

Lack of trust, intelligent IT tools and fair sharing mechanisms form the biggest obstacles

# Control towers are emerging everywhere

Right across the logistics landscape, control towers are emerging: platforms where information about various flows of goods converges and is analysed so that the freight flows can be optimised. Control towers enable companies to centralise their transport planning and to reduce the number of empty kilometres their delivery trucks travel. They are increasingly also used as a Cross Chain Control Centre (4C) in order to combine several different companies' flows of goods. So far, however, there is no definitive model for designing and running control towers.

By Marcel te Lindert

For many companies, transportation planning is one of the final decisions in the logistics process. Deliveries are decided at the very end of the supply chain, both figuratively and literally speaking, usually at the factory or warehouse from where the consignment is to be collected. As a result, transport planners are focused only on transport orders from their own facility and pay no attention to shipments leaving any of the company's other facilities.

That's exactly how things used to be at Aviko, a Dutch manufacturer of potato products with factories in six different European countries and a large number of warehouses across the continent. Up until around ten years ago, Aviko's transport planning was organised locally, which sometimes meant delivery trucks from various sales offices following each other down the road. "From The Netherlands we regularly dispatched deliveries to the German region of Offenburg, for instance, while at the same time trucks from our French subsidiary would be driving to the Strasbourg area which just across the Rhine. Planning transportation locally exposes you to a real risk of sub-optimisation," says Frank Scholten, transport man-

ager at Aviko.

When Aviko made a companywide switch to SAP around the turn of the millennium, it decided to centralise the transport planning too. With help from Ortec, a transport planning specialist, a control tower has been set up at the Aviko headquarters in Steenderen, The Netherlands. There, all the deliveries are planned for the whole of Europe, with the exception of local transport in Italy and Poland. "Most importantly, the Ortec platform gives us transparency. We can run several delivery plans simultaneously and immediately see the impact of any planning changes," explains Scholten. "I've never calculated it precisely but I would estimate that our efficiency has increased by about ten percent. Our trucks always depart with full truck loads, just as before, but nowadays the average distance between the first and the last delivery address has been reduced. In other words, the trucks are driving fewer kilometres when less than full."

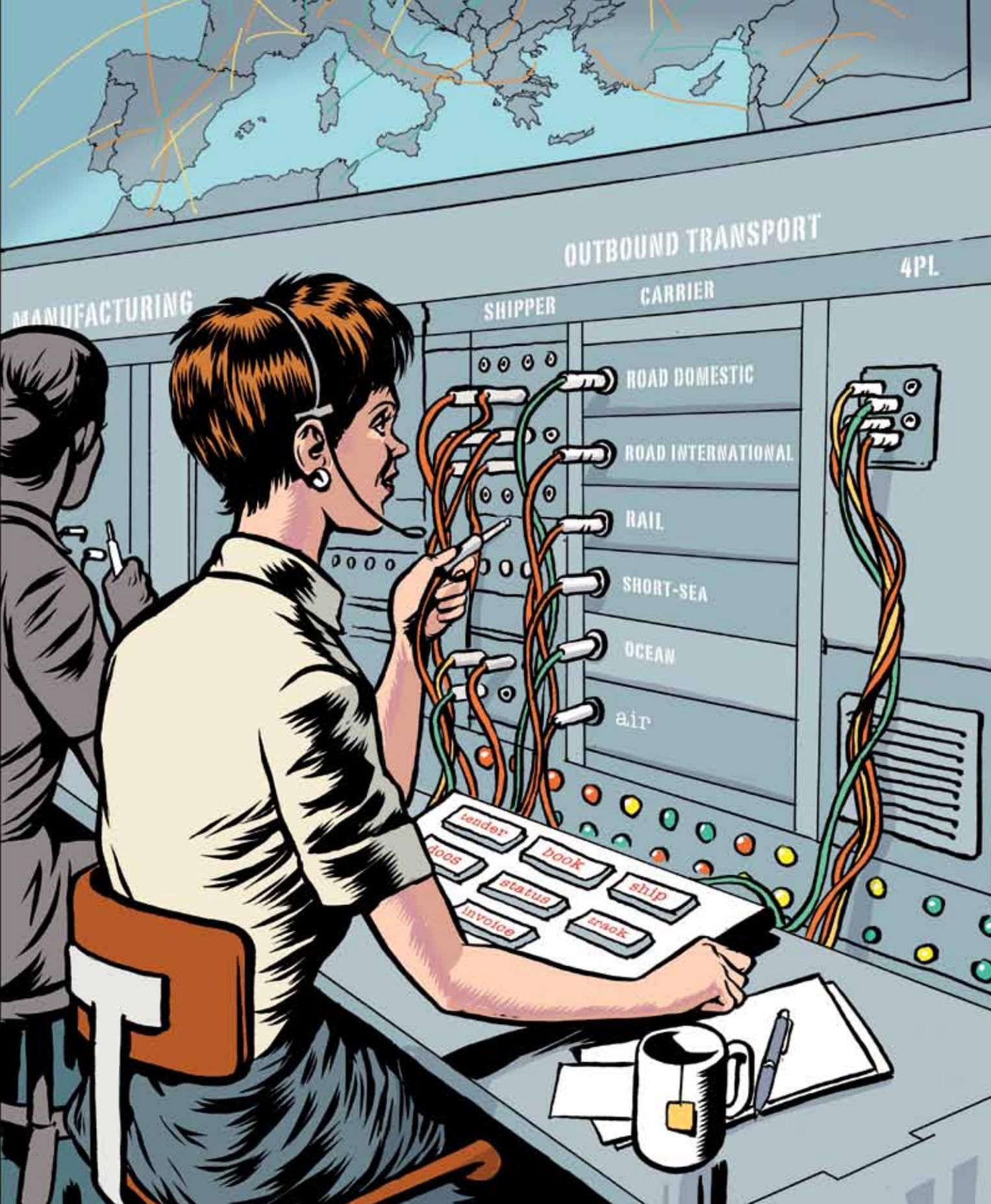
## Horizontal collaboration

According to Tom van Woensel, professor of freight transport and logistics at Eindhoven University of Technology, many companies could follow Aviko's example

and organise their transport more efficiently. "Some 20 to 30 percent of delivery trucks are still driving around empty. And as for the rest, their average load rate is between 60 and 70 percent. Those figures speak for themselves," he says.

Once companies have centralised their transport planning internally, the next step is to collaborate with other companies on organising deliveries. "Within the confines of traditional methods, companies soon exhaust the possibilities for efficiency gains. That's why a growing number of companies are looking at horizontal collaboration," claims Van Woensel, who is involved in a number of Dinalog research projects revolving around Cross Chain Control Centres (4C). The fundamental idea is that companies can operate more efficiently and effectively by doing similar activities together. "That leads to lower costs and higher margins. And companies working with the 4C concept might even be able to expand their markets."

Aviko also recognises that horizontal collaboration offers opportunities, which is why Scholten is currently exploring ways to get involved in Lean & Green Barge, a project that was set up earlier this year by Heinz, Mars and Bavaria. By bundling



their flows of goods, these three shippers have succeeded in taking much of their freight off the roads and onto the water instead. Scholten: “The freight for inter-continental transport already travels from

our cold storage in Babberich via the container terminal in Emmerich, Germany, to Rotterdam by barge. We’re keen to increase that volume, such as by adding our daily flows of goods to the UK. How-

ever, to make a viable business case, we’ll first need to find other shippers with extra volume.”

While Scholten believes that combining freight flows with other shippers is defi-

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nately the way forward, he also admits that such a concept is not easy to implement. “Even when we were centralising Aviko’s transport planning, we noticed that each local department had its own ‘sacred cows’ that made it more difficult to collaborate. The solution was lots of communication – to keep reminding people of the bigger picture in order to reassure them. And it certainly won’t be any easier when working with other shippers.”

## Trust is key

Two companies that have already bundled their freight flows are DSM Engineering Plastics and Mitsubishi Engineering-Plastics. The start of their collaboration dates back to 2010 when Mitsubishi acquired the Xantar product line from DSM. To manufacture this product line, which comprises a wide range of polycarbonates and blends, Mitsubishi still uses DSM’s manufacturing facilities in Genk. “This set-up is based on a tolling contract. DSM processes the materials that we source in accordance with our strict specifications,” explains Hans Guns, general manager of Mitsubishi Engineering-Plastics in Europe. Their collaboration agreement applies to both companies’ palletised shipments. If DSM and Mitsubishi both have deliveries for customers who are located within a 50-kilometre radius of each other, the con-

signments are consolidated. That results in fuller trucks, lower costs and reduced carbon emissions. “In the past, it had been known for both DSM and Mitsubishi to dispatch a truck to Barcelona on the same day, from the same factory in Genk and carrying similar products. That no longer happens,” says Jan-Pedro Vis, manager of customer service & sales operations at DSM Engineering Plastics.

The collaboration is made easier by the fact that both companies use the same suppliers for much of their transportation. After all, Mitsubishi continued to honour the existing delivery contracts when it acquired Xantar in 2010. Furthermore, DSM had outsourced management of its freight flows to IDS Supply Chain Executors a year earlier. The IDS IT platform already offered opportunities for bundling flows of goods which made it easy for Mitsubishi to get on board. Nevertheless, it took until 2012 before the collaboration was actually up and running. Understandably, horizontal collaboration was not one of Mitsubishi’s top priorities directly after the Xantar acquisition.

The fact that the two companies know each other well, and that some people were even direct co-workers before the takeover, helps to create a basis of trust. Since DSM and Mitsubishi do not make precisely the same products they are not direct com-

petitors, but nor are there huge differences between their products either. Therefore they place great importance on respecting EU competition law, and clear agreements are in place about the information they are allowed to share with one another within that legislative framework. “Apart from that, trust is the most important prerequisite for collaboration of this kind. If just one of the companies involved no longer feels comfortable with the arrangement, it won’t last long,” comments Guns, who uses the term 5C (Chemical Cross Chain Control Centre) to describe their collaboration platform.

## Reducing the carbon footprint

IDS is completely in charge of managing the collaboration between DSM and Mitsubishi. Before the collaboration got underway, IDS ran a simulation to identify potential cost savings. The company then compared all customer delivery agreements and adapted them where necessary – naturally in consultation with DSM, Mitsubishi and the customers concerned. By asking clients if the agreed delivery frequency can be altered, time windows can be extended or if they can accept deliveries sooner, IDS gains more scope to combine DSM and Mitsubishi deliveries and hence reduce costs even further. All of the agreements are stored on the IDS IT platform. ➤

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The operation begins with DSM and Mitsubishi submitting their orders to the IDS platform. The orders are automatically uploaded, assigned to the most suitable transport company and then planned in, always taking account of the relevant delivery agreements. Shipments are only consolidated if they are assigned to the same carrier and if it is beneficial to do so. After delivery, IDS issues an invoice which shows the transportation costs and the savings generated by consolidation. “However, we have no insight into each other’s rates, so we don’t know what the other company’s saving is. We trust IDS to act in line with our own agreement and share the savings between us accordingly,” says Vis. Neither company is prepared to say exactly how much they save as a result of their collaboration. “But it’s a significant amount. And equally importantly: it’s also enabled us to considerably reduce our carbon footprint,” comments Guns. Vis agrees, adding: “The figures certainly make it worth our while. Don’t forget, our annual transport costs run into millions of euros.”

Both DSM and Mitsubishi are open to extending their collaboration to include a third shipper. “The more companies that are involved, the greater the efficiency gains and the greater the CO<sub>2</sub> reduction. We’re also exploring opportunities for internal collaboration with other DSM business units,” explains Vis, who also states that IDS plays a key role in the process as independent coordinator. “We have the advantage that our collaboration is already up and running, which makes it easier for a third party to join us. But it remains a challenge. It has to be based on trust.”

### Fair sharing mechanisms

Professor van Woensel also considers trust to be the most important prerequisite for horizontal collaboration. “That’s why these kinds of set-ups are so often initiated by people from different companies who already know each other well and who share the same ideals. Moreover, collaboration is often part of the corporate culture of the companies involved,” he explains.

One example of two companies that have

developed a relationship based on trust are Kuehne + Nagel and Nabuurs. Within the 4C4More project, both logistics service providers are exploring opportunities to collaborate by making deliveries on each other’s behalf. They have now reached the stage of putting the theory into practice. The first obstacle they face is the lack of intelligent tools and planning techniques for exchanging information and connecting their processes. Hence, Kuehne + Nagel and Nabuurs have enlisted the help of Ortec. “The lack of ICT support is never insurmountable, but it can sometimes cost time and money,” states Van Woensel.

A second obstacle is finding a suitable legal framework for the collaboration. Especially in the case of two direct competitors such as Kuehne + Nagel and Nabuurs, it is easy to arouse suspicion of cartel agreements. “This is not something that will cause the ultimate demise of a collaboration project, but you have to avoid getting caught up in endless discussions with the anti-monopoly authorities. In practice, that means keeping separate accounts and not having any insight into each other’s cost price calculations. There is of course a cost price associated with the delivery trips that Kuehne + Nagel and Nabuurs intend to exchange, but the amounts that they agree on between themselves do not need to reflect the amounts that they each charge to their customers.”

The third and largest obstacle is agreeing on how to split the cost benefits – and it is a topic that is being intensely studied by academia too. “The question is whether a sharing mechanism can always be fair. The easiest method is to give each company half of the savings. There’s a lot to be said for that approach, since both parties

are equally important to the partnership: if one of them drops out, there’s no more collaboration and hence no more cost benefits. But is a fifty-fifty sharing mechanism still fair if one company provides 80 percent of the trucks and the other company only 20? Sharing mechanisms could also be based on the volume or weight of goods transported by each company, or the number of kilometres or delivery trips saved. A collaboration project between two companies can easily generate 20 different sharing mechanism options.”

### Bundling in China

It is particularly difficult to devise a fair sharing mechanism when numerous collaboration partners are involved, as is the case for Modint, a Dutch fashion and textile industry association with around 750 members. Fifteen of them are involved in a Dinalog project called ‘Bundling at source location’ (i.e. China). “In this industry, logistics is very fragmented with everyone organising their own deliveries, even for transport to shops in town and city centres. The fashion chains have already consolidated their flows of goods and now tend to deliver to each store just once or maybe twice a week. However, independent shop owners often receive deliveries from 20 to 30 suppliers every week. There’s no coordination in that sector at all,” says Willem-Jan Drost from Modint.

The lack of coordination starts back in the Far East, primarily China, where most textile factories are located. “Shop owners have to sign up to a fashion collection months in advance, which means that 80 percent of garments are produced based on pre-orders. The goods are transported on huge container ships from Hong Kong

## UNFAMILIAR WITH THE 4C CONCEPT

A study by PricewaterhouseCoopers reveals that one in four of the logistics service providers surveyed has set up its own control tower or can make use of a third-party control tower. Conversely, three quarters do not have access to such a platform where freight flow information is collated and analysed and where decisions can be made about supply chain design. A control tower is an important part of the 4C concept. Notably, almost a third of logistics service providers do not see the benefit of the 4C concept. And almost a quarter are unfamiliar with the concept. In other words, Dinalog still has plenty of work to do.

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to Rotterdam, for instance, where the garments are divided into flows of goods per supplier. The suppliers then assign the relevant goods to each particular store – despite the fact that it was already clear which shop had ordered what before the items left China.”

Modint has worked with partners, including a number of logistics service providers, to develop a concept in which the freight flows are bundled at store level back in China. “First and foremost, that means lower costs because labour is cheaper there, especially if value-adding activities such as garment labelling are carried out there too. And the logistics benefits in The Netherlands are equally important: despite the fragmented approach to logistics, there is a fairly large overlap between customers and delivery times. The bundled consignments can be shipped from Rotterdam directly to the shops, without having to go to the suppliers’ DCs first. They pass straight into DHL’s distribution network,”

explains Drost.

## Market dynamics

To ensure the long-term success of the project, Modint is trying to get as many members as possible involved. That means investing lots of time in explaining it to them and lots of energy in helping them. “Our members tend to be fashion companies with limited interest in logistics. We literally have to take them by the hand and guide them through this project. It also has a knock-on effect on their logistics organisation. In the best-case scenario, the flow of goods through their own warehouse is reduced by 80 percent. The remaining 20 percent of goods are not suitable for this concept: primarily items from the basic product range that are kept in stock to replenish stores as needed.”

Another challenge relates to the IT platform that supports the bundling of the freight flows, which is why Eyefreight, a specialist in transport management solu-

tions, has been called in to help. “The platform is ready in principle and offers the chance for shipments to be consolidated at postcode level as well as at store level. That means that the same truck can make deliveries to several shops in the same street.”

It remains to be seen how the concept will ultimately be organised in practice. Currently, Eyefreight and DHL are closely involved in the project, but that does not mean that there is no room for other partners. On the contrary: “In theory, the concept is available for anyone who wants to make use of it – including other logistics service providers,” states Drost. He adds that no agreements have been made about how to share the cost benefits. “The large number of Modint members involved makes that almost impossible. The market will have to do its job here. Each fashion or textile supplier who wants to get involved will have to sign their own contracts with the logistics service providers. The concept enables them to offer lower rates than their competitors, and market dynamics should ensure that the savings are passed on accordingly.”

## Neutral entity

There is still no definitive answer to the question regarding who should run a cross chain control centre. It is unlikely that one of the participating shippers should be in charge, since that could compromise the trust of the other companies involved. “A separate entity is normally established for management purposes,” says Van Woensel. “One that is neutral and can step in if necessary, like a referee. A neutral company makes it easier for others to join without all the existing agreements having to be renegotiated.”

A neutral 4C company of that kind is not dissimilar from a fourth-party logistics service provider (4PL). Van Woensel: “Many logistics service providers are developing their own control tower activities. But the question is, how neutral are they? Are they prepared to outsource activities to other logistics service providers if they’re better equipped to perform certain tasks? That’s still a grey area.”

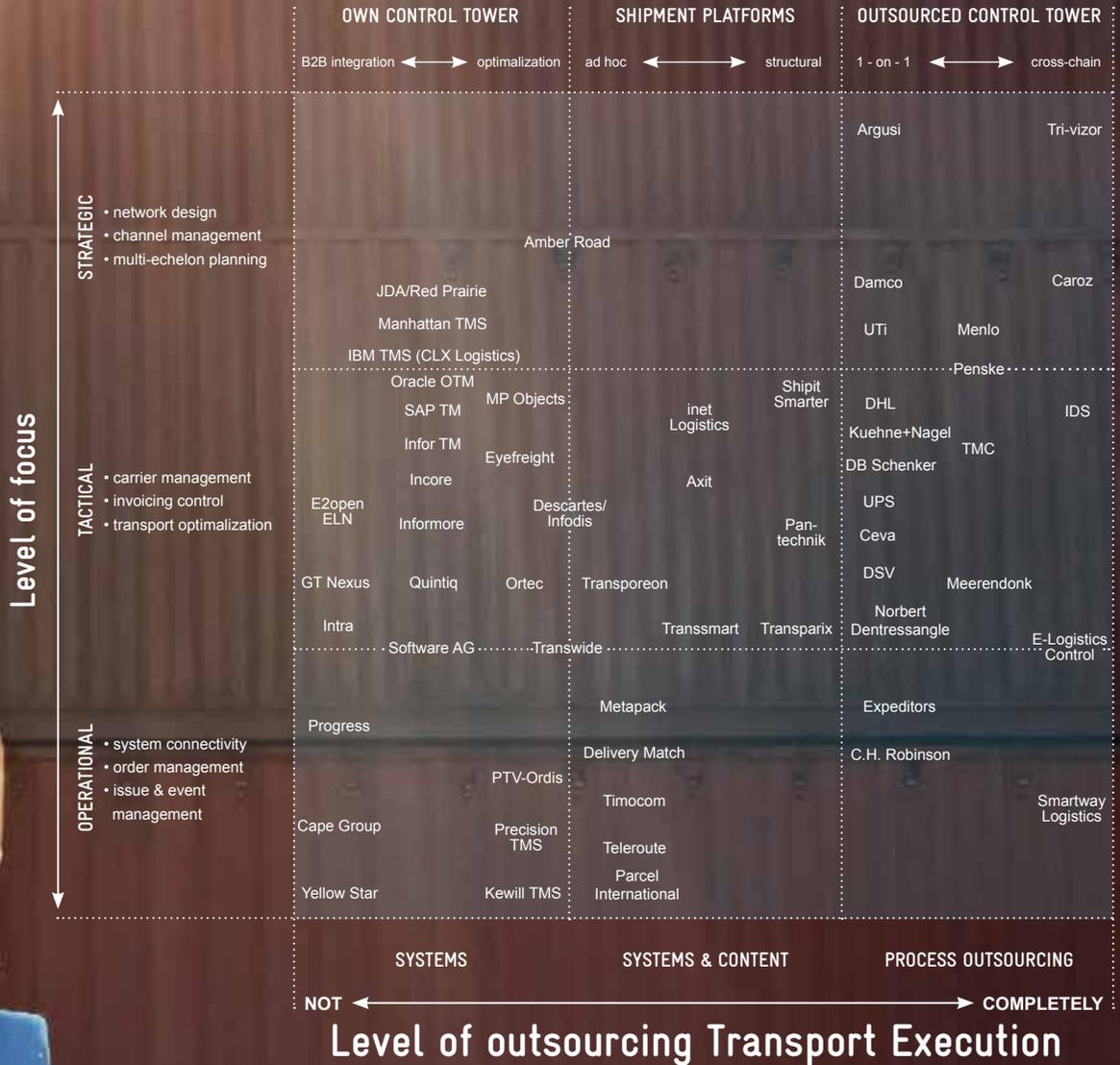
## REAL-TIME ALLOCATION OF ORDERS

Intelligent IT tools are an essential part of a control tower, first and foremost in order to create visibility. And that was the reason for the foundation of Eyefreight five years ago, which is nowadays used by internationally active companies including Heineken, Tata Steel, FloraHolland, Levi’s and Mango. “Outsourcing your transport exposes you to the risk of losing control. Shippers sometimes get a shock afterwards when they see how high their transport costs are. We offer a central platform that lets them see all transport costs. If a carrier invoices higher costs than applicable according to our platform’s calculations, the user receives an alert,” explains Ken Fleming, the new CEO of Eyefreight who has ambitious growth plans.

But Eyefreight does more than merely offer transparency. The platform uses the cleverest algorithms around to plan deliveries as efficiently as possible. Hence, Eyefreight goes a step further than most other transport planning specialists who regard transport orders as unchanging input. Such specialists work by coupling each customer to a location, whereby each order from that customer automatically generates a transport order from that location. They occasionally check whether all customers are still coupled to the right locations using average order profiles. The Eyefreight platform, on the other hand, uses intelligent algorithms which allocate each customer order to a relevant location in real time based on the latest stock levels. This can mean that a customer receives deliveries from one warehouse one week and from another the following week, if that is the most efficient approach. Heineken is just one of the companies actively using this functionality.

Eyefreight is currently involved in various 4C initiatives: in addition to the Modint project relating to bundling freight flows in China (see main article), the company is also involved in Hubways which is a joint initiative between the Dutch horticulture-sector associations VSV and VGB, flower auction FloraHolland and its chain partners. The project entails digital development and collaboration in the transport of fresh flowers to ‘futureproof’ services and to achieve more efficiency in the chain. Fleming: “The next step is horizontal collaboration. The technology is available – now the sector just needs to adopt it.”

# Transport Control Tower Solutions 1.1



Source: Supply Chain Movement (2013)

Many shippers are in the process of centralising their international transport due to increasing globalisation and the associated complexity of their supply chains. The question is, whether these companies intend to set up their own control tower for transport management or whether they are planning to outsource the activity. This matrix features a wide range of companies operating in The Netherlands in the field of transport execution & visibility.

The horizontal axis shows the extent to which transport management is outsourced. Companies can opt to implement systems themselves (left-hand side of the horizontal axis) or to outsource the activity to logistics service providers. In the middle are the platforms that enable shippers to arrange their own transport, aided by IT systems containing details of potential carriers and their rates. When outsourcing, companies can choose between logistics service providers who manage transport for each customer individually, and cross-chain orchestrators who do not have their own trucks and warehouses but instead bundle various shippers' freight flows.

The vertical axis of the matrix represents the company focus. The top-left corner shows major software suppliers such as SAP, Oracle and Manhattan who, in addition to having transport solutions which cover the lower levels, also have other strategic products in their portfolios.