvo found it absolutely necessary to create an information system through which a dealer could locate the position of a car in the ordering process and then input desired specification changes, as necessary. By 1995 the dealer-based computer ordering system was up and working for all of Europe. Table II tracks the changes in operating margins, return on capital, and number of employees in VCC over the 1985-1995 period.

The changing role of the sales companies

As we have seen, the process changes in the VCC network were reflected directly in the roles and tasks assigned to the network units. Looking at the whole order fulfillment process, the units gaining in importance were the dealers and the transport companies. The units losing out were the head office and, in particular, the foreign sales companies. In fact, as the implementation unfolded, employment at the European sales subsidiaries plummeted from 1,500 to 600 people. In the Benelux sales companies alone the number of people was reduced from 240 to 140. These and similar personnel reductions in other sales companies and at the head office in Sweden have involved mainly early retirements, internal relocations, and voluntary exits.

Before the change in strategy, the foreign sales subsidiaries had occupied a very central and powerful role in the Volvo network. They

Table II Key financial statistics, Volvo Car Group (SEK M unless otherwise indicated – Operating income before nonrecurring items

	Year									
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Volvo Cars	5,574	4,311	2,680	1,168	–957	–1,597	–1,691	626	2,771	1,089
Group total	6,329	6,462	7,091	4,817	567	–836	–1,902	1,913	9,371	9,024
Operating margin										
Volvo Cars	15.5	11.2	7	2.8	–2.4	–4.3	–3.8	1.1	3.8	1.3
Return on operating capital %										
Volvo Cars	> 25	> 25	> 25	14	neg	neg	neg	4	21	8
Capital expenditures for property, plant and equipment										
Volvo Cars	2,047	2,455	2,140	3,594	3,051	1,413	1,562	2,072	1,596	2,540
Group total	3,425	3,864	3,948	6,281	4,598	2,874	2,915	3,465	4,274	6,491
Research and development costs										
Volvo Cars	2,953	2,925	3,478	4,329	4,851	3,895	3,346	2,462	2,502	4,561
Group total	4,563	4,621	5,139	6,176	7,061	6,414	6,178	4,386	4,604	7,289
Assets										
Volvo Cars	15,656	15,992	19,805	23,914	24,265	26,202	36,770	39,799	39,811	45,572
Group total	72,182	78,062	89,951	98,143	102,097	106,748	117,007	134,516	138,582	138,699
Salaries, wages and other remuneration (including social costs)										
Group total	13,012	14,106	15,434	16,875	17,865	17,654	16,857	19,489	24,156	27,248
Number of employees at year-end (actual number)										
Volvo Cars	32,850	34,050	34,280	34,610	33,630	29,570	28,450	26,800	29,080	31,050
Group total	73,150	75,350	78,610	78,690	68,800	63,580	60,120	73,640	75,550	79,050
of which, in Sweden	54,310	55,440	54,970	54,740	47,260	42,960	39,130	43,980	44,880	47,000
outside Sweden	18,840	19,910	23,640	23,950	21,540	20,620	20,990	29,660	30,670	32,050

served as importers and distributors of the cars, and maintained their own inventory of finished cars which they offered to dealers. As we have seen, they also consolidated orders from dealers and were pivotal in arranging shipments. Jointly with the dealers, the sales companies were involved in pre-purchase delivery inspection and reconditioning of cars, and also installed various options – a lucrative business.

Very little of this was now in the sales companies' domain. As before, however, the companies were involved in forecasting demand in their local markets, and tracking dealer performance in customer service. Actually, with the new strategy these tasks took on new importance. With shorter planning schedules at the plants it was necessary to reduce the number of variations installed at the factory and to introduce and promote option packages specifically targeted to different local markets. The local market knowledge of the sales companies turned out to be a crucial element and dealer support and control became very critical.

In a sense, paradoxically, demand forecasting became more important than before. Even though in principle no production took place without a firm order, to cut lead-time customers' orders had to be anticipated and factory preparations made. Forecasts from the sales companies now feed directly into the requirements planning process, the capacity planning process, and the purchasing and procurement processes. In addition, since delivery precision is another major goal, the forecasts have to be accurate.

To achieve greater forecasting accuracy the new IT systems proved very beneficial. The sales companies' extrapolation of previous sales, adjusted for expected customer order mix, formed the base forecast. These figures were updated weekly with information about locally ordered cars, with the order mix matched against the forecasts to develop a precision index for tracking purposes. The forecasts were then adjusted by replacing the anticipated model sales with actual orders to produce a revised forecast.

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At the dealer level, the new strategy forced an upgrading of the individual units, and the sales companies became major players in that effort. First, the dealerships' communication technology needed upgrading, including the installation of computer terminals and training in their use. Second, the dealers were asked to change their selling style. Instead of trying to persuade the customers to buy what was available somewhere in the supply chain, the dealers' approach became more consultative, helping the customer to find the model and options best for him or her. Third, except for some demonstration models, there were no cars available on the lot (or at the sales companies). This in turn meant there was little discounting or haggling about prices.

Although Volvo provided financial assistance and the sales companies offered computer and sales training, not all dealers were willing or able to make the necessary investments. As some dealers exited the network, others took on larger roles, and new dealers entered. In this process of selection and recruiting, the sales companies' expertise and local knowhow have become very valuable. Over time, as the dealerships were upgraded and the customer-based production system took hold, the role of the sales companies has shifted further in this direction, and they have become a dealer support organization, troubleshooting and coaching the dealerships in their new and more demanding tasks.

The revamped sales companies became more focused on marketing activities. Apart from dealer support and forecasting of demand for the product line models in their respective areas, they also carried out local market research under the direction of HQ and the Brussels office. They relayed market data to product development and design teams at the head office and became more influential in product planning than before, in part because the available options needed to be reduced and standardized across markets. They also helped develop the pricing guidelines and limits ("corridors") which were necessary to prohibit trans-border shipments and grey markets within Europe. As before, the sales companies also ran various promotions, not only in cooperation with dealers, but also standardized image campaigns in collaboration with local and pan-European advertising agencies for the Volvo brand. They continued as profit centers, and their selling effort involved allocating marketing budgets for promotion and service support between dealers, national advertising and pan-regional campaigns. All in all, the sales subsidiaries in Europe emerged as "lean but not mean" marketing arms of VCC.

Volvo's path to processes

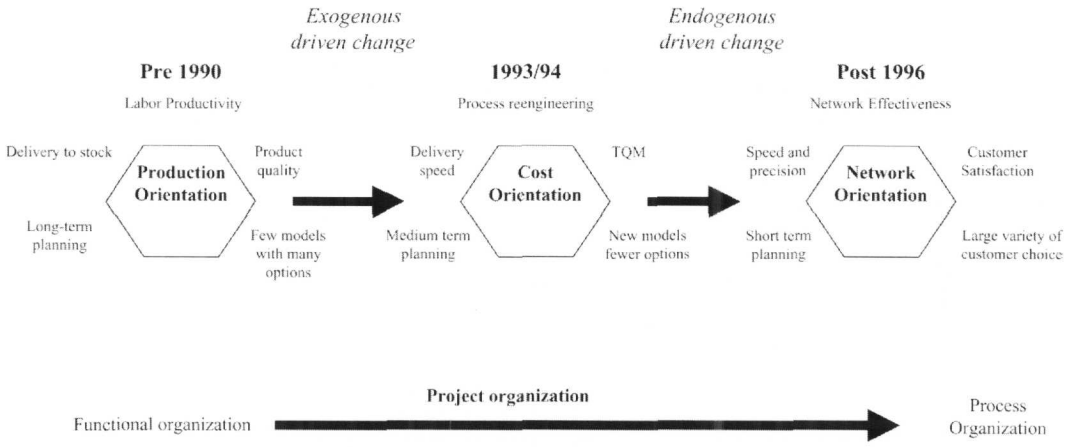
The basic changes taking place at VCC during the 1980s and 1990s described in this paper can be summarized in the three different hexagons below (see Figure 4).

Although the figure simplifies a complex development considerably, it also serves to highlight the general transition that Volvo Car Company went through. In the mid-1980s, the company was oriented towards the production side, emphasizing production technology, "Swedish" product quality (durability, safety), and favorable labor conditions to increase productivity. Cost pressures were minimal, production planning horizons were comfortably long, and distribution focused on reliable supplies from inventory to well established dealers.

In the transitional period starting with the "Distribution 90" project up through the 1993/1994 years, the organizational focus shifted to a cost reduction emphasis. In the beginning the effort was concentrated on the distribution side, aimed at lowering inventories and "slimming of the pipelines". The cutting of lead-times, and, in particular, the shift to customer-ordered production, however, impacted the production side directly, with leaner production and process reengineering. The planning horizon in the plants had to be drastically reduced, with greater emphasis on anticipation and forecasting accuracy, and a reduction in the number of options made available. The outsourcing of components and parts increased and the pressure on suppliers to deliver quickly and in time paralleled the similar development in other firms. Focusing on cost reductions, the company still tried to maintain and even increase customer loyalty by adopting TQM principles, including customer satisfaction measures.

During this transitional time the VCC organization, while still functional at its base, became a project-based organization, with a large number of employees occupied with special cost-cutting projects. By comparison, the mid-1990s' organization of VCC

Figure 4 Volvo's path to processes



gradually became more process-based. The basic organizational activities – in particular the "order fulfillment process", and other activities such as the new product development and the after-sales customer service – were redefined in terms of processes and sub-processes. The focus was on the whole network linking the customer to the product. This network included the independent suppliers, transport companies, distributors and dealers, financial companies, and, of course, the loyal customers. Only a part of this network was under the direct control of VCC, and much of the process management involved coordinating and motivating independent actors.

With the worst of the cost-cutting behind it, VCC turned to the revenue side. To maintain and increase customer satisfaction and loyalty, new models with state-of-the-art technology as well as an extended product line were needed. Consequently, the company shifted from a niche market strategy with a limited product line to a more differentiated strategy, with a greater variety of models. This change, initially to be accomplished with the help of the Renault merger, was implemented by an increasing reliance on network alliances, including an expanded collaboration with the Mitsubishi firm in The Netherlands. In addition, the VCC expanded its new product development effort considerably.

Creating the process organization

In early 1994, immediately after the "mis-alliance" with Renault, Volvo organized a special task force to work on an overall process map of the car company. What emerged initially was a map of 17 separate processes. However, soon after implementation, several of these newly defined processes were ignored in the ongoing daily operations.

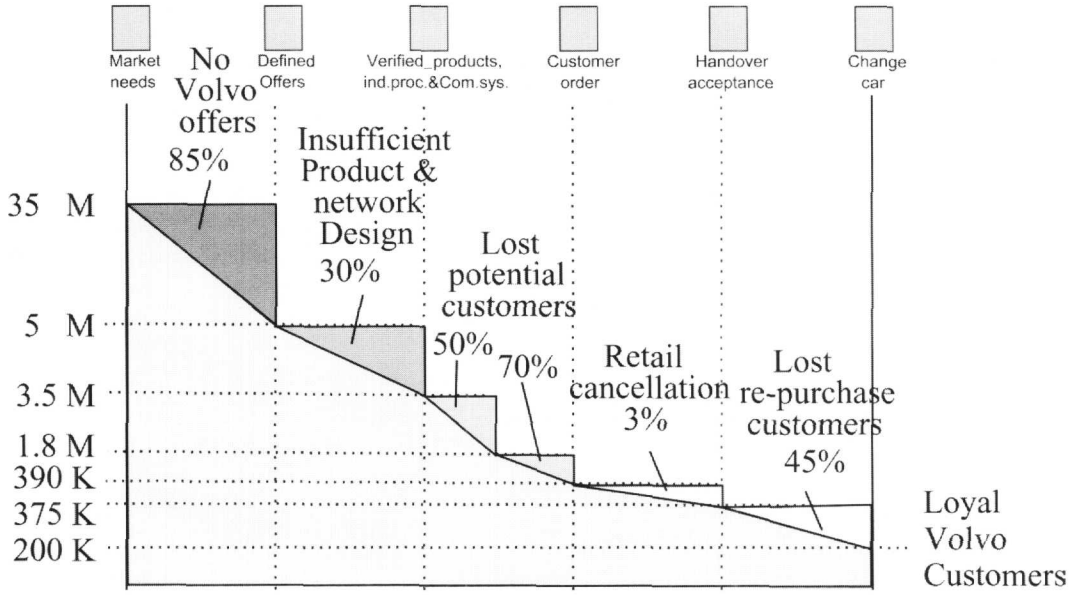
A review uncovered three major problems. First, there was a lack of "buy-in" from the affected managers. Line managers had not been given a clear picture of what the new process approach involved, and questioned the authority of the process champions in the staff group. Second, the processes were not very clearly defined, and thus accountability could not be enforced. Third, the process responsibilities were not at a sufficiently high level in the organization, and process results were not reported back into the senior management team. By and large the process focus was dominated by the day-to-day operations and ignored in the more strategic and tactical line decisions for the company.

To get clear ownership and accountability for the processes, the task force realized the necessity of making the process performance measurable. But this required a more detailed process map where not only the activities were identified but also the starting and ending points of the process were clearly identified. But since processes cut across traditional organizational units and decision lines, a new organizational map which showed the processes and sub-processes explicitly seemed necessary.

To create such a new organizational chart, the task force came up with the "refinement chain" concept shown in Figure 5.

The refinement chain graph shows how the global auto market of 35 million units annually gradually cascades down into the approximately 200,000 loyal Volvo customers

Figure 5 The refinement chain – loss of potential customers



worldwide. The graph shows how the activities undertaken by the company in the value chain from product development to after-sales service means that potential customers are gradually lost. Thus, one overall measure of the effectiveness of the activities involves the number of customers passed on to the next stage. This is a key aspect of the refinement chain: it places the customer squarely in the focus of the organization.

The refinement chain concept helps identify key processes. The five main processes (or "mega" processes as they are called) in Volvo are shown in Figure 6.

At the start of the chain, through its narrow product and market focus as a relatively high-end car maker, Volvo loses in the order of 85 per cent of the total car market (the percentages here are disguised). This is where the basic process involves business development. By extending its product line downward, an effort currently underway, Volvo can be attractive to a larger segment of the car buying public. In the next stage, lack of distribution (as in Latin-America) and a limited selection of models (no sports car, for example) again serve to eliminate perhaps 30 per cent of the remaining five million auto buyers. The two main processes at work here involve developing new products and new commercial systems.

The ensuing marketing and sales process is responsible for converting the 3.5 million potential customers into actual Volvo buyers. This process loses perhaps 50 per cent on the marketing side, and approximately 70 per cent on the sales side, because of competition, mis-targeting, ineffective advertising, etc. In other words, the marketing and sales process, responsible for converting the 3.5 million potential buyers, looks quite inefficient from a process perspective.

The order fulfillment process discussed earlier in this paper involves getting customer orders filled efficiently. Retail cancellations of 3 per cent can be due to financial problems, but also to late delivery, long lead times, etc. An effective OFP keeps cancellations low and satisfaction high. Finally, effective management of the process of after-sales care of the customer leads to a high loyalty rate.

Apart from the main processes, there are also support processes, such as financial backing (see Figure 6). In addition, within the main processes, several sub-processes or "work processes" can be identified. The basic principle is given in Figure 7.

In order to create "buy-in" from management and establish accountability at a high level, selected senior managers were assigned as process owners. The focus on five major processes helped make it possible to get to a higher level in the organization. These process owners/managers were then given the mandate to appoint sub-process owners and given assistance to implement the new process management structure, including the development of performance indicators. In

Figure 6 VCC business processes and business process owners

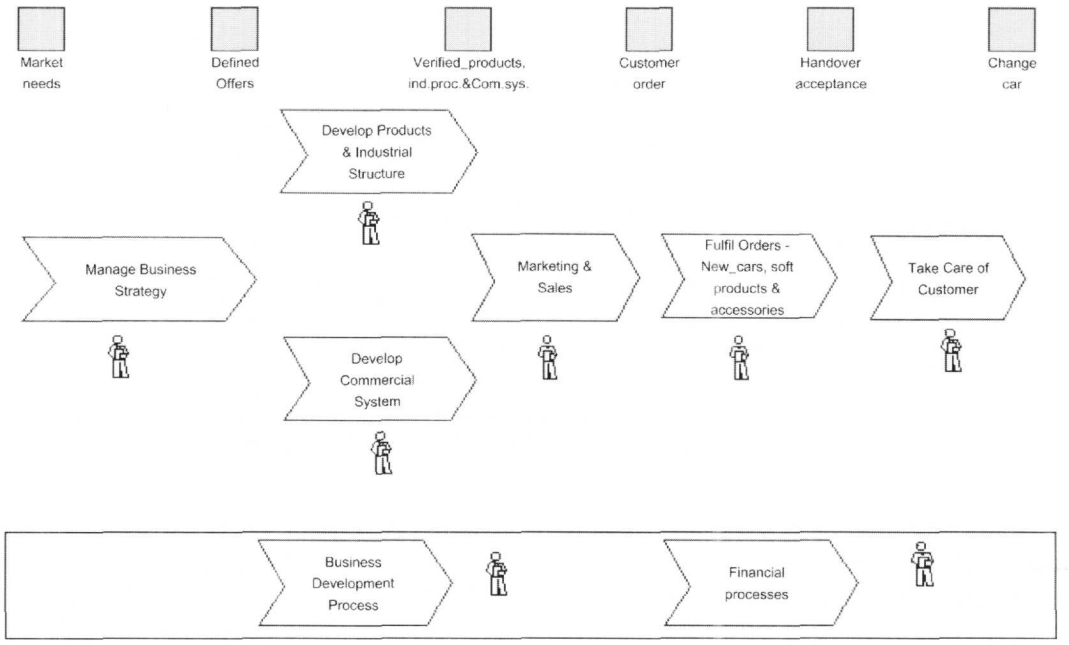
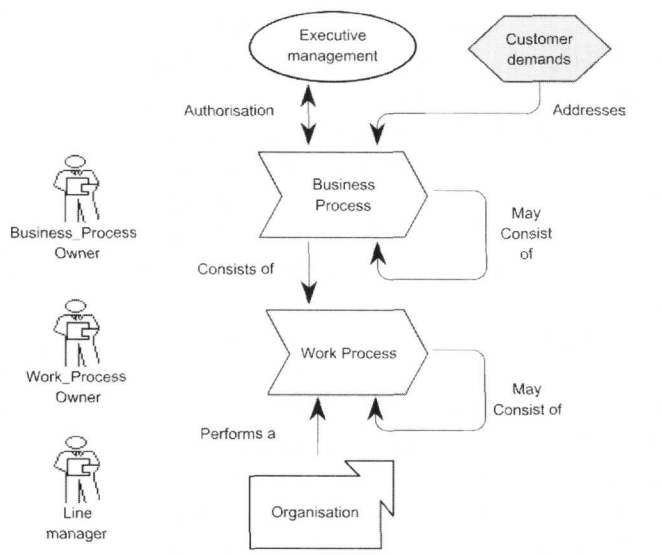


Figure 7 Process structure principles



the order fulfillment process the performance indicators included lead-time in days, percentage of late deliveries, average number of days late, and customer satisfaction scores. The process owners also set up sub-process teams to help identify new work processes and the linkages between them.

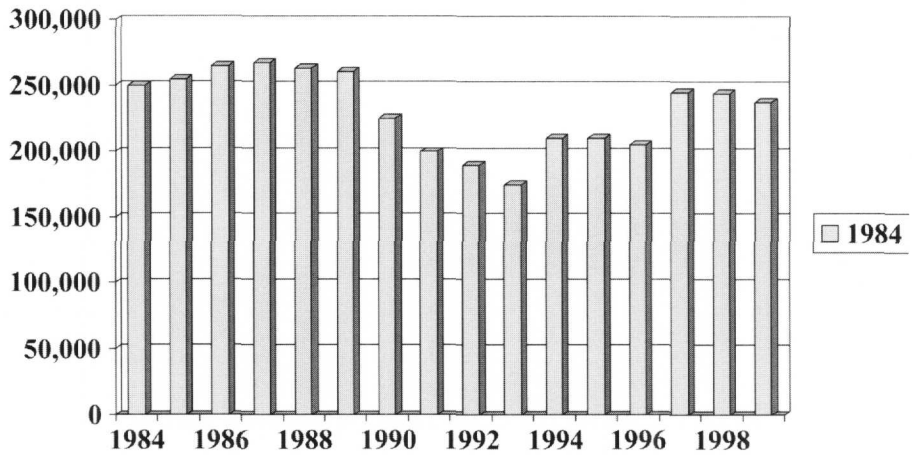
To identify sub-processes, the sub-process teams look for areas where synergies across organizational units can be achieved. The key criteria used to identify a separate sub-process involve the importance of the activity to the business, the amount of money involved, and whether the task is repetitive. As one interviewee explained:

> For example, take the maintenance that is taking place at the dealers. It is very repetitious. It's very important to do a good job. It's very important to have good customer satisfaction. So what do we do as a company? We do process management because we are sending service bulletins to all the dealers which say, this is the way you should do it. It's a perfect example of process management. We don't say to each dealer, you find out how to solve each and every problem yourself. No, we do it centrally and we do it together with technicians who know what they are talking about.

The process managers are to maintain their regular duties in the line-staff structure of the organization. As presently conceived, the process management structure is in fact "matrixed onto" the existing structure within the Volvo company, with the process champions serving as "coaches" inside the organization and "cheerleaders" in the larger network. Their senior line or staff positions serve to give them the power and status necessary for their suggestions to be heeded.

The new process organization is basically a network type of structure, with frequent person-to-person interactions but without being a profit or cost center. These are still lodged with the basic hierarchical structure of car models by country. Needless to say, the superimposed process network requires skillful and personable process managers. As always with loose network structures, the

Figure 8 VCC Europe: unit sales 1984-1998



interpersonal skills and travel demands on the individual managers are greater than otherwise. The addition of a process management perspective, with roving process manager without formal authority adds further to the diplomatic pressures. If the success of the Volvo process model is to any extent due to a cultural heritage from Sweden, it has probably more to do with Sweden's long tradition of foreign neutrality than to its Viking past.

Summary and conclusions

This case demonstrates how a company can use cost-cutting tools such as lean distribution, reduced inventory, and staff reductions to move closer to its customers. The solution hinges on an increased use of IT, the elimination of middlemen, introduction of customer-based production, and a shift to process management. The results include lower inventory costs, shortened lead-times, increased delivery precision, and higher customer satisfaction.

As in most organizations, the Volvo experience shows that the required organizational changes are not accomplished overnight. As we have seen, they require top management involvement to gain legitimacy at lower levels, flexibility on the part of senior and middle management whose traditional roles are questioned, an organizational culture which encourages experimentation and forgives failures, and a willingness on the part of the firm's external network of suppliers and distributors to accept new tasks while losing others.

These are steep requirements in the drive for any company trying to metamorphose itself into a new business model. For better or worse, external forces reinforced Volvo's need for the makeover. The increased competition from foreign cars in the marketplace, the high cost structure relative to benchmarked competitors, and the denial of the scale advantages a Renault merger might have brought were all factors which underlined the legitimacy of the threat.

Before the Ford takeover, VCC moved to a transition mode, as implementation of the process structure was completed for Europe and rolled out globally. Although the Ford takeover probably has affected the process of transition, the results so far were very encouraging. Not only was the car company division doing well in terms of sales (see Figure 8), market shares and profitability, but lead-times are down and delivery precision is up, as are customer satisfaction scores.

These are of course moving targets: What was seen as "excellent" a year ago will not necessarily be so next year. This is not simply because automobile customers everywhere are fickle. It is the intense competition between car makers which continually drives up the ante. Whether the new Ford-owned Volvo car division can be competitive in that global arena remains to be seen. But at least the company did pick up the gauntlet, reinvent itself, and is well poised for the future.

Reference

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