





Danger: gridlock ahead

The capacity of road infrastructure is lagging behind demand and it is set to get worse. So with supply chain efficiency and JIT deliveries under threat, costs are almost certain to increase. Will increasing road congestion gridlock your business? [By Roger West and Marc Meunier](#)

The global increase in oil (fuel) bills and EU legislative changes to the working time directive have been significant challenges for the supply chain in recent years. Despite these obstacles the supply chain has developed and evolved regardless, soldiering on in the face of adversity. However, dark days are looming once more and the supply chain is to face its biggest challenge to date. Invisible pressures emerging from the increase in road congestion can fundamentally challenge the ability to operate just in time (JIT) supply chains.

We have all experienced the inconsistency of getting from A to B, manifesting itself in

unpredictable journey times, increased delays and often causing the network to gridlock. Up to 80 per cent of road traffic is made up of cars; the continued popularity and growth of car ownership show no sign of slowing and will no doubt impinge on the freight operator's ability to function. That said, the industry is not without fault and also requires significant efficiency repair. Solutions are necessary to combat the 30 per cent of goods vehicles running empty, and many more only part full. The capacity of road infrastructure is lagging behind demand and it is set to get worse. If so, we can safely assume that supply chain efficiency is under threat and costs are almost certain to

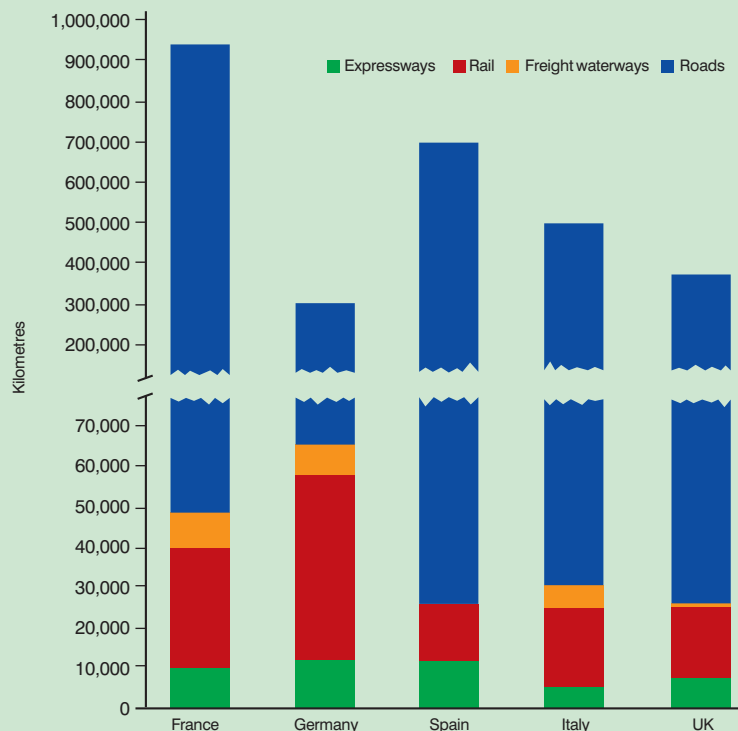
increase. Is your CEO ready to deal with the operational challenges and profit impact this could bring?

Research by the University College London Transport Studies Unit supports this, stating that in the UK, road capacity is already close to maximum capacity and is set to deteriorate, even if 'all current government projects and policies are implemented in full, successfully, and to time'. The simple figures suggest the cost of congestion in the UK in 2000 was at €29bn per annum. This figure is expected to grow to €44bn by 2010. With business supply chains thought to have about half of the problem to deal with (the other half relating to employees getting to work and meetings), it is an issue to which supply chain managers need to turn their attention.

There are significant government targets in progress to tackle congestion in the UK, although throughout Europe investments are also being made – France being at the forefront of this, paving the way for other European countries. In the past, France has supported the link between the UK and Europe through the Eurotunnel as well as maintaining fluvial transport nationally and with countries like Germany. Now, France is working to develop road and rail infrastructure with Italy as well as new freight lines between the north of France and Spain, to Irun and Barcelona. These peripheral countries are also developing infrastructures, mainly rail between France and Barcelona and Madrid. Following the example of France the result has been some of the lowest traffic density in Europe (30 vehicles per km as opposed to the European average of 44 vehicles per km).

The implications of not maintaining JIT supply chains are clear: deliveries will spend more time on the road, requiring more driver hours and an increasing share of costly haulage capital; more fuel will be burnt sitting in interminable traffic jams (therefore impacting environmental targets); and, in order to meet the demands of customers, we need to set off earlier and earlier to be sure of

Some key european infrastructure comparisons



Source: Capgemini

hitting our allocated delivery slot. Indeed, setting off earlier may not fix the problem but transfer it to the other end of the supply chain. With an unreliable network, an early arrival would place waiting area demands on customer sites and increased local congestion levels. This would make the local road network even more unpredictable. For both suppliers and customers, the challenges to the supply chain are a shared concern.

Time for a rethink

Does the industry need a dramatic rethink? What are the options?

A migration of road freight to rail services: This would meet many of the environmental objectives and support the government's and railway's desire to grow the volume of freight moved by rail. However, getting from factory to rail almost certainly involves some kind of road based service for most products and the access points to the rail network are not always close to the point of production or the point of consumption. Road congestion will still bite. Nevertheless, such a 'rail trunking model' would allow the roads some relief, and if combined with a more flexible rail access and rail pricing model, it could be part of the solution, especially as there are cost benefits for rail over road. However, can the rail industry support such intentions?

Even if there was a developed inter-modal transport service with a reliable and cheaper rail option, effective access/exit from the network and where the minimum economic rail distance was not an issue; the rail infrastructure is most probably not able to accept much more traffic. The UK government may have set rail freight growth targets, but most infrastructure investment has been focussed on enhancing the passenger experience or replacing worn out track and not on creating new lines or inter-modal access points. While train kilometres have increased (seven per cent) since 1998, freight is still the poor relation to passenger traffic and gets the thinnest and poorest slice of network access and time slots – not what time conscious businesses want to hear. It is



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likely that if road freight did want to shift to rail, then rail would have to make massive investments to cope with it, which will require time.

Continental Europe, which is also struggling to keep up with ever increasing freight traffic, seems to be in a better position with more consistent planning and investment on new road, rail and sea infrastructures. With a minority of countries, namely the UK, slow to invest in new infrastructure compared to Continental European counterparts, supply chain specialists may have to rethink supply chain strategies to keep up until new infrastructure is available.

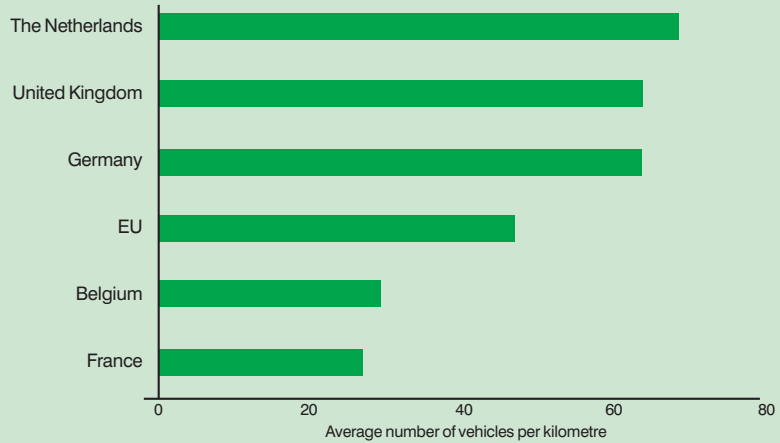
We could rewind the clock, see JIT as a thing of the past and start reverting to store at the door or other localised storage strategies to buffer production against the vagaries of the road network. Whilst attractive to suppliers, it is unlikely to appeal to customers who will need to: increase their warehouse operations to cope with extra stock; increase working capital tie up; accept a major change in their operating model; and cope with having to swallow the impact of supply chain fluctuations from their own customers.

A more radical option, although one popular in the automotive sector, is to encourage suppliers to move closer to their customers. In some sectors this could work – capital light manufacturing, for example. In other situations, where the suppliers production requires a high intensity of fixed capital and plant, there will be limited opportunities to relocate. An example of this is Seat, the Spanish based car manufacturer, and its strategy for suppliers to be based on-site at its plant in Martorell, Barcelona. At this site alone Seat receive thousands of components every hour, requiring a managed supply chain and this extreme proximity to its suppliers.

Collaborative approach

Perhaps collaboration holds the answer; technology being the enabler. Can supply chains be managed in a more collaborative way to allow us to work together to reduce our demands on the road network, and perhaps even reduce costs at the same time? Advanced planning and optimisation tools exist, and exciting 'agent based' optimisation tools have emerged. These tools work in between different supply chains, allowing organisations to collaborate by sharing their logistics assets and therefore maximising utilisation and yield. Moreover, these tools can share data, not only upstream and downstream but can also have non-competitive supply chains working

Average traffic density across major european countries



Source: Road Facts 2000, British Road Federation

together – the current closest example is the management of supply chain assets through a 3PL provider for different customers.

The tools to manage the supply chain efficiently are available and these are continually evolving to provide more and more real time information, for example, Radio Frequency Identification and global positioning. At the moment this evolution is directed mainly towards asset management but, with a mindset switch, could quickly shift to a more common use, with say, pharmaceutical distribution, retail and return logistics, etc. Could the deployment of such solutions and a change in our mindset allow local suppliers to work together to meet the needs of their customers? This could work with small part load situations and, with the right level of collaboration driven by developing stakeholders' trust, it could also help big linear supply chains of retailers and auto manufacturers.

The graph, above shows the average traffic density across the major European countries. Looking at this it shows that the problem is worse in the Netherlands, the UK and Germany, all of which are significantly higher than the European average; suggesting a competitive edge for Continental European supply chains, as well as better infrastructure planning and investment. This is catastrophic news for industries such as manufacturing which has been in decline for many years due to competitive cost pressures from Europe and Asia, but also retail which relies so heavily on the (JIT) supply chain function (supporting fast moving goods and ambient supply chains). If a solution is not found quickly, it is

likely that congestion will be the final nail in the coffin for manufacturing in these markets, making it just too expensive – especially now that the new EU member states can offer cheaper solutions at our door step.

Governments in Europe are very concerned about these issues; along with being anti-industry the increase in road capacity is having an impact on European governments spending and also on environmental targets. Both are significant political battlefields, where in the UK, the next general election may be won or lost not mentioning the risks involved for UK Supply Chains. The solution relies on hopes to promote rail with expectations of growth of 80 per cent from 2001 to 2010. There has also been significant investment in roads schemes, the UK government focusing on selective widening and enhancements of existing routes. However, as UCL suggests, these initiatives may not be enough and, in addition, countries like France and Spain have a more focused planning and infrastructure development, which is essential in getting closer to the market.

European supply chains have evolved over time to provide increased reliability and cost effectiveness; with JIT demands, industry has become complacent with the technology available. We can see from the documented increase in congestion and impact on cost (in Continental Europe but more accentuated in the UK), the ability to build just in time supply chains is not getting harder, it is becoming potentially impossible. ■

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