

RESULTS

EFESO
Consulting

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T H E M A I N T O P I C

Record costs and times: the secret is to optimise the supply chain

The rationalisation and integration of the supply chain (the flow of goods within and outside the factory) is not only a technical and organisational problem that is a matter for experts. In order to face up to global competition, industrial businesses ought to become more streamlined, quicker and better able

to react to market changes. It is not by chance that in many big manufacturing companies, vertical integration - modelled on the Ford system - is giving way to virtual integration. The new organisational paradigm suggests that the company should focus on the core businesses, empowering other partners - like suppliers or totally outsourced organisations - to be responsible for entire sections of the supply chain. For this type of company, the capability to configure the supply chain, becomes a core

FASTER, CHEAPER, SMARTER

This is how the World Class Manufacturers improve their company's competitiveness through re-engineering of the supply chain.

INNOVATION

Companies can market their products globally without the need to build factories in every country. In this way it is possible to avoid entry barriers in every new market.

EFFICIENCY

Because suppliers run the majority of the supply chain, companies can reduce stocks, logistic and distribution costs and at the same time reduce delivery time.

CAPITAL

Companies can invest more resources in Research and Development and marketing instead of tying up capital by building expensive factories and intensive production structures. In this way they obtain a higher return from the invested capital.

COMPETITIVENESS

The success of a product in western markets depends more and more on prompt delivery and less on labour costs. This gives Europe and USA a competitive advantage for those products made and sold in their territories.

What a surprise in your washing powder box

A woman, in France, buys a box of washing powder at the supermarket. We follow the whole chain: the basic materials suppliers, the production factory, the packaging producer. They all revise their production plans. The whole supply chain synchronises itself with the new consumer. Transport companies plan and carry out the transportation and warehouses are lined up: the system is ready to serve the next customer.

Dream or reality?

It is the reality of the near future.

To develop this kind of system, the following is required:

- a strong systematic vision that integrates all the different companies of the supply chain
- a knowledge of the logistic system in all its phases of the internal and external process.
- a sound knowledge of how to improve the manufacturing process with regard to costs, volume and flexibility
- a strong capability towards human resources development.

Efeso holds all these qualities. These have been developed by redesigning the integrated logistic system of many of our clients: 50 distribution networks, 100 production factories, 1,000,000 square metres of warehouses for the stocking of goods, in the majority of industrial sectors.



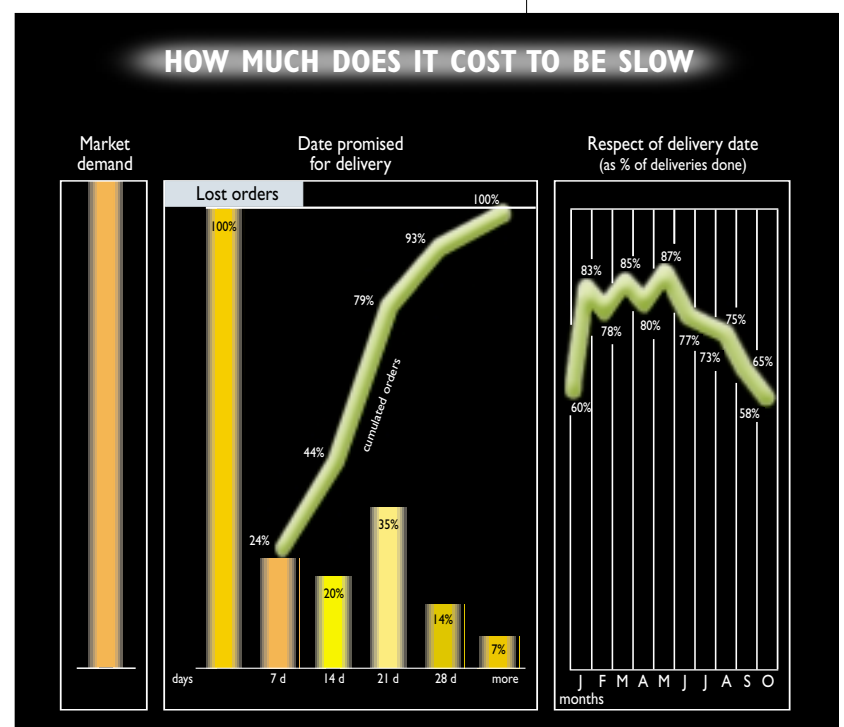
competence, on which the projects' success or failure depends (see chart below). In fact there are many advantages which derive from this configuration, such as improved efficiency of the production process and product quality, reduction of delivery costs and time, reduction of finished products inventory costs and improved customer service. All these advantages are crucial factors specially when competing in the global market against competitor companies that are often bigger and more established commercially in their relevant sector (see chart on top page 4).

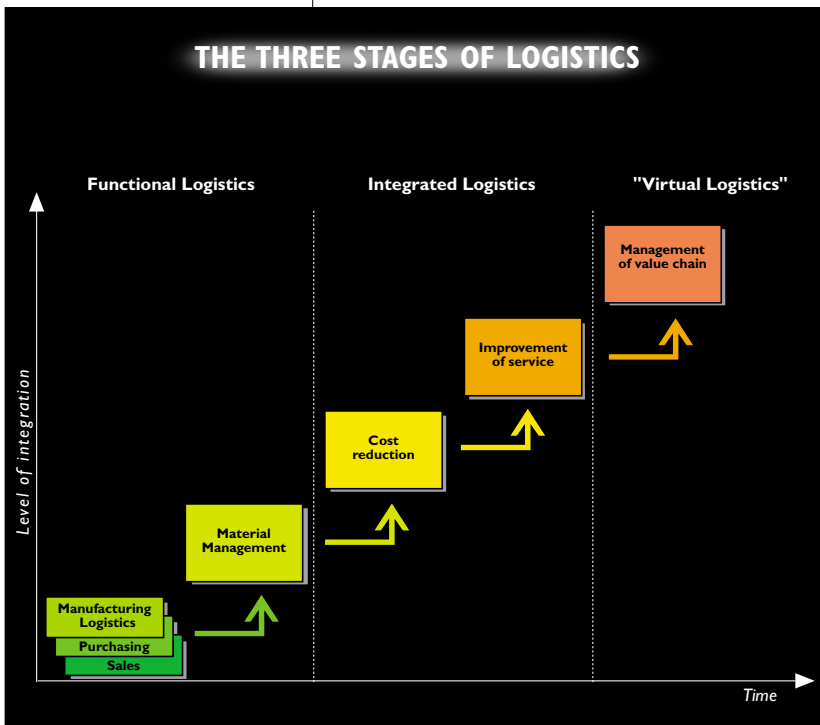
day and from there to the factory on the Friday, by this time it is more likely that the factory has already planned the following week's production. As a consequence of this, the start of the production of the order will be delayed by two weeks. Although this delay does not increase the company's expenses, it is likely that it will result in lost opportunities for new sales and orders (see graph). But then, who is in charge of recording the company's losses and damages in terms of corporate image and

Time is the key variable

The crucial variable used as a target reference, against which the efficiency of the processes and the strength of all the different elements of the supply chain can be measured, is not cost but time.

This happens for a simple reason: in manufacturing companies time-factor is not an accounting parameter, and often represents a "hidden cost". In order to grasp this concept, it is appropriate to give a practical example. If an order is received from a dealer on Tuesday, is passed on to the warehouse on Wednesday, then to the central warehouse of the producer the following





missed opportunities? From an internal point of view, the inefficient management of the process from suppliers to production and to distribution results in waste, reworks, double handling and poor quality products. Only when we add up all these “hidden costs”, do we realise how big a burden they are to a manufacturing company’s competitiveness. From the operations’ management point of view, time is important because it is the only consistent variable in all the processes and provides a precise interpretation against which performances can be measured.

Therefore it enables one to:

- identify no value added activities (normally named NVA)
- define opportunities for improvement
- assign goals to all the units in the chain (see chart on the right).

The 3 DA&L Method

This “Deployment” method links up all the above aspects and represents the foundation for the process of change:

- it is always based on facts and figures and follows both the “top-down” approach - from company’s goals to actions - and “bottom-up” approach - from specific problem areas to overall use of resources.
- it contains a continuous check on priorities in terms of best results with minimum effort
- it can be constantly revised in order to keep up with fast changing business trends
- it undergoes a closed-loop control to ensure a continuous update of the plan and any recently implemented process of change
- it is carried out in 4 phases: Vision **D**evelopment, Lead-Time **D**evelopment, **A**ction **D**evelopment and **A**ct & Learn (**3DA&L**). This methodology has been applied successfully at the Volvo factory in Ghent, Belgium and John Cattoir, Planning Director at Volvo Cars Europe Industry, will set out the results in the following article. It has produced remarkable improvements and created competitive advantages for other European and American companies, also. These are summarised in the chart on the last page of this Newsletter.

TARGETS FOR ALL UNITS		
Lead Time	Number of days from to	
Sales	0,4	0,4
Design	6,0	2,0
Planning	2,2	1,0
Purchasing	6,0	3,0
Manufacturing	10,7	7,5
Delivery	1,7	1,0
Transport	3,5	2,7
Total	30,5	17,6

Volvo Cars Europe Industry: what a revolution with Customer Oriented Production!

In a European context, Ghent's factory represents a model reference for the application of Japanese management techniques in a western company. The two awards received by the JIPM (Japanese Institute of Plant Maintenance) have confirmed this leadership. We should stress that these two awards have not been at all easy to achieve; Volvo Ghent has been the only company in Europe to succeed in getting the Special Award, and could also be the first one to get the World Class Award. Other than the awards, Volvo Cars Europe Industry has achieved concrete results as well and according to JD Power Institute, it is one of the best companies worldwide for quality. In order to enhance its service and to provide value to customers with reference to order processing, the company has developed a strong partnership and integration between the factory and its suppliers. We, at Efeso, have contributed to this process of improvement, by providing advice, instruments, evaluating opportunities and fixing the objectives. We have also supplied Japanese methods as interpreted from a European point of view and provided ideas for performance improvement as well as constantly verifying their application.

Filippo Mantegazza

Customer Oriented Production (COP) has played a key-role in the level of performance achieved by Volvo Cars Europe Industry (VCEI) in the field of Total Productive Maintenance (TPM). The introduction and implementation of the concept "build to order" has in fact resulted in a considerable impact having been made on all the different areas of the car sector.

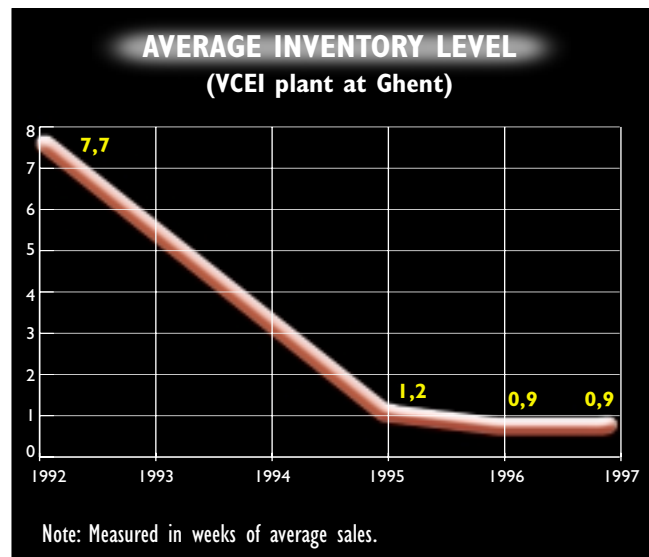
Here, I draw attention to the changes that took place in areas of "Production" and "Customer Services". The implementation of TPM has largely contributed to the successful introduction of Customer Oriented Production at Volvo. To begin with, it is worthwhile to give an insight into the background of the company. Up until the end of the 1980s, a model of industrial orientation (production push) marked car production at Volvo Car Corporation. In August, each year, when the production of the year's new model was starting, the production curve would be planned. In September, a normal production level would be reached and its pace would remain constant, until June of the following year. Sales were and are still not constant throughout the year. The only way to gear up the continuous output from production with seasonal changes in sales levels was to have an intermediate stock of cars held in many of the importers' warehouses located in the majority of our markets. During the low sales season, stock would accumulate to meet the higher demand in the peak season. Cars were sold from stock: that is "build first, then sold". It is not difficult to figure out what the associated costs are to importers using such a management system: tied up capital, maintenance and occupation of space. On the other hand, the growing complexity of the changing programme was making it impossible to foresee which and how many cars were required to be produced to be held in stock.

As a first step, the importers' warehouses were eliminated and replaced by the creation of three central warehouses located at the three major European production facilities. From here, cars were distributed directly to the European authorised dealers.

A further step was to start using dealers' information concerned with physical distribution for planning purposes and for the creation of a sequential ordering schedule in the factory. In production planning, priority was given to those orders containing information received by the dealer, whilst the others were postponed and delayed.

From a logical point of view, it was necessary to increase the frequency of orders to the supplier from monthly to weekly basis. The majority of our suppliers nowadays receives updated information about their orders at least once a day. In 1987, Volvo Cars Europe started implementing within its product system, the "TPM step by step" called "VEC-Team", which is based on teamwork.

The core of TPM's implementation was organised as Au-



tonomous Maintenance, Planned Maintenance, Focused Improvement and Training. This production system was becoming necessary in order to face up to workload fluctuations caused by the "order-customer" approach.

In 1991, our company received - as the first "non - Japanese" company - the TPM Excellence Award for the results achieved in terms of product quality, cost reduction and defects elimination.

In 1993 all our European markets moved on to the COP system which means that since then we have been producing to order and not to stock. We now follow the policy: "first sell then produce". The above graph shows the consequent reduction of time that cars were held in stock (from 7,7 to 0,9 weeks of average sales).

This has led to a substantial reduction in invested capital. It is normal that in passing from "sell from stock" to "first sell then produce", priority has been given to lead time reduction between the time of sale by the dealer and delivery to the dealer.

As a consequence of the continuous and global approach of TPM's implementation within Volvo Cars Europe, we succeeded in remarkably reducing the lead time for the car model S/V70, produced at the Ghent plant for the European market, to 30-35 days between time of sale by the dealer and delivery date (see side chart).

In 1996 Volvo Cars Europe received, again as the first "non-Japanese" company, the TPM Special Award for the results achieved in terms of productivity, product quality, cost reduction and improvement of the company's attitude.

INTERVENTIONS IN THE ORDER PROCESS	
1992	Divide by the kind of order. Priority to real orders (to customers) and delay orders to stock. Creation of European pools for orders to and from stock.
1992-95	Orders freeze
1993	Introduction of the system "first come first served" in all the European companies. Start 100% production of actual orders. (Interruption of the planning process for production for stock)
1994-95	Setting up of a new order-entry system
1994-96	Improvement of the quality programme
1994-97	Inauguration of a help-desk for dealers
INTERVENTIONS IN THE PRODUCTION PROCESS	
1991-95	Increase of the direct going rate
1991- 93	Increased flexibility in the factory
1993-94	WIP Reduction
1994-95	Integration of PDI activities (Predelivery Inspection) in the production process
1996	Introduction of "delivery deployment"
INTERVENTIONS IN THE DISTRIBUTION PROCESS	
1991-93	European central warehouse instead of dealers' warehouses
1994-95	Replanning of the transport organization

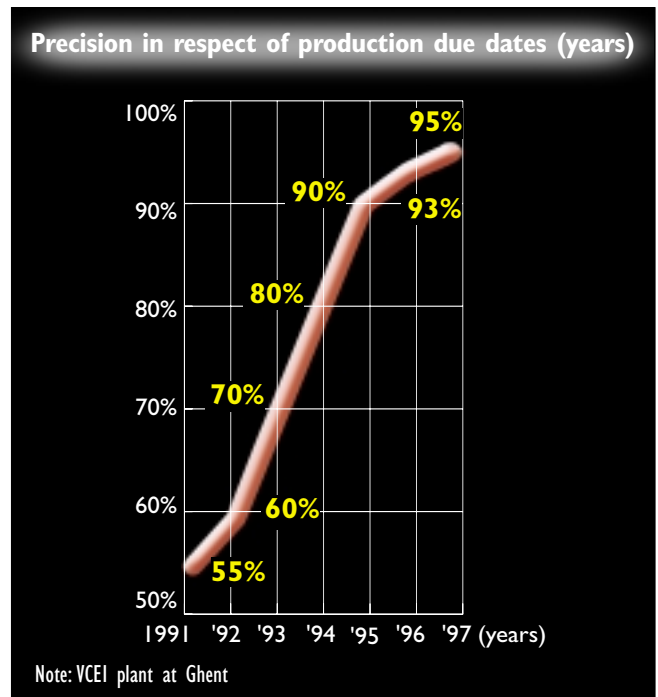
Between 1993 and June 1997 the volume of cars produced for the North American market has been constant: this is an important market for Volvo Corporation. In the autumn of last year, we introduced the COP Approach to North America too, which confronted us with an even more irregular demand, caused by the sales system used in North America. This means that today our production follows only the COP approach. Once the reduction in lead-time was obtained, priority was given to the improvement of Delivery Precision for the VCEI factory (Production Process).

Through so called "delivery deployment" the impact on all areas of the global process - product engineering, planning, supplying, production, quality and transport - were analysed and last year we started to identify all possible causes of problems and to measure their level of frequency.

Through the implementation of our action-plans we have removed all these obstacles, one by one, and in doing so we have increased the precision level to 89%.

We still haven't achieved our aims yet, but we feel confident that by completing the implementation of our action plans, we will succeed.

The application of the TPM system and of its tools is very



powerful and effective in the identification of problems and their corresponding possible solutions in order to achieve a World Class result for Delivery Precision.

John Cattoir

Planning Director, Volvo Cars Europe Industry

N E W S

June 1999 Stratford upon Avon, United Kingdom **TPM6** - Network Events Ltd will organise the 6th International Conference on Total Productive Manufacturing. Efeso Consulting will take an active part in the Conference.

This year, the programme for the TPM 6th includes over 25 presentations on the latest knowledge and learning from leading TPM exhibitors such as Pirelli, Volvo, Unilever, Milliken, United Distillers & Vintners (UDV), Iveco, Caradon, Crown Cork CMB and 3M.

Optional activities include a TPM Master Class and a special TPM Workshops on Monday 7th June as well as a series of Plant Visits on Thursday 10th and Friday 11th June.

BP Amoco will, this year, be sponsoring a TPM Conference Prize, which is open to shopfloor company teams located in the UK and who have used TPM principles and techniques

to undertake a significant, focused improvement activity in productivity. We are very proud of the fact that many of the speakers at the conference will come from our clients.

Mr. G. Fiocchi, Industrial Director of the Tyre Sector of Pirelli, will be speaking about "Sustaining the development of TPM beyond the Excellence Award" and Mr. Paul Lines, UK Manufacturing Director of Pirelli Cables will attend the final panel session.

A clinic on Early Equipment Management will be organised with some of Efeso's clients relating their experiences and facilitating the discussion.

For further details on TPM6, please contact us or directly: Mrs Judi Lion, NetWork Events Ltd, The Old Manor House, Compton, West Sussex, PO18 9EX, UK.

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- Zanussi

W H O W E A R E

With Efeso Consulting the company is better able to react to change

Efeso Consulting has accumulated a wide ranging expertise in the rationalisation and integration of the supply chain in major companies both in Europe and in the United States.

Each time, we have been able to achieve results definitely greater than our clients' expectations in terms of cost reduction, delivery time and improvements in the quality of service (see chart below).

Our experience points out that:

- the reduction of the response time not only improves the service but also notably reduces the costs
- the manufacturing lead time can be significantly

reduced (in our experience from 25% to 70%)

- in each phase of the process, the time target needs to be integrated with other business targets (costs, quality, etc.)
 - when abnormal situations arise (like frequent stock outs, long delays in deliveries, etc.) often the origin of the problems are far removed from where they manifest themselves.
- As outlined in the above brief list of problems and opportunities, that we have found exist in almost every company, in order to operate the supply chain efficiently a systematic approach is mandatory. The "know how" and the experience of Efeso Consulting turns out to be of great help to our Clients in enabling them to analyse the whole value chain and to single out areas for improvement.

Results obtained by EFESO's clients

Response time	→	from - 25%	up to - 70%
Delivery delays	→	- 80%	
Costs	→	from - 10%	up to - 30%
Quality of Customer Service	→	+ 50%	
Scraps and rework	→	from - 20%	to - 40%

