The Intelligent Approach to Freight Matching

A fresh, 'Digitalisation' approach to capitalise on the strengths of machine-to-machine interactions heralds a new era in freight matching.

TGMatrix
INTELLIGENT MATCHING

Shipping thin air is wrong, but it's happening every day. Although all transport modes are 'guilty', Frost & Sullivan reports that, in road transport alone, 27 per cent of trucks at any one time are running empty across the European Union.

For the UK, the Freight Transport Association (FTA) puts the figure at over 25 per cent and adds, that this has not improved in a decade. Even 'loaded' trucks only average 54 per cent utilisation. The unnecessary cost, in a €395 billion EU road transport market, is staggering and everyone pays.

However excessive cost isn't the half of it; the waste of assets is also becoming a challenge. Capital is tied up in vehicles that spend much of their time not earning, drivers are in short supply yet many of their hours contribute nothing, and road capacity is not infinite – underutilisation adds significantly to road congestion, which is calculated to cost 1 per cent of GDP.

Then there is the environmental impact – in the EU reports, transport accounts for 20 per cent of carbon emissions and this is still rising. It is not just about carbon either– particulates, oxides of nitrogen, brake dust and noise are not helped by empty trucks sitting in traffic jams.

The problem is far from uniform. Bulk flows with fairly stable long-term requirements can generally be planned quite well. At the small scale, pallet networks are well developed, and hub-and-spoke operation yields fairly high load factors. But for larger less-than-truck loads, and consignments around a full truck load, arranging a backhaul in time and at reasonable cost can be a nightmare – especially when there is a peak in demand, an unusual destination, an urgent requirement, or any lane or flow outside 'normal' contracted transport arrangements. Sub-contractors will inevitably increase complexity around communications, visibility and connectivity.

So, shippers search in vain for the capacity to meet customer delivery requirements while empty or half-laden lorries stream past their gates. Carriers miss out on revenue or even turn down extra business from established customers, because they can't provide a lorry even though half their capacity is idle.

TGMatrix
INTELLIGENT MATCHING

This is not a new problem as carriers have always worried about how to make the whole journey pay. Unsurprisingly, freight brokerage is big business – with a European market in 2015 valued at €86 billion, according to Frost and Sullivan. But there are issues with this model. Brokering can be manual, relationship-driven, and slow – which may not matter if you are booking deep-sea capacity, but problematic if you need to ship tomorrow night. And, to quote Frost & Sullivan, "traditional brokerage firms charge a commission that ranges from 5 to 30 per cent, and given the opaqueness in the system can find a pricier carrier for the shipment to extract higher net commission".

It might be thought that at least the larger carriers, on the one hand, or shippers on the other, could readily institute collaborative or pooling arrangements to address some of the problem. This has been tried, but rapidly runs up against competition/anti-trust rules. Given the track record in every transport sector of cartel operation, this is hardly surprising.

An Internet alternative is the online loadboard. That is a step forward but only a small one, which presents problems akin to those of consumer comparison websites. It is still not clear whether offers are being ranked objectively, or are being influenced by commission. Input both of requirements and availability is largely manual so is time-consuming, liable to error and reliant on users keeping data up to date. Ranking criteria tend to be fairly unsophisticated – typically by price. However, for many shippers, price is not the only factor – time, carbon footprint, corporate policies, special requirements or consistent performance may be weighted more favourably.

Even if that information is readily accessible on the loadboard, the shipper then has to calculate or guesstimate if time is pressing, the 'best fit' out of many different offers and phone the carrier. By which time, the opportunity may have passed. This is a potential sticking point because although many operations have been digitised, they have not been digitalised. In other words, various elements of a manual system may have been automated, but the system itself retains its old problems and disconnects.

Digitalisation, by contrast, involves taking a fresh approach that capitalises on the strengths of machine-to-machine interactions, rather than trying to cope with the weaknesses of human operations.

What would a digitalised solution to freight matching look like?

TGMatrix
INTELLIGENT MATCHING

A digitalised approach

In the first place, such a system would maximise the utility of all the data that already exists in digital form. Shippers already have the times, destinations, weights, volumes, etc of their consignments on their ERP, Warehouse or Transport Management systems. Through GPS and other on-board and back-office systems, carriers should know the location and status of their vehicles, driver hours, time and location of the next booked job for that vehicle. Live information on the road network, current and predicted roadworks, traffic congestion, adverse weather can be called up. All refreshed continually and automatically, rather than being dependent on someone remembering to update the system.

Second, the solution will match freight and assets in as close to real time as possible using advanced algorithms. These can analyse multiple factors simultaneously and, if required, accord them different weightings. They are scalable in that they can perform thousands of such analyses at the same time, and also if one data set changes, the effects can be recalculated without having to start the entire process again, which is important in an inherently dynamic situation like transport. All this is achieved in near real-time using what is termed 'multiple agent technology'.

Thirdly, the processes should run machine-to-machine (M2M) but there will always be exceptions. Some situations may demand a human to augment or supplement business rules or logic that hasn't been captured or applied. But for speed, accuracy and integrity, M2M is the way to go. 'Always on' connectivity is key – there is no virtue in finding a best match in microseconds if it takes six hours to get a response.

Away from the clever technical achievements, there are other requirements for a freight matching system. It requires provable objectivity where the results are not influenced by the system operator's commercial gain, or by users' human prejudices. Alignment with user objectives and policies is important. Price is not the only factor. Regarding carrier selection, shippers in particular may have rules of their own or rules imposed by their customers or by regulations. Carriers also may have needs beyond revenue. For example, not carrying a class of goods if that would require cleaning the truck down before the next booked job.
One size does not fit all.

Scale and volume are critical. Traditional marketplaces have always been limited by the impossibility of meeting or comparing more than a finite number of players in the time available. Through digitalisation, volume is not a constraint. A shipper no longer has to focus solely on the most critical or valuable consignments; a carrier can look for backloads for every vehicle, not just those in the easiest locations.

Then there is the cost benefit. For carriers the primary benefit is increased revenue from essentially the same investment. For shippers the equations may be more nuanced as price may be the dominant consideration or may be traded off against time. Visibility is important because shippers and carriers should have confidence that they are seeing the savings/revenue being created in full. The solution should also offer radical efficiencies in administration.

For both sides, strong reporting and analytics functions should give better visibility and certainty around transport operations, enabling better-informed strategies and practices to be developed for the future.

SHIPPERS COSTS DOWN — SHIPPERS — TGMatrix — CARRIERS — **CARRIERS UTILISATION UP**

TGMatrix
INTELLIGENT MATCHING

Intelligent Freight Matching

Intelligent Freight Matching has been developed by TGMatrix to address all the issues above and bring transport into the digitalised Internet age through a unique combination of technology and commercial model.

Multi-agent matching algorithms are optimised to support M2M working with shipper needs and carrier availability uploaded automatically from ERP/WMS/TMS systems. The solution integrates readily with all major systems, but users can also work through mobile technologies or web portals, with more manual input if necessary.

The digital matching process examines collection and delivery points and the road network to identify vehicles from carriers that meet potentially hundreds of variables – from vehicle type to insurances – that are or will be within an appropriate radius of the requirement. The best potential itinerary, including multiple pick-up and/or drop points if necessary, is calculated taking into account time of day, congestion, modal shift operations if appropriate, carbon footprint and so on. Prices, based on carrier-supplied rates can be found from the itinerary.

With the average lane price that the shipper is paying established, the system seeks out carrier prices that offer at least a 15 per cent saving on that, and the full saving is passed through to the shipper – TGMatrix does not take a cut. Additionally, the shipper may choose to accept the first match, or that 'temporary contract' can be retained in the system while a search for the 'best match' during a defined 'time to live' continues. Bear in mind that in this dynamic situation new opportunities are continually arising.

According to requirement, the match can be based on price alone, or with weighting given to price, time, performance, congestion or carbon footprint, or any combination. While in 'normal' mode the system is looking for a minimum 15 per cent price saving, this can be over-ridden by the shipper in order to increase the chance of finding a match.
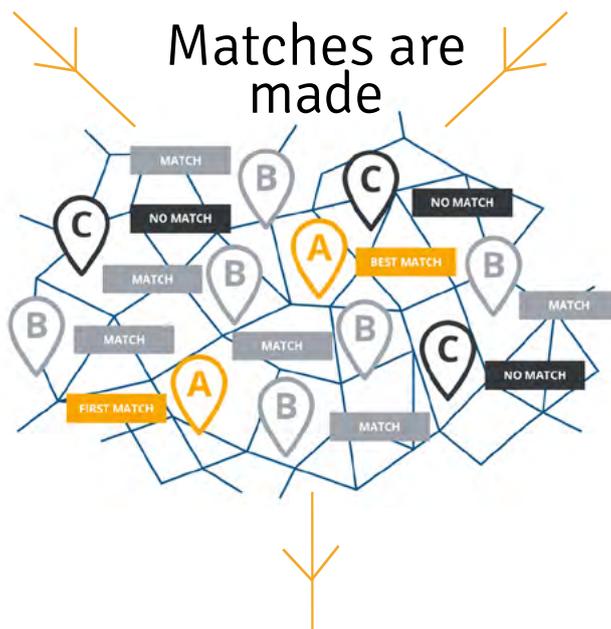
In the event of no match identified in the available time period, the shipper can fall back on their usual sourcing methods or, if time allows, they can renew the request for another period of time to live. Similarly, the carrier can do the same.

On finding a successful match, the solution will issue confirmation and contracts by EDI (or other agreed method) to both shipper and carrier. During contract execution, the carrier can use mobile apps to carry out a range of functions. For example, inform TGMatrix and the shipper that collection/delivery has been made, present proof-of-delivery, give real-time information on delays and take photographs to illustrate any problems. Importantly, the shipper's contract is with the carrier.

Shippers send in their transport request

Carriers send in their offers

Matches are made

MATCH
B
C
NO MATCH
NO MATCH
C
B
A
BEST MATCH
B
B
MATCH
MATCH
MATCH
B
C
MATCH
NO MATCH
B
FIRST MATCH
A
B
MATCH

Contracts are sent

TGMatrix
INTELLIGENT MATCHING

What does it cost?

The service is offered on an annual subscription, at a minimum of £12,000, which covers 6,000 job requests. There are no charges for portal connections, XML uploads, smartphone apps and so on, and realised savings are passed on in full.

The system pays for itself. Business case modelling shows that even if only 10 per cent of those 6,000 jobs find a match at the target 15 per cent price reduction, return on investment after paying for the subscription will typically be between 125-350 per cent.

In-the-field practice shows that both the achieved price reduction and the matching success rate are significantly better. Carriers can show a 10 per cent improvement in asset utilisation, improved margins, and of course to the extent that carriers use the system to find subcontractors when they are short of capacity, they can expect to see the same 15 per cent rate reduction as shippers.

Widely applied, this could give the carrier community many collaborative benefits without the need to reveal commercial information or run foul of competition laws.
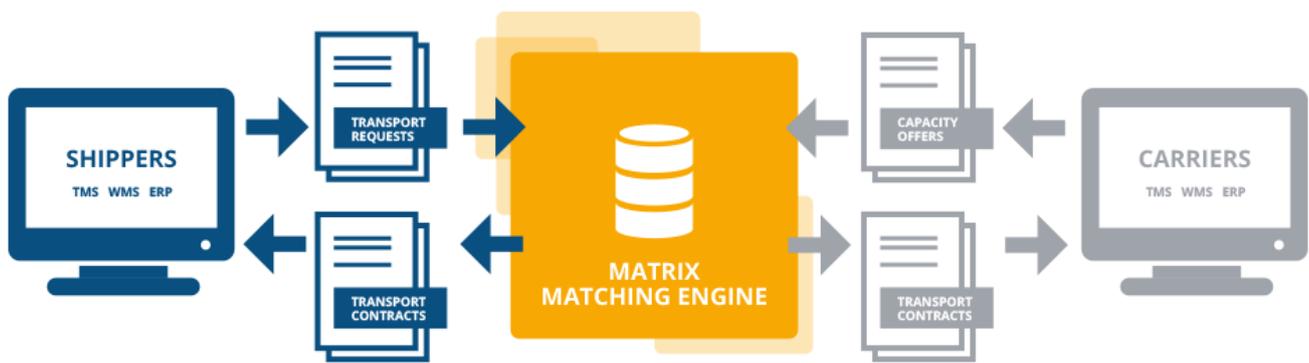
Who benefits?

This approach to freight matching is designed from the outset to be applicable to different modes and to multimodal transport, and to be immensely scalable. To start with, however, the focus is on the needs of large 'Tier 1' carriers, and of major shippers and brands – with some well-respected names already signed-up in the UK dry, ambient, Full truckload or near truckload market. This means that the critical mass that a market requires can be achieved quickly, and that the first clients are already equipped with the systems to exploit fully the digitalised M2M capabilities. The intention is to develop geographically into Europe. Modally, there is great scope in rail freight, for example – and ultimately extending the scale down to the smaller shippers and carriers. **But an impact is already being made:**

Frost & Sullivan has described TGMatrix as having

"An industry-leading algorithm... [which] could potentially be a trendsetter in the industry. By ensuring transparency, improving efficiency of decision making and considering aspects such as total carbon footprint, ...TGMatrix has added the much-needed intelligence in the freight matching process"

Contact us

TGMatrix Limited
John Eccles House
Robert Robinson Avenue
Oxford Science Park
OXFORD
OX4 4GP

Email: **info@tgmatrix.com**

Phone: **+44 330 223 2211**

TGMatrix
INTELLIGENT MATCHING