
Automotive Logistics in a Period of Changing Values

*A Summary of Presentations & Discussions
from the
Second Buckingham-CEVA Automotive Logistics Forum*

November 2010

Professor Peter N C Cooke
Professor of Automotive Management
University of Buckingham

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Buckingham-CEVA Automotive Logistics Forum

Introduction

The second of a series of Logistics Forums, sponsored by CEVA Logistics Ltd, was held at The University of Buckingham Business School on 11th November 2010. Some 28 executives from across the automotive and logistics industries attended the forum by invitation.

The objective of the second Logistics Forum might be broadly summarised as follows;

- To examine the developing environmental issues associated with the automotive industries and, more particularly, the automotive logistics industry sector.
- To consider the developing commercial vehicle industry in the United Kingdom and its anticipated developments in the light of the changing economic situation.
- To review the changing requirements of the aftermarket industry as the economy emerges from recession.

A critical element of the Buckingham-CEVA Forums is the opportunity they create for open debate and discussion. The current forum was no exception; and there was plenty of healthy debate on all the main topics discussed.

Members were invited to vote on preferred topics for the next Buckingham-CEVA; the responses have been analysed and will be taken into account in planning topics for the next event.

The following pages highlight the principal issues raised during the three presentations; there are also notes included on the enthusiastic debate and discussions that accompanied each paper.

The third Buckingham-CEVA forum will take place on 17 March 2011 at The University of Buckingham. While email invitations will be sent to our regular members, if you would care to join the event, please email; kim.pittwood@buckingham.ac.uk. Early booking is recommended as the number of attendees is strictly limited.

In the meantime, I commend the following commentary to you.

David Jackman
Vice President – Automotive
CEVA Logistics

An Environmental View of the Developing Automotive Industries

Professor Peter N C Cooke
University of Buckingham

The global automotive industries, despite their huge advances in technology and environmental protection strategies, are still regarded by many as being a *bête noir* with regard to the environment.

The present paper seeks to examine some of the associated topics and present an objective analysis of the situation as the industry develops and migrates towards its new and emerging markets and production locations.

The review has three principal objectives which might be summarised as noted below;

- Present an objective environmental overview of the developing automotive industries
- Examine some of the associated environmental logistics issues arising from changes in the industry
- Identify areas and actions, particularly associated with logistics, where the environmental profile might be enhanced.

It is against these broad objectives that the following paper, based on the presentation, has been written.

The Automotive Environment

The automotive industries may well be claimed to impact on every aspect of the environment, but there are a number of issues which are commonly highlighted. These include – overall global warming – just how much is due to the motor industry? CO₂ issues – an area where the industry is working aggressively to reduce impact.

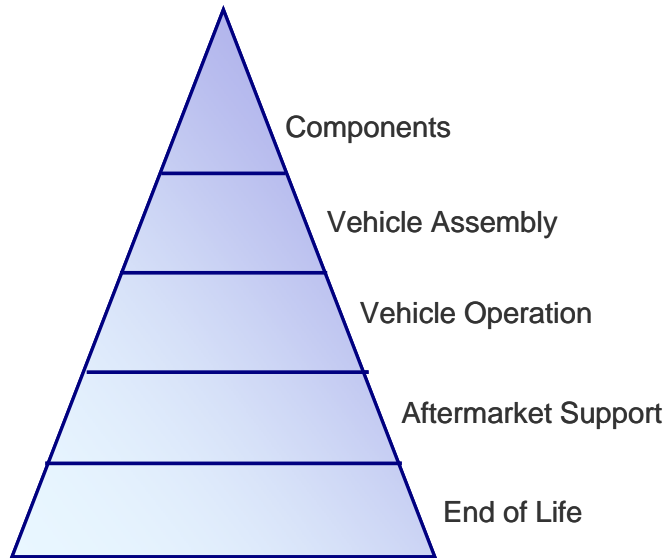
Equally, it is accepted that almost any major manufacturing industry has a potentially unsustainable demand for raw materials – the automotive industries are working ceaselessly on recycling and also on the recycling of complex compounds.

The review stressed the links between the various parts of the automotive industries. Essentially, the industry is a global supply chain with every stage linked to those running before and after it. Figure 1 overleaf presents a paradigm of the situation.

Figure 1; Automotive Environmental Supply Chain

Despite its best efforts; automotive industries do attract a high degree of negative publicity – perhaps because the industry is so high profile.

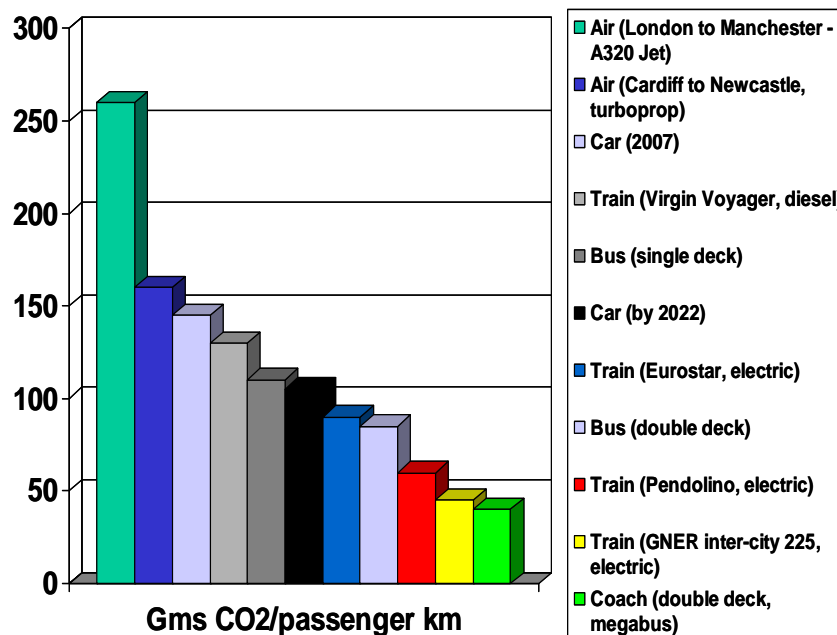
Supra-national and Government policies and strategies are continually calling for environmental enhancements from the industry, with the hidden benefit that such actions may well offer tax gathering opportunities.



Source; Buckingham

The relative CO₂ costs of a journey are complex indeed. Figure 2 highlights one of these, but the picture is seriously confused when one considers the relative monetary costs of alternative journeys; on the day of the presentation, a walk on train ticked from Manchester to London cost more than a return flight to Washington DC.

Figure 2; The CO₂ Cost of a Journey



Assumed load factors: car 30%, bus 20%, coach 60%, aircraft 70%, inter-city train 40%, other train 30%

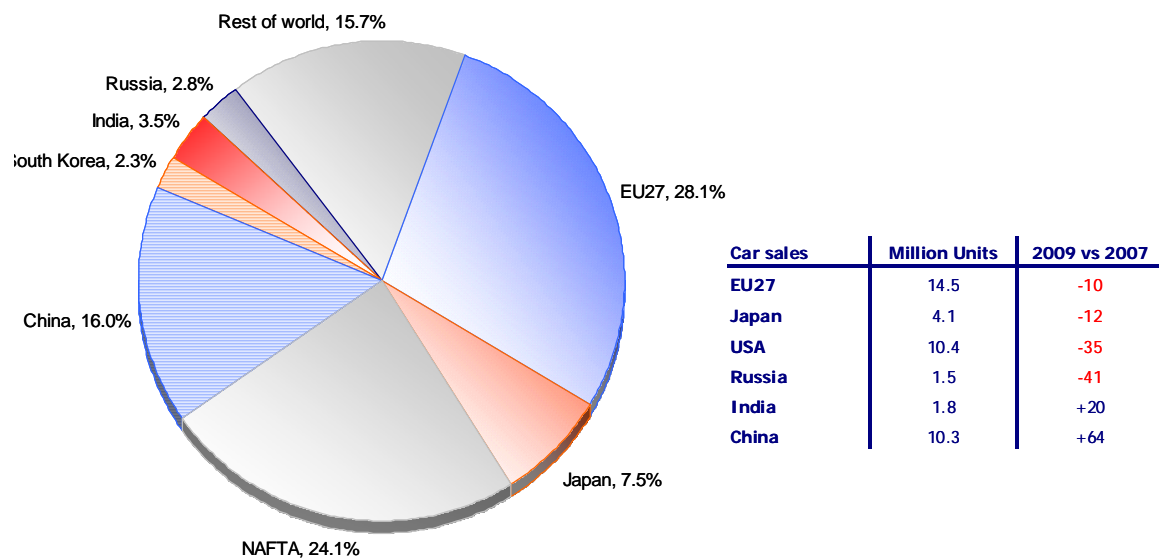
Clearly at some stage in the foreseeable future governments will need to review CO₂ emissions and pricing on a global basis rather than on an ad hoc local basis driven by political regulation.

Migrating Automotive Industries

Global automotive industries are migrating at an ever accelerating rate. While the headline claim might sound bland, when one examines it in more detail, one quickly sees these changes are occurring at different rate.

The chart in Figure 3 shows the locations of global car sales in 2009 but, more importantly, the changes between 2007 and 2009. Inevitably such changes will create strains, and therefore inefficiencies, on automotive logistics. It takes time to rebalance logistics systems to handle changes in sales and manufacturing activities.

Figure 3; World New Car Sales 2009

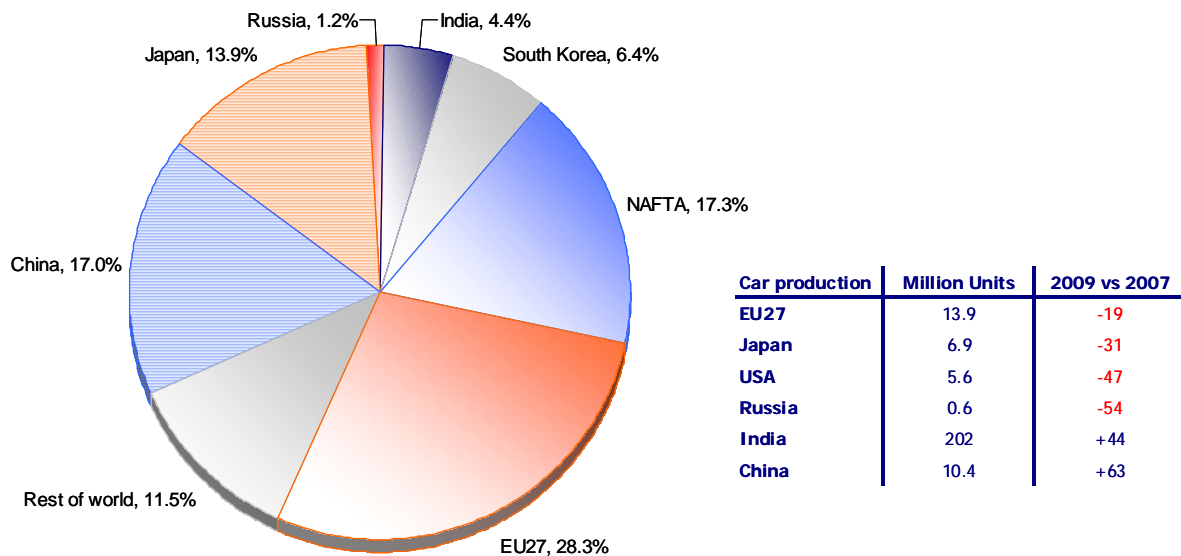


Source; ACEA

While the change in new car sales locations may look dramatic, the change in manufacturing locations is perhaps more interesting in that the resources and supply chains required to support assembly are more complex than merely selling the vehicles.

Figure 4 overleaf illustrates the situation.

Figure 4; World Car Production 2009



Source; ACEA

These two charts, a similar one could be shown for commercial vehicles, indicate a rapidly repositioning automotive industry with China and, more recently, India becoming the effective centres of the industry.

While sales may have escalated rapidly and assembly is not far behind, the logistics and environmental management issues will take longer to settle as they involve a multiplicity of organisations and sometimes require a new infrastructure to be able to handle the sheer volumes of materials and finished vehicles associated with a modern car plant.

In the present period of a global shortage of capital and general cost cutting, all too often the requirements of the logistics companies are squeezed out of the decision tree and, as a result, it's a matter of 'make do and mend' – not altogether a modern management term, but all too often a technique exercised on players further down the supply chain.

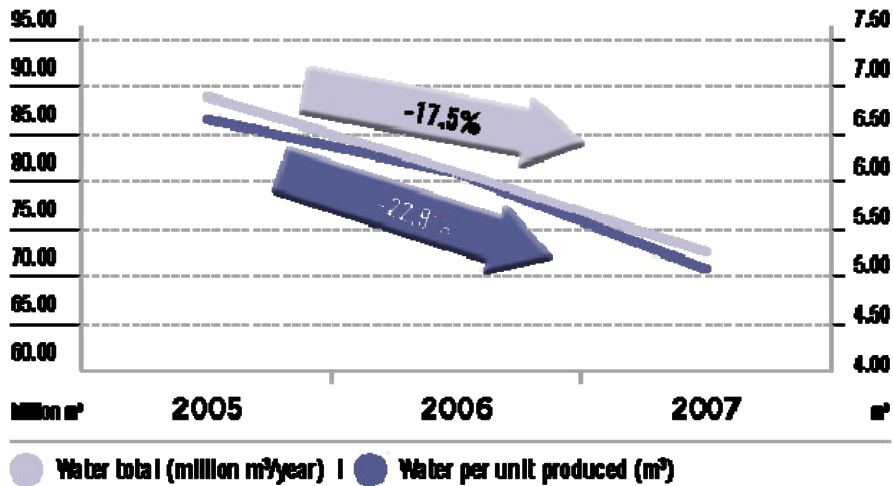
Attitudes to environmental issues vary considerably between countries –and the environment may well come a long way down the priority list if there are serious employment opportunities at stake.

Automotive Manufacture

Automotive manufacturing is under the direct control of the OEMs, although an increasing amount of the activity is being outsourced. Direct control means in turn direct control of resources and costs. In the past few years, plants have become more efficient in use of resources – as illustrated in Figure 5 overleaf and one must anticipate these improvements will continue.

Figure 5; Resource Efficient Production

Water Used



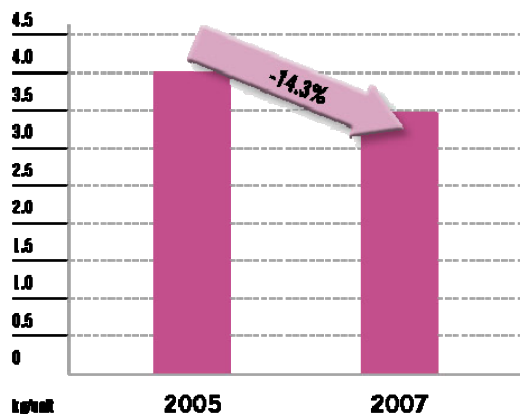
Long-term strategies to reduce water consumption have made it possible to reduce the water use per car produced by almost 23%.

Source; ACEA

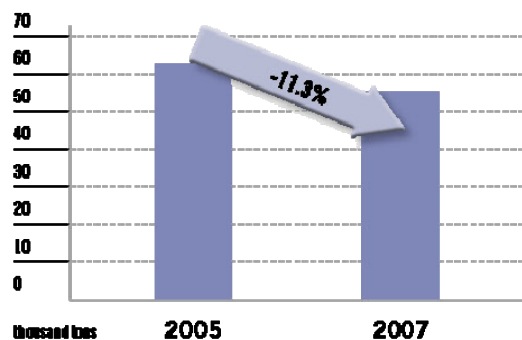
At the same time as resource use has become more efficient; there have been parallel improvements in the environmental impact of vehicle manufacture as illustrated by Figure 6.

Figure 6; Reduced Environmental Impact

VOC Emissions per Vehicle Produced



Absolute VOC Emissions

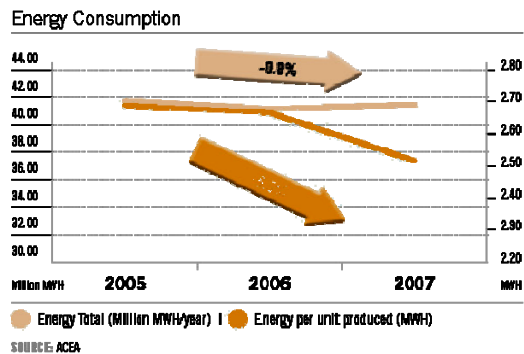


With new technologies such as water-based paints that replace solvent-based paints, manufacturers have been able to reduce emissions by 14.3% per vehicle.

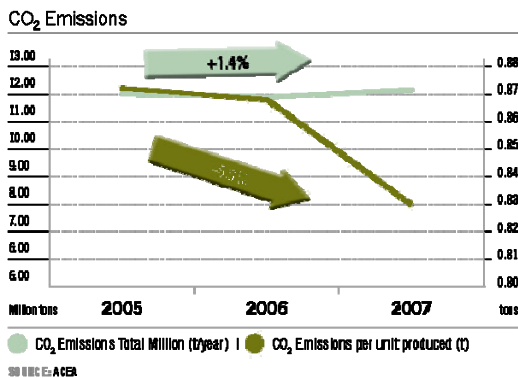
Source; ACEA

However, the whole field of manufacturing is confused by the demand for ever more sophisticated cars; not only do safety demands increase but so does manufacturing complexity. Figure 7 below shows how even in this complex area savings have been possible.

Figure 7; Energy Consumption and CO₂ Emissions



As cars are equipped with more and more features to make them safer and more environmentally-friendly, the complexity of production increases, with negative effects on energy demand. However, manufacturers constantly work on improving energy efficiency.



CO₂ emissions per vehicle produced decreased by 5%, mostly through efficiency increases, somewhat helped by a warm winter in 2007. Differences in the trends on energy consumption and CO₂ emissions have to do with changes in the energy mix available at the different production sites.

Source; ACEA

A range of further good news stories could be presented to indicate just how the industry is coming to grips with the environmental issues. The challenge is to ensure these enhancements are not just restricted to one stage of the whole supply chain.

Environmental protection is further complicated by ever more complex materials being used to reduce weight and cost. While the environmental issues may not be immediate, when those vehicles come to be recycled there may be additional complications and even new technologies required to ensure cost-effective recycling.

National and international protocols are in place to ensure environmental protection but one serious issue, all the time, is to ensure objective monitoring, reporting and correction of problems arising. Not every manufacturing nation necessarily has such systems in place – or the motivation to implement them even if they exist.

Aftermarket Support

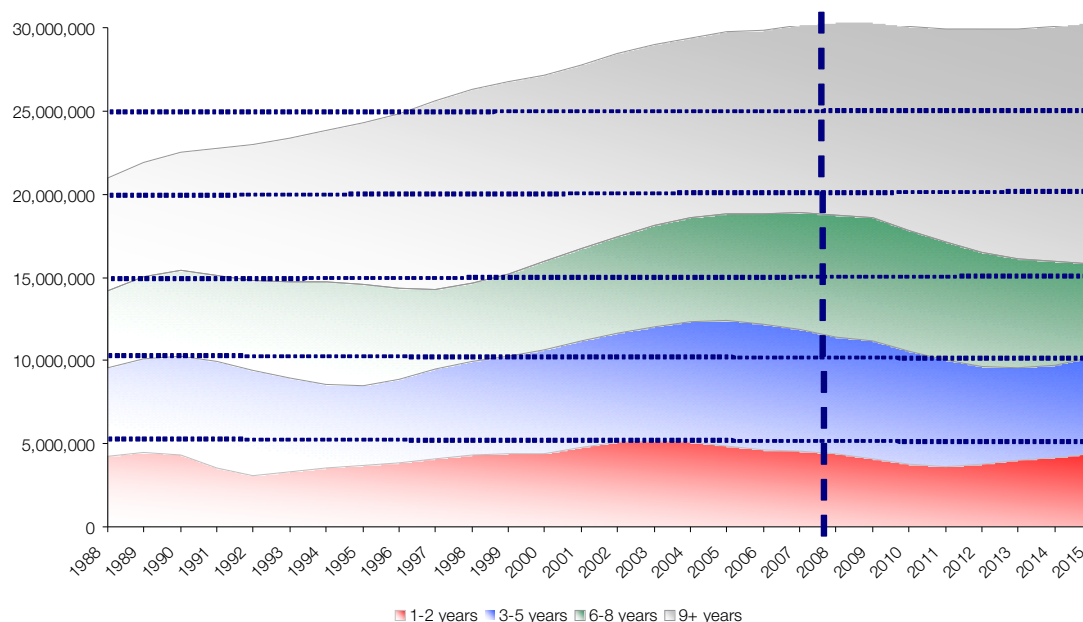
Cars are becoming more reliable; service intervals are moving out steadily as are vehicle warranties. OEMs are building cars to ever increasing standards and components failure is steadily declining. However, with the advent of ever more sophisticated vehicle management systems, so the level of sophistication of service rises steadily. The title of the operatives undertaking the task has steadily changed over recent years from 'mechanic' to 'technician' – indeed those staff are now dealing with sophisticated equipment diagnostic systems and processes.

Figure 8 indicates how product reliability and component life have moved over the decades. New figures, when published, will show even more dramatic enhancements.

The implications for the aftermarket player caused by such enhancements are obvious – 'less business' or 'more value added business' – the former would mean rolling over. The latter has come to be represented by ever more players in an already overcrowded market with component suppliers – the aftermarket sector – looking to offer an ever more enhanced service to their dealers.

Enhanced service – quite simply more sophisticated inventory management and more frequent deliveries to service providers – means added pressure on profits. This, in turn, means that parts distribution needs to be put further under the microscope with regards to the value it adds.

Figure 8; UK Car Parc by Age Groups 1990-2015



Source; SMMT/Buckingham

A double whammy is entering the supply chain as well; in that, for the first time in history, the car parc in the United Kingdom is reducing, as shown in Figure 9, caused by the reduction in new car sales over the past few years. This will take several years before it is corrected.

Any such cost cutting may well come through a comprehensive review of logistics and logistics management. Break the traditional mould and focus on single distribution at least to parts wholesalers perhaps? After all, real competition and brand protection is at the level between the aftermarket wholesaler and the service point rather than the way the aftermarket wholesaler is kept stocked with parts.

Thus, environmental pressures on the aftermarket sector may come through changing distribution patterns, the need to watch component inventory strategy and component sourcing. Equally, players need to keep an eye on branding and their local competitiveness – all of which may have potential environmental issues.

More action may be required in this area to cut costs – shared distribution; balanced inventories, while the serious use of third party distribution and logistics networks may well become ever more important. One looks at parallels in the supermarket/food industry and brewing for advanced cost reduction solutions in a competitive logistics scenario.

End of Life

The past decade has seen considerable advancement in treatment of the end of life of vehicles. The traditional ‘car breaker’ has disappeared to be replaced, at least in the United Kingdom, by a smaller range of specialist environmentally friendly recycling operations that drain the relevant liquids from vehicles, break them and sell on the material recovered.

Other scrapped vehicles are crushed and shipped abroad for recycling. Of the United Kingdom’s exports to China, ‘waste materials’ account for the third largest category of products sold. Currently some 95% of vehicles are recycled, and one might ask if that is truly economic. Equally, one might ask what are the environmental consequences in that a lot of vehicles – close to two million a year – go for recycling – with a considerable logistics cost.

The real challenge is yet to come. Electric vehicles and their associated batteries. How will such products be recycled? Batteries are both heavy and contain a range of obnoxious substances. As the electric vehicle industry grows, so will the demand for recycling batteries, currently having perhaps a 3-4 year economic life.

Automotive Logistics and the Environment

A number of critical issues regarding logistics, the environment and the automotive industries might be highlighted. The following bullet points highlight some of the more important. The list is not in any specific order, neither does it claim to be comprehensive.

- **Distances moved; components**, finished vehicles and the necessary supporting materials are being moved ever greater distances as markets and manufacturing facilities develop. It is not possible for the most effective logistics systems to be brought on stream immediately. Given the speed of change there will always be an element of catch-up to be played.

Greater involvement of logistics providers at the planning stage may be one solution – as may the involvement of both OEMs and logistics providers in developing shared and integrated facilities.

- **Markets and production facilities are likely to continue to develop;** it is important that logistics players and networks are consulted much earlier in the changing cycle so they can plan for developments. Equally, it is important that realistic prices are paid for the services of logistics systems so they can provide the necessary resources to offer efficient and environmentally friendly support.
- **Investment in logistics is critical;** that means as much in the choice of location for new facilities as it does for ensuring there is an appropriate infrastructure in place, so materials, components and finished vehicles can be moved in line with industry and market requirements. The most suitable apparent locations for assembly and manufacturing facilities may not have the most user-friendly logistics opportunities. Integrated planning is necessary.
- **The growth in shared facilities** has been mentioned earlier in these notes. Supermarkets and breweries compete on the front line with the goods they sell. Equally, they have the most sophisticated supporting logistics services and support. While automotive components will always be claimed to be different, there are many lessons that can be learned from supermarket distribution systems.
- **Balanced distribution,** with the most appropriate shared logistics patterns, must surely be an area for significant efficiency enhancements and perhaps also rethinking the macho approach of ‘only our goods’ may offer significant cost savings in future.

Competitiveness is not fought out in terms of getting raw materials to the point of use; it is fought out in the showroom or over the parts counter. The challenge is to be able to take cost out of the system while still retaining the front line competitiveness – at a lower price. The environment will also benefit, in that there will be fewer units on the road making unnecessary journeys t creating less CO₂.

A Conclusion

A slide towards the end of the presentation summed up thinking on the topic;

‘Effective logistics can offer not only enhanced profit opportunities and lower costs but also significant environmental benefits to the forward looking company’

The technology is largely in place; maybe the investment can be made available – the real challenge is changing the mindset of decision makers. We have changed before – can we change again?

Professor Peter N C Cooke
Professor of Automotive Management

Developing Commercial Vehicle Industries; Manufacture, Markets And Products

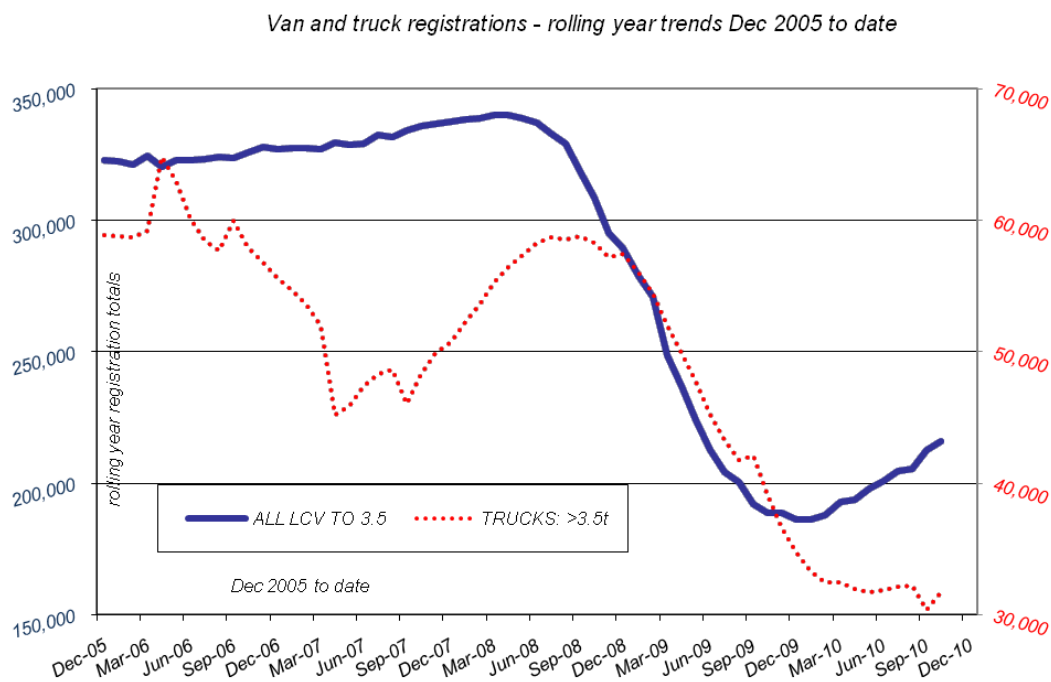
Robin Dickeson
Manager; Commercial Vehicle Affairs
SMMT

The commercial vehicle industry is alive and kicking in the United Kingdom. In 1955 the industry had a parc of half a million trucks and two million cars. By 2010 the parc had moved to half a million trucks, three million vans and 31 million cars in use. That cannot be matched by the growth in investment in our road system.

Trucks do not cause congestion; they suffer it. Equally, their prime role is to deliver and keep the wheels of industry moving. The modern truck carries about five times as much freight as goes by rail and is highly fuel efficient. Equally, road freight is much more efficient than alternative forms of transport and is highly flexible. At the same time, in the UK, some 80% of passengers travel by car and so does 80% of freight.

Figure 1 below shows new truck deliveries by quarter in recent years. The figures are quoted as deliveries rather than sales because of the enormous amount of customising that is undertaken with a high proportion of trucks. Typically a truck disappears into the system for about three months once it has been sold. Such a disappearance allows time for bodybuilders and other specialists to customise the vehicle and prepare it for use.

Figure 1; LCV and Truck Deliveries



Source; SMMT

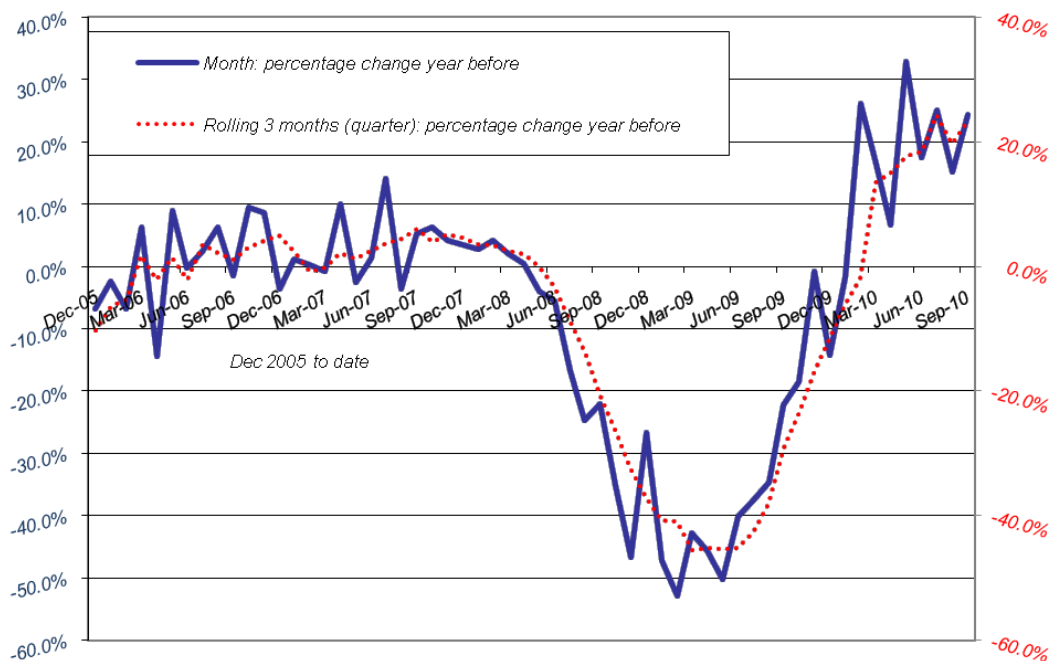
The recent recession has caused grief as far as the OEMs are concerned with new truck orders ‘falling off a cliff’ although they have started to show signs of recovery. The message from truck users has been simple – ‘more productivity and greater efficiency’; essentially ‘more from less’.

The result of the downage in industry demand is that the United Kingdom currently has perhaps some 30% excess capacity for carrying road freight – with all of the implications that represents.

The chart in Figure 2 highlights the changes in van growth over the recent period. It will be noted how the market crashed during the recession but is now showing signs of recovery.

Figure 2; Van Registration Growth

UK van registrations - month and rolling 3 months; changes on same periods year before

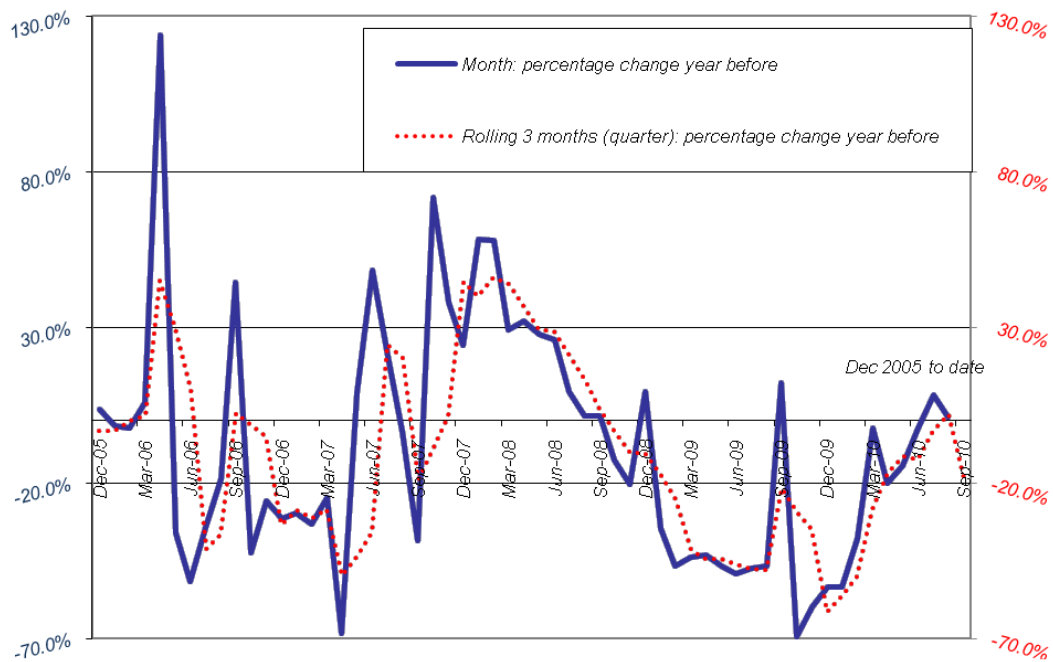


Source; SMMT

While the van market slipped and then showed recovery, the heavy truck market has shown a bumpy ride but not presented the recovery of the van market, possibly because organisations have reorganised their logistics operations. Figure 3 shows the registration changes.

Figure 3; Heavy Truck Registration Growth

UK trucks >6t : month and rolling 3 months; changes on same periods year before



Source; SMMT

The series of charts indicate some of the woes the commercial vehicle industry has had to face and the recession from which it is now recovering.

Capitalising on New Opportunities

The real immediate advantages appear to exist for LCV operations rather than for HGV operators. Legislation will demand some improvements and the growth of service business requirements such as online shopping will push up the numbers of vehicles, as will replacement of units that have been retained longer than originally anticipated.

Enhanced dealership efficiency – including components inventories – will become increasingly important for future efficiency. It is accepted that it takes about five years to develop and launch a new truck, while a new dealership can take ten years to develop.

Developing Commercial Vehicle Dealers

The very nature of a commercial vehicle as being a capital asset with a cash flow to generate, which is as often as not judged by vehicle availability or time on road, means that supporting dealerships are commonly more efficient than car dealers.

The commercial vehicle dealer needs to be open 24/7 and for nearly 365 days per year. Time off road, day or night can mean a loss of revenue. Thus there has been a serious development in terms of customer care, workshop hours and parts availability.

To get work into these paragons of virtue, dealers have sought contract maintenance deals as well MOT support. Indeed, some 80% of commercial vehicles are sold with some degree of maintenance programme to create a win-win situation for the dealer, the manufacturer and the vehicle operator. It is estimated that around five times as much revenue is generated from aftersales support as it is from the purchase price of the vehicle.

LCV Dealers

It is claimed that LCV dealers are generally less sophisticated and less customer oriented than their commercial vehicle dealer counterparts. A number of reasons might be identified;

- Too many LCV dealers are attachments to car dealers and as such not used to dealing with business users
- Many LCV dealers simply sell the vehicles and do not offer the full range of support
- Most LCV dealers fail to sell maintenance agreements when they sell the original vehicles
- Few LCV dealers fully understand the needs and motivations of LCV drivers and operators.

LCV dealers often do not understand the operating regulations associated with commercial vehicles – and those regulations are gradually moving to smaller and smaller vehicles.

Market Recovery

Overall, the United Kingdom truck fleet is anticipated to be slow in recovering from the recession and will take some time to get back to and past the half million units in operation situation.

The LCV parc, on the other hand, is recovering more quickly and may well grow past the three million units in operation.

Slow recovery is also anticipated for the minibus, bus and coach fleet over the next couple of years.

The real challenges over the next few years for the commercial vehicle sector will come in a number of different forms. Consider some of them;

- **Low carbon regime;** represented by the ever-evolving Euro regulations; while the changes are negotiated by the OEMs working together, they still present a technological challenge for the vehicle producers.
- **Electric power;** will become more important in the next few years; already widely used for delivery vehicles and those used in urban operations.

-
- **Hybrids;** not widely talked about within the commercial vehicle industry, although they could have an interesting future within the commercial sector, particularly with LCVs.
 - **Vehicle finance;** will continue to be an issue for both LCVs and HGVs. In the case of HGVs, the majority of vehicles are offered with some form of funding package. This availability of funds is beneficial to the buyer – funds may be difficult to find elsewhere – and to the seller, in that it offers an additional source of margin and indirectly provides a link with the vehicle across its life.
 - **Vehicle maintenance;** critical to maximise vehicle efficiency and therefore earning potential as well as offering profit opportunities to dealers handling those units.

It is critical that, in future, the commercial vehicle sector seeks to maximise sales, but they are not emotional as may be the case with cars. The key issue is maximising sales of support services – maximising value-added services sold by dealers rather than outsourcing, or letting these service be provided by third parties.

The future is tough – but the opportunities are the key in the aftermarket and that may mean managing closely the logistics of support services.

November 2010

Changing Sales Channels for the Automotive Industry; Managing Profitability and Customer Satisfaction

Peter Hill
Operations Director
Dorset Auto Spares Ltd

Dorset Autospares is an all makes parts distributor working through 11 branches between Southampton and Honiton in Devon. The organisation competes with a number of other players in the region, which include other independents as well as OEMs supplying their franchised dealers directly.

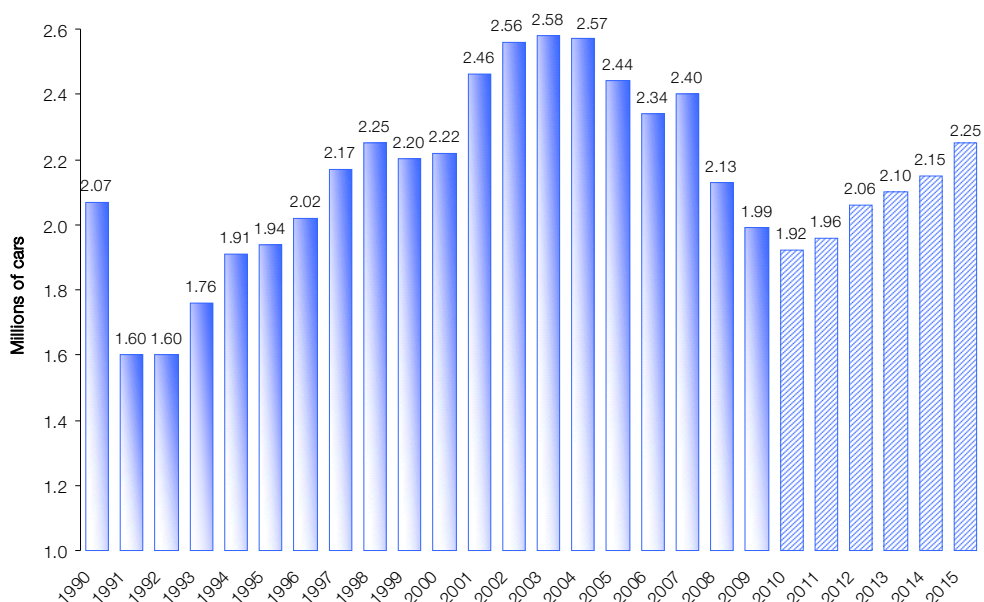
Product Sourcing

The company is a member of Group Auto Union which is the largest buying group in Europe and has a turnover of over £400 million in the United Kingdom alone. The Group negotiates all purchasing deals with our suppliers including Tier One companies. Unlike other buying groups, Auto Union – GAU – does not have solus deals, but allows its members to select which organisations will supply them. Such flexibility means we are able to select suppliers on performance as well as price – value added as well as volume.

After-sales

Historically, after-sales has always been seen as the poor relation of vehicle sales, especially in franchised dealers. However, a well-managed after-sales department can, despite its lack of glamour, be a real source of profit. The problem is one needs car sales to be able to sell the materials to service these units!

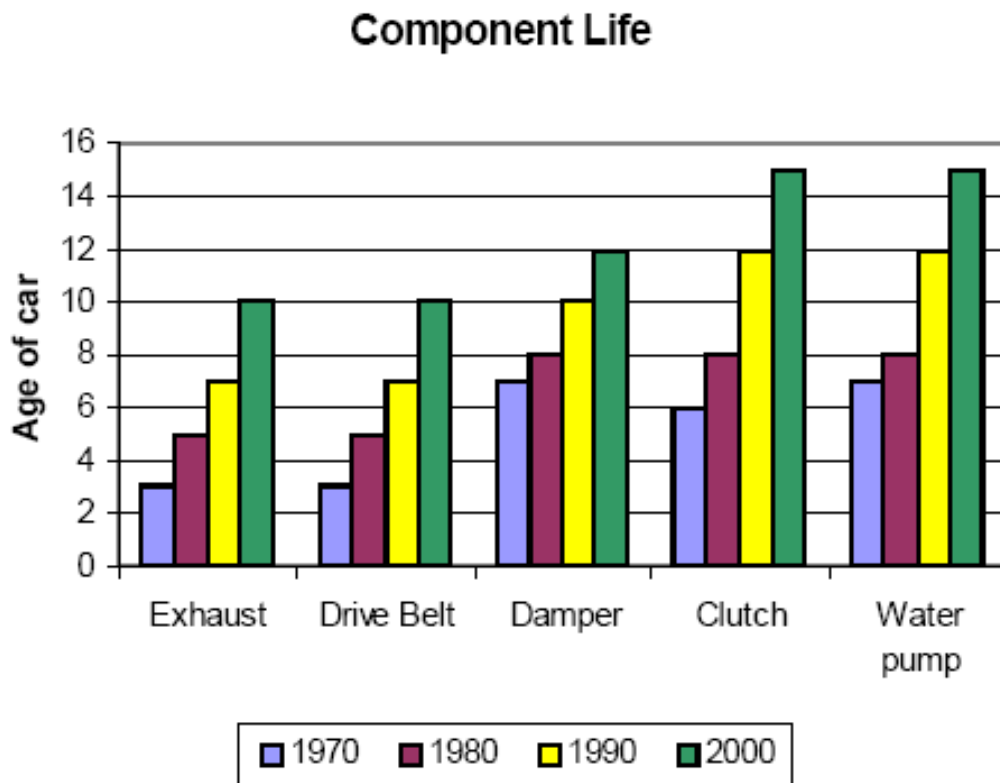
Figure 1; New Car Sales and Expectations



Source; SMMT/Buckingham

The drop in new car sales during recession, as illustrated in Figure 1, has meant that dealerships have been forced to look for sales elsewhere.

Figure 2; Increased Reliability



Source ICDP

The overall field of 'sales' means that many have cottoned to the real profit opportunities available through service activities. The message merely reinforces the boost in the aftermarket during the recession of the nineties.

Trevor Finn, the Pendragon MD summed up the situation succinctly;

Aftersales is the most profitable part of the Pendragon business, although profits did fall in quarter 3 of 2010. Pendragon will focus its aftersales and used car activities to drive its business as new car sales slow'

Dorset Auto Spares – DAS – does not sell new or used cars so the business does not suffer directly from changes in demand for vehicles – we merely suffer from the fallout.

Changing Aftersales

Improvements in quality of components, their reliability and extended service intervals have reduced the demand for replacement parts. As a business at the end of 2008, as the recession bit, we had to reappraise what we supplied, what we stocked, how we could improve our service and protect profitability.

Our conclusions led to a two pronged strategy change;

- Additional training for our staff across the organisation. I will not dwell on that today, but it has had a profound effect on improving the business.
- Closer partnership with suppliers; essentially a change in our attitude to them and their attitude to Dorset Autospares. We now have a policy of working much closer with our suppliers and have allowed them to assist in out inventory planning and the rate of replenishment. This, in turn, means we can monitor how well they perform for us and they have a better understanding as to how we operate.

To give an as to how this closer relationship has improved our main braking supplier of discs, pads and shoes has seen a 32% increase in sales in 2009 over 2008, and 19% in 2010 to date over 2009.

We feel there is still further potential for improvement. franchised dealers need to improve the service they are offering for aftermarket parts; we have built a strong business on it.

Some Conclusions

We have reshaped the business to satisfy market needs; that has been a significant task in itself. There are still many further opportunities for business enhancement and cost reduction. One of these areas is deliveries to us as wholesalers and distributors to the market. Simplified logistics, perhaps using a single provider could well offer further benefits to all.

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