



THE ROAD AHEAD

OPINION • DIGITISATION IS AN INCREASINGLY IMPORTANT PART OF THE SUPPLY CHAIN BUT WHERE IS IT TAKING US? FRANCESCO MATTOZZI OF CHEMICAL EXPRESS IMAGINES A NEW WORLD

“LET’S TRY TO imagine how the world of transport could evolve,” begins Francesco Mattozzi, account manager at Italy-based intermodal specialist Chemical Express. While the chemical transport sector has made a start with the move towards ‘Industry 4.0’, there is a way to go and, he says, it will result in a very different business environment in the future.

When we get to that future, he says, clients for transport services, together with the logistics operators and those companies involved in the services ancillary to transport operations (railways, ships, terminals, ports, washing stations, etc) are all connected through an information exchange system based on blockchain technology.

Customers request offers, by publishing transport tenders or by a single request, and the carrier’s artificial intelligence (AI), through an algorithm, calculates the rates, verifying in real time all the costs involved, like fuel, tolls, rail and sea freight, according to the requested transport mode.

If the offer is accepted, the carrier receives the order directly in his planning, verifying the availability of the requested vehicle in the right place and on the requested date, taking into account the type of product to be transported, the quantity, whether the product is classified as dangerous, and confirming the loading date or proposing an alternative date to the customer.

FROM LOAD TO LOAD

This AI algorithm constantly monitors all the planning for the next few weeks, continuously updating it on the basis of customer requests and assigning a vehicle for each order; obviously it is in constant contact with the computer system of other operators, such as railways and shipping companies, in order to have the availability of vehicles constantly updated.

In the event of a delay, a communication is automatically generated to the customer informing them of the new delivery date, with

a simultaneous request for a new unloading/loading slot at the unloading/loading plant. In the meantime, the system records the delay by updating the statistics for the measurement of both its own KPIs and those of its customers and those of its suppliers, transmitting that information automatically.

When the system chooses the driver for the delivery, the order starts and gets displayed on the onboard computer on the vehicle. Through the satellite system, the algorithm checks the road, signalling any congestion to the driver and proposing an alternative route.

After carrying out the unloading, the AI connects to the cleaning station server, verifying the expected waiting time (calculated with the number of vehicles present and those booked). The algorithm estimates the washing times and the times to reach the next loading place. In the meantime, it checks that the cleaning certificate received from the cleaning station contains all the codes requested by the customer (the compatibility of the last product with the blacklist received by the customer has already been verified). The onboard computer, via Bluetooth, sends the order



ALGORITHMS MAY REPLACE MANY FUNCTIONS CURRENTLY PERFORMED BY HUMANS BUT DRIVERS WILL STILL BE NEEDED AND THERE IS A HUMAN TOUCH TO CUSTOMER SERVICE THAT CANNOT BE REPLICATED

data to the loading bay system. The tank gets loaded. The documents are posted, sent to the customer, together with an invoice that is automatically generated, by EDI data transfer.

Each week, through an app on the phone, the driver must answer a test to assess the degree of his or her ability to deal with dangerous situations and level of preparation on safety and other procedures. The driver's assessment updates the staff database; therefore, the HR function is also carried out by the algorithm.

A new evaluation system for carriers, accessed by customers, based on 'reputation', which could integrate some existing evaluation systems, provides a complete picture of the performance of carriers, with periodic updating of the score.

WHAT ABOUT THE WORKERS?

In terms of personnel, this imaginary scenario only involves the use of drivers, who seem likely to still be necessary, even if they are relegated to a very marginal role akin to that of a robot. All the office staff, from planning to

commercial functions, from the quality manager to the administrative office, will all be replaced by the algorithm.

Is this fantasy? Not exactly. Some of those systems needed to bring this future about are already in existence and are being used.

The IT systems of customers and suppliers are increasingly connected; they are already working on different web portals with various features, downloading orders, entering the personal data of the drivers and vehicles, up to confirming the shipment, sending the documents and costs. There are many web portals, and each customer chooses the one they prefer; it would be easier to create a centralised database and the problem would be solved.

The onboard computer and satellite tracking systems have been present on vehicles for several years; it is easy to imagine that in this future, directly connected with the company information system, the system could suggest alternative routes to avoid traffic jams or accidents.

To imagine that the human element, until now necessary in all companies, can be replaced by an algorithm that can simultaneously perform all the functions done by planning, commercial, quality, administration and invoicing, makes us imagine a dark future full of uncertainty for humanity. But fortunately, this is just one hypothetical scenario, although it has already been considered in detail by Yuval Noah Harari in his book *21 Lessons from the 21st Century*; one of the book's topics is the possibility that many jobs that are currently done by humans could in future be done by AI and there could be millions more unemployed around the world.

At the moment Chemical Express believes that the human element is still essential to be able to offer its services to customers. At the same time, however, it looks with great interest at the technological innovations that are coming to the world of logistics, and continuously invests in the digitisation process of its fleet.

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