An exemplary way to turn trains around

The German company has completely overhauled its once-struggling transport division. Its strategy could serve as a model for Europe's manufacturers, says Peter Marsh

In 1998 the transport systems division of Siemens lost €380m ($325m) on sales of €2.6bn. One of the world's three biggest makers of railway equipment, including signalling and electrification systems as well as trains, it was given the task of cutting its costs by €1bn, a third of the total, while rekindling the spirit of innovation that had once made the company great.

"There was a deep crisis; not many people were sure it could be fixed," recalls Edward Krubasik, the board member for Siemens whose responsibilities include transport systems.

The travails of the train division symbolised what had gone wrong during the 1990s at Siemens. Like so much of European manufacturing industry, it was thought, the company had immense potential but lacked the will to tackle its internal problems or to try new thinking. However, spurred on by Mr Krubasik, a former consultant at McKinsey, the rail division has enjoyed a radical turnround.

European industry is once again coming under pressure because of the downturn. Siemens' method – of simplifying designs, reorganising production and transferring knowledge across the company – carries lessons for all European manufacturers.

Siemens' rail business is not immune to the slowdown, of course. But its financial performance has greatly improved on the losses of a couple of years ago. In 1999/2000 the division showed operating results – earnings before interest, tax and amortisation – of €75m on sales of €4bn. In the first half of this year, earnings came to €79m on sales of €1.9bn.

So far, roughly half of the group's cost-cutting targets have been met, according to Mr Krubasik. He says the unit is on target for an operating margin in the next three years of 5-7 per cent, as against 4.1 per cent in the latest half-year.

To implement the new strategy in the transport systems division, the four members of the executive board that runs the unit were replaced in 1998. The newcomers, who included Herbert Steffen, the unit's new president and a 63-year-old Siemens veteran, were chosen because they had shown an ability to manage change while in other jobs at Siemens. At the next executive rung down, the company kept only two of the 16 managers in charge of divisions covering such products and services as locomotives and signalling.

To reach its target of cutting operating costs by 34 per cent between 1998 and 2002, each operating division was given its own cost-cutting target of between 25 and 47 per cent. These goals were calculated on the basis of cost savings that had been achieved in other manufacturing operations, both inside and outside Siemens.

The company also had to consider what its competitors in the rail engineering industry – worth $40bn a year – might be doing. It therefore tried to calculate the impact of changes that Bombardier of Canada and Alstom of France, its chief rivals, might implement, even if such changes were largely hypothetical.

Innovation was as important as cost-cutting. "We wanted to be a leader not just in reducing costs in production processes but also in creating opportunities for growth," says Mr Steffen. This objective appears to have been met. Due to improved orders and production volumes, numbers of employees in the division have increased by 400 since 1998, to 14,500, with 60 per cent of them based in Germany.

To implement the changes, 100 projects were undertaken across the unit, involving more than 3,000 individual actions that included anything from changes in the design of components to the introduction of new production ideas in factories. About 130 managers in the unit are on incentive programmes in which their pay is adjusted according to whether they reach particular stages in the cost-cutting and improvement programme.

The changes fell into several broad categories:

● **Regrouping of manufacturing.** Few plants were shut but the company minimised overlaps between them. Now each concentrates on particular types of product. This has improved efficiency by making sure that similar components and products are built on the same site using common production methods.

For instance, Siemens combined the rolling-stock plants in Düsseldorf and Uerdingen, cutting 1,000 jobs. At the same time, it introduced new ideas such as automated welding lines to improve production speeds. As a result, the single factory at Uerdingen, with roughly half as much space as the two combined plants, now makes nearly 50 per cent more rail vehicles a month than the two sites did together.

● **Cutting variants.** Siemens realised it was offering customers too much choice. Two years ago, for instance, it provided 160 designs for bogies, which are part of train carriages' wheel units. Now it offers just 15, all made in a single plant in Graz, Austria, rather than in six factories as before.

Hans Schabert, the executive board member with responsibility for rolling stock, says the design change occurred after Siemens realised it had to be "tough" with customers by emphasising that it could not meet their every requirement with a part that came close to being customised. By eliminating variants, Siemens reduced complexity, cutting unit costs for bogies by more than a third.

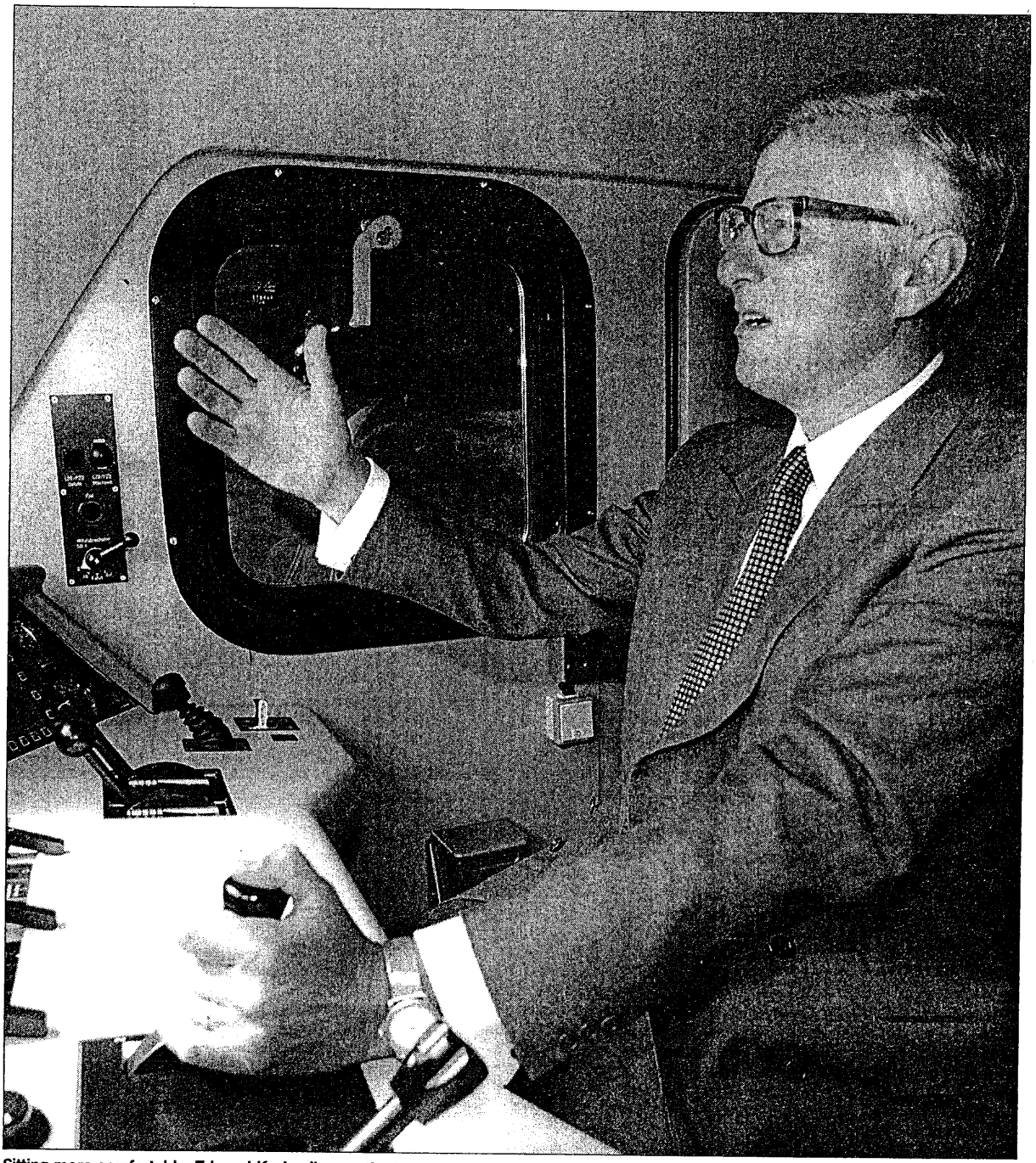
● **Transferring knowhow.** The principle of simplification has been applied across the transport systems operation. This has sometimes drawn on Siemens' general knowhow in telecommunications and semiconductor design.

For instance, the number of designs of signalling equipment has been reduced from thousands to a few hundred. Much of this rationalisation has called for people from the transport systems division to talk to those in other parts of Siemens. Thanks to new ideas in integrated circuits and the design of printed circuit boards, the cost of some components of signalling systems has fallen by 30 per cent.

● **Rethinking assembly.** As well as working on the design of components, Siemens has also thought carefully about the number of parts and how they fit together. Three years ago its regional rail vehicles – now part of its Desiro range – contained about 7,000 unique parts and assemblies provided by suppliers. Now the number of parts has been reduced to 1,100.

Assembly is the secret of much of manufacturing. With more parts being the same, the same jigs and fittings can be used in the assembly process, speeding up production. It now takes about 25 days to produce a Desiro carriage at the Uerdingen plant, a third of the time it took three years ago.

● **New platforms.** Siemens wants to build its rolling stock from fewer "platforms". These are basic designs that can be varied – by changing a relatively small number of parts – to suit the requirements of the customer. In the past, units of rolling stock would have been built for particular customers using designs created specifically for the purpose. Now 70 per cent of Siemens' rolling stock comes from four platforms, providing useful economies of scale. A similar approach is being



Sitting more comfortably: Edward Krubasik says the transport division has so far achieved half its cost-cutting targets Stefan Boness/Ipon

seen in other industries, including cars and washing machines.

● **A focus on suppliers.** Roughly half of what Siemens spends on building a vehicle is used to buy parts from outside suppliers. It has sought to reduce this total, while helping suppliers to improve quality and make their components less complex.

Siemens has introduced a "scoring" system – based on ideas from the car industry – to rate suppliers on such measures as quality, reliability and efficiency in delivery. At the same time, the number of key suppliers has been reduced from several thousand before 1998 to roughly 1,200. Within three years, Siemens wants to have only 500-700 key suppliers.

"Every supplier has been under surveillance ... to make them continually improve," says Jochen Wiessner, general manager of the Uerdingen plant.

● **Better testing.** Siemens has introduced a new €75m track at Wildenrath. The track is among the most sophisticated in the world: it can test every new piece of rolling stock, using the relevant electrical system, before being dispatched to the customer. This saves customers from having to test rolling stock on their own tracks and, Siemens believes, has helped it win new orders.

It is still early days at Siemens' train division. The unit's plans could easily be knocked off course by an economic downturn. Already, the projections of 10-15 per cent annual growth by the world's rail equipment companies look optimistic.

But, if nothing else, the achievements of the rail division thus far demonstrate what a careful overhaul can achieve in a business that once looked as if it was in terminal decline.