

DUTCH LOGISTICS

FOR THE
21ST
CENTURY

18
INNOVATIONS
BROUGHT TO LIGHT
BY STUDENT
RESEARCH

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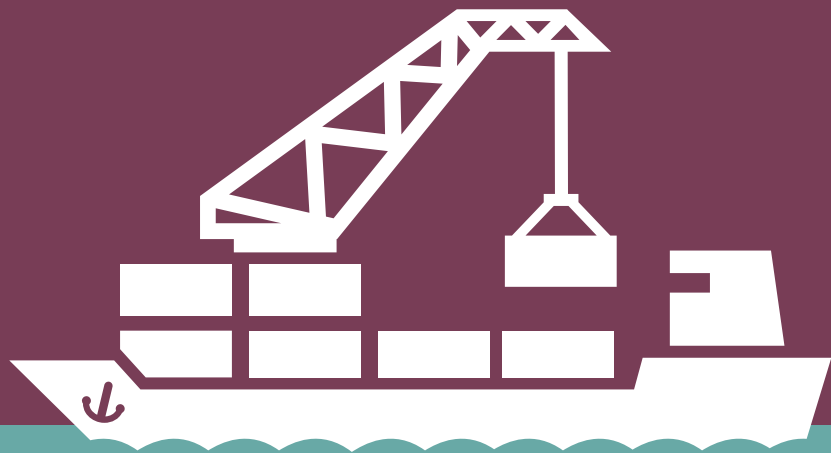
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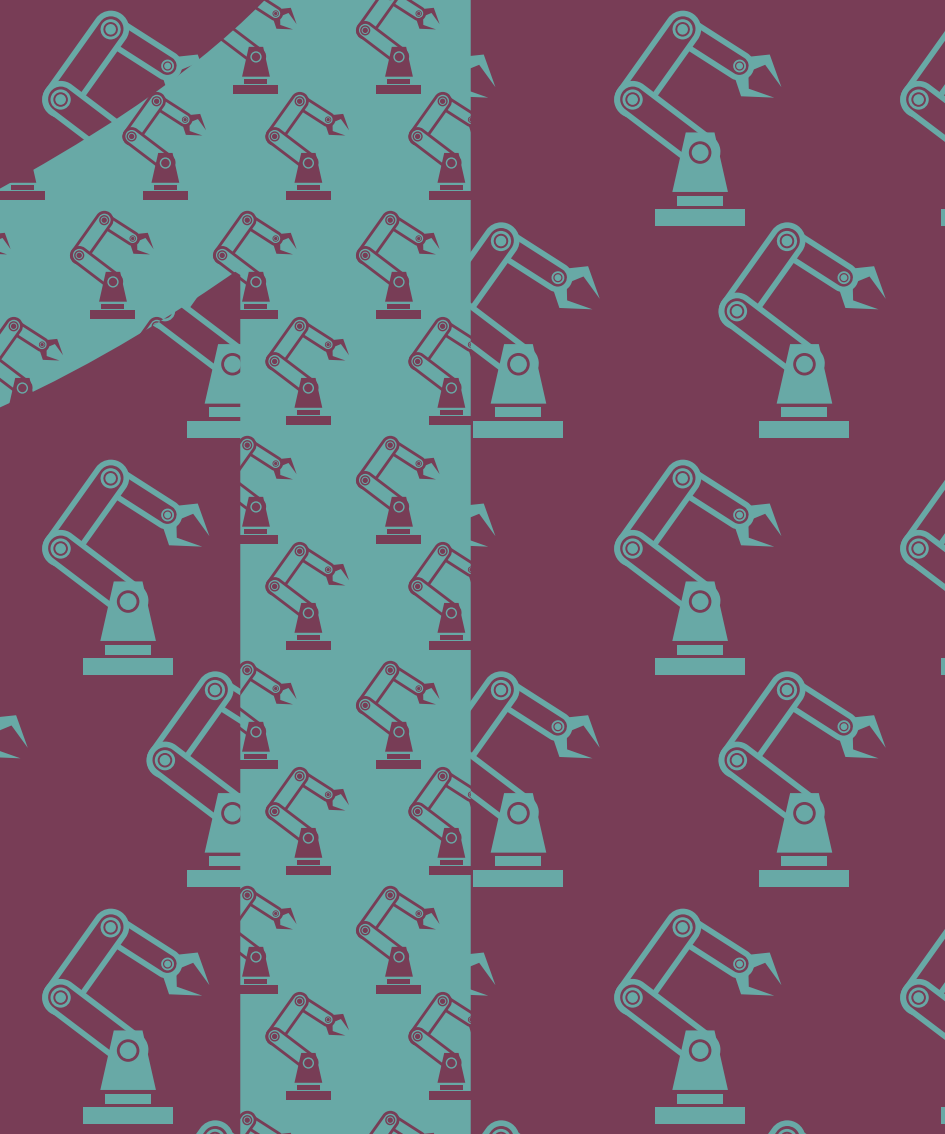
Logistics is often characterized as quite a conservative field. Especially the so-called small and medium-sized enterprises are often perceived as companies with outdated ways that provide interchangeable services of little value. This is not just the clichéd perspective of outsiders, it is also an image that pops up repeatedly in various top-down official reports comparing different sectors.

But students of the minor Airport-Seaport Logistics of the Amsterdam University of Applied Sciences took a more bottom-up approach. They dug deeper, searching for innovations in small and medium-sized enterprises connected with the three mainport locations of the Netherlands: Amsterdam Airport Schiphol and the Ports of Amsterdam and Rotterdam. Logistics is in fact quite an innovative field, the students maintained; you just have to look closer. This book shows some of the highlights of the innovations they encountered and presents a rare insight in a field that could do with a more innovative image. The book is not only meant to show off the field's chops; it's also meant to inspire other small and medium-sized enterprises in the field of logistics. You too can innovate!



SMART TRANSFERS

**A ROBOTIC ARM UNLOADING SEA CONTAINERS?
A BARGE WITH A CRANE ON IT? TRANSFERRING
GOODS CAN GET PRETTY FUTURISTIC NOWADAYS.**



SEA CONTAINERS: EASILY UNLOADED BY TEUN

Is TEUN an unusually strong guy? No he's a smart unmanned machine with a robotic arm.

RESEARCH BY: DENNIS WOLFFERS

Floor-loaded sea containers are usually unloaded by hand. This is costly, not very time-effective, and can be detrimental to the products being unloaded or the people unloading them. For this reason in many countries rules and regulations pertaining to physical labour and the maximum permissible load have become much stricter recently, causing real logistical problems for the companies involved. TEUN offers a solution to these problems by fully automating the unloading process. René van Glabbeek, proud originator of TEUN, says: 'We have made a mobile robot that can make intelligent decisions on how to pick up something. This has never been done before.' This robot is the piQR, a smart, unmanned machine. After receiving



a command and the dimensions of the products it has to unload, the pIQr enters the container, using its omni-directional wheel system. When it approaches the products, it will use its vision system to size up the products, scanning it until the 3D-scan matches the dimensions it is looking for.



Then it uses its 360 degree robotic arms to pick up an empty pallet, place it on the loading site and start filling it. When the first row of products is moved out of the container, the pIQr will drive itself further into the container and



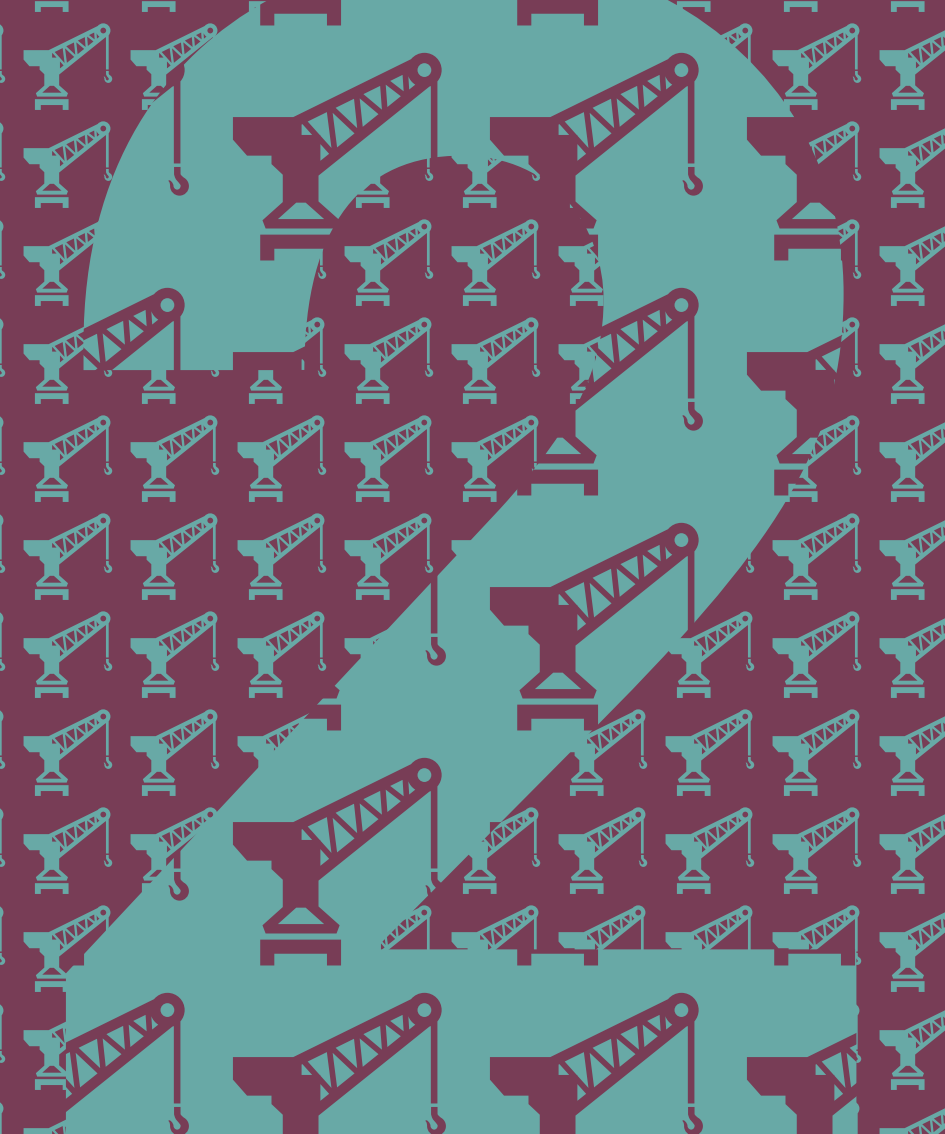
***WE HAVE MADE A MOBILE ROBOT
THAT CAN MAKE INTELLIGENT DECISIONS
ON HOW TO PICK UP SOMETHING***

IT USES 360 DEGREE ROBOTIC ARMS TO PICK UP AN EMPTY PALLET, PLACE IT ON THE LOADING SITE AND START FILLING IT

start the whole process again. When the pallet is full or the dimensions of the product are not correct, the pIQr will send a message to the forklift driver.

Apart from the pIQr, TEUN consists of a rolling conveyor that makes sure a full pallet gets pushed away from the loading site; a wrapper that can seal the full pallet and a label printer that provides this pallet with a label. Plus, there is the added benefit of being able to perform a number of logistic actions right away with little chance of errors: weighing, checking serial numbers and amounts, registering pallet locations, entering data, etc. The whole process is registered by cameras and can be watched in real time. The forklift driver is the only human needed in the process. Except when a container contains various products; then, someone has to keep an eye on the proceedings. Still, the benefits of TEUN are undeniable: it is time-effective, safe, lowers costs and reduces the chance of theft. Van Glabbeek: 'TEUN is my baby. Experts said it couldn't be done. Look who's laughing now.'

TEUN is produced by TEUN BV / a subsidiary of ErgoLog BV / 's-Hertogenbosch
www.teun.com / +31 (0) 886906900



AN AMSTERDAM CRANE VESSEL IN ROTTERDAM

Is it a ship?
Is it a crane?
No, it's a...

RESEARCH BY: MARIN BREMAN, JESSE NIENS, MARK OUD

Yes, the name is rather self-explanatory. A crane vessel is a barge with an onboard crane. A barge like that can be loaded and unloaded without the assistance of a terminal. It can place an incoming container on the premises of a receiving client without requiring a container crane on the quay. A crane vessel can also load and unload containers directly from or onto another barge. In recent years, Mercurius Shipping Group has introduced two of these ships. First came the Mercurius Amsterdam, in 2006. This barge has a maximum storage capacity of 144 TEU, a maximum crane reach of almost 30 meters from the centerline of the barge, and is able

A CRANE VESSEL IS IDEAL FOR SHORT DISTANCES WITH MANY HANDLING ACTIVITIES PER TIMEFRAME



WHAT IS A TEU?

TEU stands for Twenty feet Equivalent Unit. 1 TEU is a container measuring 20 by 8 feet, usually with a height of 5 feet. In the metric system, this translates to 6,10 m by 2,44 m by 2,59 m. The most widely used container is 40 feet, in other words 2 TEU.

to handle up to about 20 containers per hour. Three years later, in 2009, a second, even more advanced barge was added to the fleet. This barge, the Transferium, has a maximum storage capacity of about 164 TEU and is able to handle about 22 containers per hour. A third barge is on the drawing board, one that has a narrower width of just 9.6 meters. This barge would also be able to navigate on the narrower Class IV waterways.

A crane vessel is ideal for short

distances with many handling activities per timeframe, and less suited for long distance transport, because it is more expensive to build and operate than a regular barge. These barges originated in the Port of Amsterdam, the idea was to relieve the transportation routes between the port and the industrial area to the north of the city, the Zaanstreek. Unfortunately, it turned out that the available cargo volumes were too small to generate sufficient revenues for a regular service within the relatively small Amsterdam port arena. And that's why a ship named Mercurius Amsterdam is now mainly active in the Port of Rotterdam, where more workload is available. Container crane barges are able to significantly reduce truck movements in the port. In the year 2013 some 35.000 containers were shifted from the road to the inland waterways by means of these two container crane barges.

For most of the clients the reduction in transport costs is no longer the only reason to apply crane barges. The concept has proved to increase the reliability and operational performance at the client's premises. It is easier to plan for one large shipment of containers that arrive at once and can be unloaded during the morning, than to receive many individual trucks throughout the day.

The crane vessels are produced by Mercurius Shipping Group
www.mercurius-group.nl / +31 (0) 786195000

FOR MOST OF THE CLIENTS THE REDUCTION IN TRANSPORT COSTS IS NO LONGER THE ONLY REASON TO APPLY CRANE BARGES

	Mercurius-Amsterdam	Transferium
NO. OF TEU	144 TEU	164 TEU
MAX. CAP.	2.150 TON	2.400 TON
DIMENSIONS	85 X 11,55	96,50 X 11,50
CRANE CAP.	30 TONS / 30 MTR.	40 TONS / 30 MTR.
HANDLINGS	20 TEU P/H	22 TEU P/H
PROPULSION	2 X 860 HP	2 X 1.500 HP

KEY FACTS AND FIGURES ON THE TWO BARGES



FANCY WRAPS

WHEN TRANSPORTING GOODS, FOLDABLE PACKAGING SAVES TIME AND SPACE. WHETHER IT'S CARDBOARD BOXES, WIRE MESH CRATES OR ACTUAL SEA CONTAINERS.



THE CARDBOARD WITH COOLING ELEMENTS

A venerable rope company proves
you can cool goods with anything.

RESEARCH BY: RONALD VAN DEN BERG

TOPA started out almost 100 years ago as a company selling rope (Dutch: touw) and paper (Dutch: papier). Now it provides complete transport packaging solutions, including thermal packaging. One of their most innovative products is the 'Half PAG Pallet Shipper', a cardboard container that can be quickly and easily assembled around its cargo. It can be used to ship temperature sensitive products such as pharmaceutical bulk cargo, paint, fruit juice or chocolate by air.

A CARDBOARD CONTAINER THAT CAN BE QUICKLY AND EASILY ASSEMBLED AROUND ITS CARGO

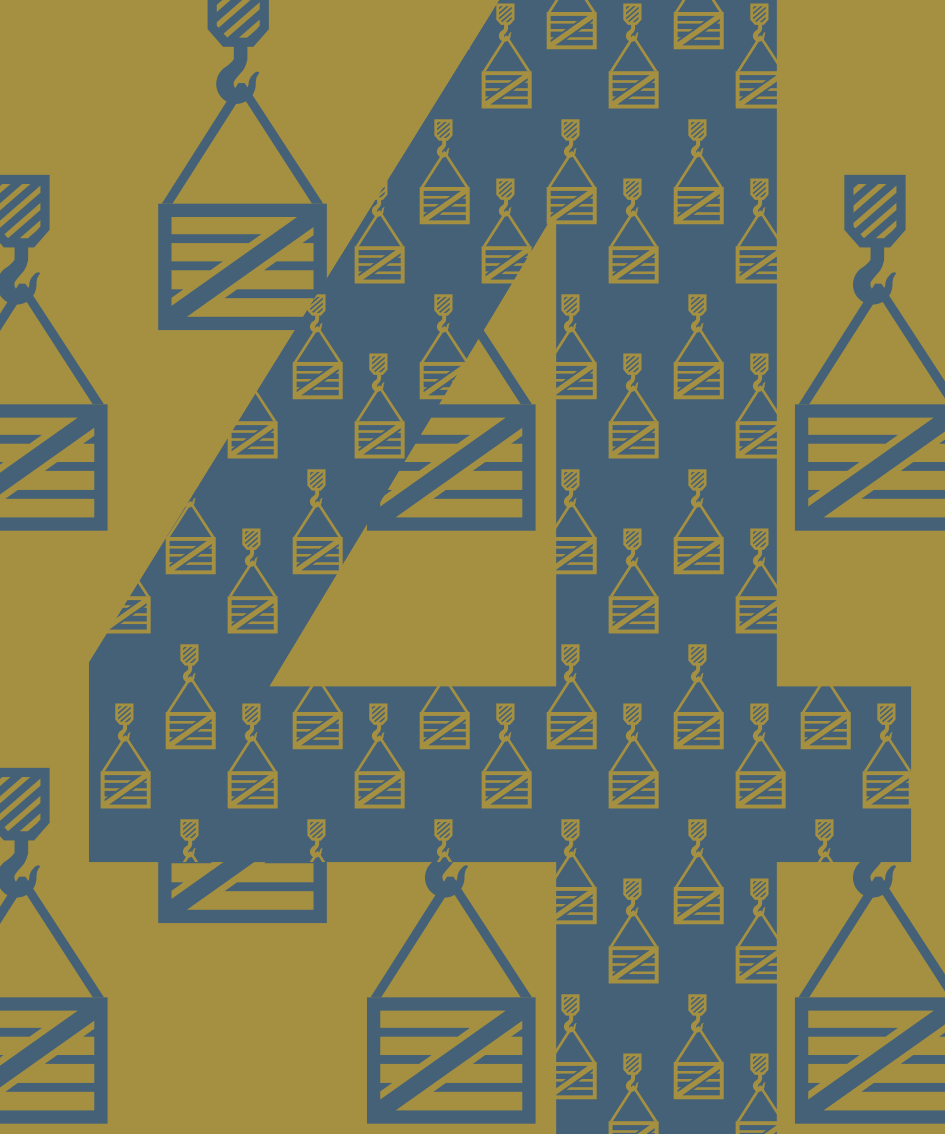
Cooling elements fitted in its cardboard 'sleeves' ensure the temperature of the content stays within certain boundary values. They also ensure the structural integrity of the container, providing a buffer between it and meltwater. Elements on the outer wall are frozen, while elements on the inner wall are cooled. This means the content doesn't freeze, while the cooling elements don't warm up too quickly. A widely used air cargo pallet is the PAG Pallet. The container is designed to fit half a 'PAG pallet' to the millimeter. The cold chain usually uses electrically cooled metal containers provided by cargo airlines. These are expensive, have to be booked in advance and have to be returned at some point. They also have limited destinations, because special handling equipment has to be available. The Half PAG Pallet Shipper comes hassle free. The cargo arrives safely and the receiving party just tosses the box, or even better, uses it again.

The Half PAG Pallet Shipper is produced by TOPA Thermal Packaging
www.topathermal.com / +31 (0) 252245200

ADVANTAGES OF THE HALF PAG PALLET SHIPPER

- The specific dimensions ensure maximum volume efficiency
- Can be loaded quicker than fixed wall containers because it's built around its cargo
- Can be loaded by untrained personnel
- Low cost price compared to alternatives because of its cheap materials
- Can be reused up to five times
- No return transport of empty containers is necessary
- Weighs 12 to 15 percent less than its competitors
- Ensures temperatures between 2°C and 8°C for 96 hours
- Can be ordered and delivered anywhere in the world within 24 hours
- Destination airport is no longer a limiting factor





THE COLLAPSIBLE BOX

A range of personalized collapsible boxes can reduce transportation costs by 25 percent.

RESEARCH BY: CARLO STEEMAN

When ColPac started out in the moving industry, the company quickly realized it needed a more efficient way to transport and store empty cargo containers. They came up with a collapsible box to replace the wooden moving crate. Nowadays this collapsible box comes in five varieties, all of them designed to help limit transportation and storage costs. Savings may amount to 25 percent of the original costs. The RoyalBox is the most popular container: a closed or wire mesh box suitable for road, rail and water transport. Other varieties include the KnightBox, suitable for transporting motorcycles, and the EarlBox, specially developed for inner city distribution.



THEY CAME UP WITH A COLLAPSIBLE BOX TO REPLACE THE WOODEN MOVING CRATE



Folded, the crates take up only 25 percent of their original space. 'Traditional cargo carriers are relatively cheap, but are often designed for single use. Our products have a higher purchase price, but last for a long time,' says managing director Eddy Megens. ColPac adapts every container according to the customer's wishes. They can have a volume of up to 15m³. Besides the dimensions, the load capacity, type of side-wall and the hinge mechanism can differ. A specialist can advise on the most suitable container type for each company. All products can be folded by one or two people at the most, without needing a crane or other tools.

**The RoyalBox is produced by ColPac Collapsible Containers BV / Eindhoven
www.colpac.nl / +31 (0) 612059260**



THE FOLDABLE CONTAINER

An old patent led to a prizewinning design that could change the world of sea freight.

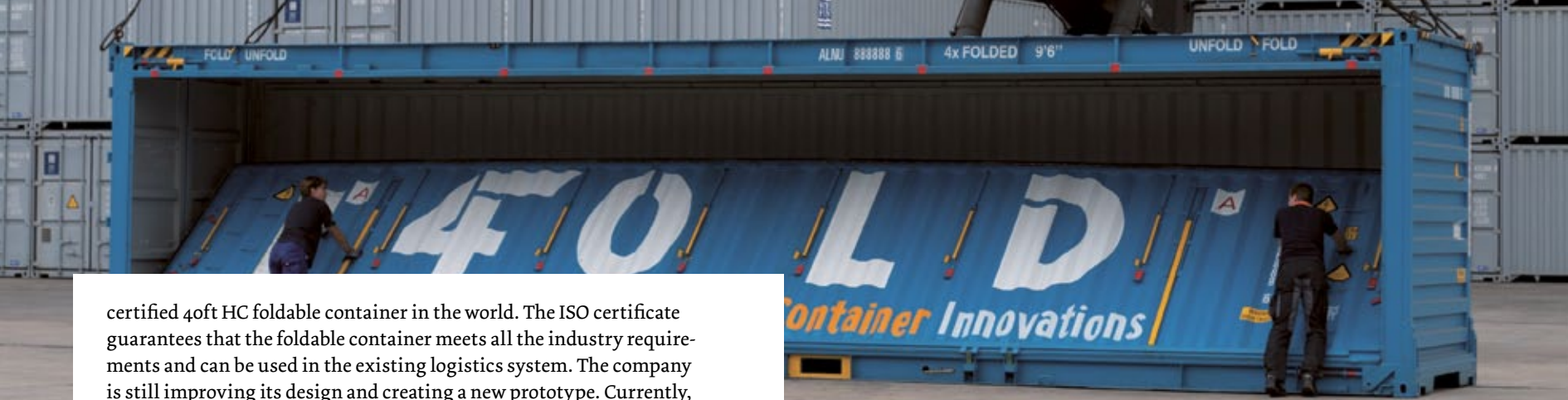
RESEARCH BY: MARCEL BLOM, TIM VAN DER SCHAAF, MARIN BREMAN

The container has never really changed since it was first conceived of in the fifties by Malcolm McLean. Until now. Holland Container Innovations (HCI) is a small Dutch business that was established in 2008 by a group of four students from the university of Delft (TU Delft). At this university they followed a course about the usability of old university patents. They developed a foldable forty-foot container based on a patent for a foldable box. It became a prizewinning design. With the prize money they managed to build a prototype that caught the attention of large shipping companies, who purchased a few models. Now HCI consists of three sales employees and four full-time engineers. HCI boasts the only ISO

ADVANTAGES OF THE FOLDABLE CONTAINER

- Less handling if the container is folded in the hinterland and transported in a stack of four
- A folded stack of four containers has the same weight as one loaded container. So it is possible to put the stack on the lower deck of a ship instead of on top
- Carrying empty folded containers on a ship is a cheaper way to go through the Panama Canal, because fees are based on the height of the stack on board
- Better use of capacity within barge transport
- Congestion reduction around harbors: currently, over 20 percent of containers at sea is empty, as well as 40 percent of containers in the European hinterland





certified 40ft HC foldable container in the world. The ISO certificate guarantees that the foldable container meets all the industry requirements and can be used in the existing logistics system. The company is still improving its design and creating a new prototype. Currently, the container can be folded in five minutes and weighs 5500 kilos. A folded container has only a fourth of the height of a normal container, which means a stack of four containers needs the same space as a normal container.

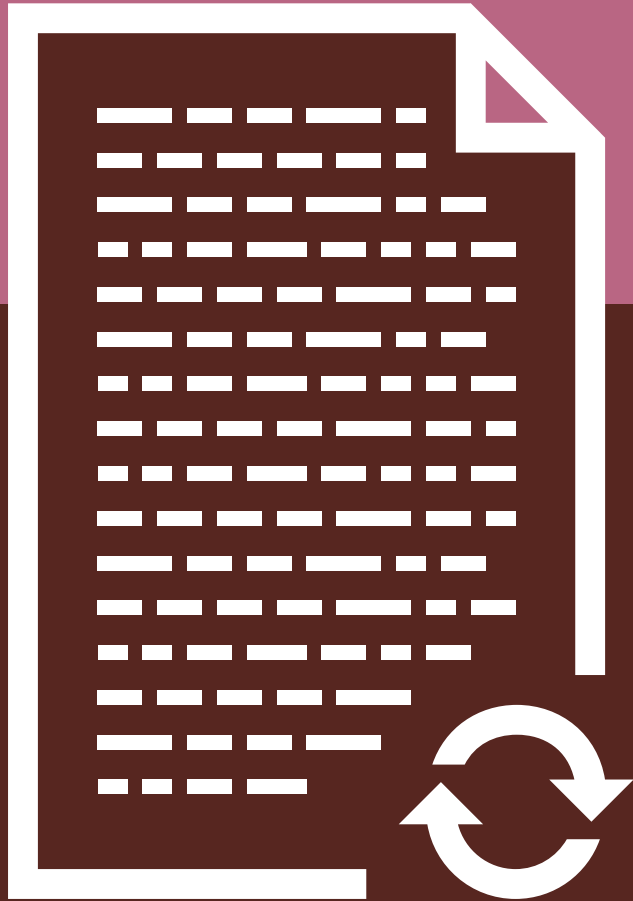
The container must be folded in the hinterland. This means more handling activities for the final user, but it only takes five minutes. Only time will tell if this type of container will become a widely used product. There must be a will to invest in foldable containers in order to have a positive effect on a large scale.

***CURRENTLY, THE CONTAINER CAN BE FOLDED
IN FIVE MINUTES AND WEIGHS 5500 KILOS***

IT'S A FOLDABLE FORTY-FOOT CONTAINER BASED ON A PATENT FOR A FOLDABLE BOX

HCI managed to educate several standard container manufacturers in China to build the 4FOLD foldable containers at their factory. Currently several batches have been built and are sailing around the world on three different shipping lines.

The foldable container is being developed by Holland Container Innovations / Delft
www.hcinnovations.nl / +31 (0) 615308239 / More information: www.4FOLDcontainers.com



DIGITISING THE PAPER TRAIL

DEALING WITH LOGISTICS MEANS DEALING WITH A LOT OF PAPER, A LOT OF SHIPPING DOCUMENTS, A LOT OF DATA. GOING DIGITAL CAN STREAMLINE THIS. SOME EXAMPLES.



TRANSPARENCY WITH THE MARGEMONITOR

When you provide many different services, calculating your costs can be difficult.

RESEARCH BY: T.F. KRAMER, S. DE BOER

As a medium-sized third party logistics provider, Hoekstra BV specializes in transporting fragile goods like glass, heaters and furniture but also provides their customers with a full logistics concept, from storage, value added logistics to 24 hour distribution in the Netherlands and Belgium. With such an array of services, it can be hard for a company to really calculate its costs. When Christien Lycklama à Nijeholt started out as Hoekstra's director in 2000 she noticed that the precise costs per customer and per package were unclear. She started looking for software to calculate these exact

THE CHALLENGE IS TO COMBINE ALL AVAILABLE INFORMATION, ESPECIALLY WHEN TRANSPORTING PARTIAL TRUCKLOADS FOR DIFFERENT CUSTOMERS

costs, but found that none existed. So, Hoekstra teamed up with some partners who had long wanted to develop such a program too – TransportCostConsult and UNIT4 – to develop such a program themselves. The Margemonitor was born. It took several years to implement this program, its quality needed to be determined. During the process the desires and the possibilities regarding the programme changed, which delayed the implementation phase. Hoekstra BV is the first company who used the programme, now UNIT4 sells it.

The margemonitor is based on the business intelligence tool Qlikview, which is able to determine the real costs of every customer, every package even.

Using several algorithms and combining all the available data, everything from the board computers in the trucks to the planning and accountancy departments, margemonitor shows the effect every customer has on the cashflow. Hoekstra BV now has insight in costs and revenues per customer, per region, and per order level.

Margemonitor also provides information about shipment sizes,



return loads and waiting times. The challenge most companies face is to combine all available information, especially when transporting partial truckloads for different customers – that makes it very complex to figure out what a customer should pay. With margemonitor, these variables are known which means the customer will pay a fair price for what they get.

Since the introduction of the margemonitor the returns per hour increased for Hoekstra but the system has also been advantageous for Hoekstra's customers since the margemonitor can provide them with important network information too. An example: Hoekstra noted that a customer had a high density network in and around Amsterdam. Hoekstra BV presented these results to their customer. As a result, the customer decided to open a shop in the Amsterdam region, that has become this company's best performing shop within a year!

The margemonitor was developed by Hoekstra BV / UNIT4 and TransportCostConsult for sale at UNIT 4 / Utrecht / www.unit4.nl / 088 247 1777



AN ADVENTURE IN AIR CARGO

eLink reduces handling activities and the need for paper, making this a cost-effective and sustainable solution for the air cargo paper trail.

RESEARCH BY: STIJN VAN SCHAGEN, PAUL SETTELS, REGINA BOSMA

In a day and age in which the air cargo industry is working hard to ban paper during freight transport, Schiphol started to think around 2010 – about a system that would make it easy to transfer cargo to different parties in the supply chain without needing documentation, and that would be compatible with paperless shipments. It resulted in eLink, a system that was developed by Schiphol group, Air Cargo Nederland, Schiphol Area development company (SDAC) and Cargonaut. eLink reuses data in a smart way, making sure all the relevant information about shipments, including the truck and the driver, is sent in advance to the next link in the chain. Only ‘green-



***THE EXTRA TRANSPARENCY WITHIN
THE CHAIN LEADS TO FEWER ERRORS***

lighted' shipments can go through, when a shipment is redlighted, something still needs to be done.

Collecting all the available data ensures clarity on which parties are unloading which type of freight at which moment. eLink also helps customs with their daily checks. The extra transparency within the chain (one system for all) leads to fewer errors, but also reduces handling activities and the need for paper, making this a cost-effective and sustainable solution.

In short, eLink ensures :

- Optimization of cargo handling at Schiphol airport
- Compliancy (online border control, advance planning of inspections)
- Efficiency in dealing with the shipment
- Efficiency in dealing with pre-existing data
- Efficiency in communicating online, linking different systems within the supply chain
- Paper reduction
- Transparency in the back office, resulting in fewer mismatches of shipments
- Lead time reduction for forwarders
- Insight in the real time status of a shipment (through the green and red lights)
- Prevention of administrative mistakes
- Sustainability through reduction of the carbon footprint

AFTER DOING SOME INITIAL RESEARCH, THE COMPANY HAD NINE EMPLOYEES FOCUS COMPLETELY ON TRANSITIONING

Since its introduction, eLink has been very successful and has caught the attention of some big parties. One of them is Rhenus Logistics, one of the largest airfreight forwarders in the Netherlands. Project manager Ronald de Reus says Rhenus Logistics implemented eLink because they saw it as an opportunity to shorten the lead-time, lower the costs and expand the overall durability. To be able to use eLink, Rhenus Logistics developed a standard process for employees and a web-based communication system. In cooperation with Cargonaut, cargo information is entered in this communication system. Implementing eLink is a long term investment. Rhenus Logistics finds that one unexpected return on this investment is the positive PR that it has brought. Rhenus Logistics regularly receives positive feedback from customers, airlines, ACN and the International Air Transport Association (IATA). Many even contact Rhenus Logistics for information and assistance on their own e-freight projects. 'These companies can contact everybody in the world, but instead, they contact Rhenus Logistics,' de Reus says happily. Many medium and small-sized enterprises have also implemented eLink. Among them is Aerocar, a company that started out importing

car- and aircraft parts in Sweden. Nowadays, Aerocar is a subsidiary of DP/DHL, focusing on the transport of tools, machinery parts and medicines. Its Schiphol branch has been in operation for thirty years. The company has been an early and enthusiastic adopter. Aerocar is responsible for more than 25 percent of the ca. 1000 shipments that are dispatched with e-Link each month. How did this come about? After doing some initial research, the company had nine employees focus completely on transitioning. The first thing they did was run two test flights. It transpired that the systems between the two companies (Aerocar and Cargonaut) were not corresponding as well as they should have done. So Aerocar configured a special e-mail communication system and had its IT-department develop systems which enabled eLink. The most positive effect of eLink at Aerocar is the reduction in paper use: Aerocar saves 75 per cent per shipment. Before, at least 25 paper documents were needed for one shipment, now only 6.

**eLink is offered by Cargonaut Nederland BV, Schiphol / www.cargonaut.nl
+31 (0) 20 6530204 / eLink is used by (among others) Rhenus Logistics BV, Schiphol
www.nl.rhenus.com / +31 (0)20 316 5555, and Aerocar B.V Nieuw-Vennep
www.aerocar.nl / +31 (0) 252 361300**



SUPPLY CHAIN SECURITY

**YOU MAY NOT OWN THE GOODS YOU TRANSPORT,
BUT YOUR LIVELIHOOD STILL DEPENDS ON THEM.
BETTER INSURE THEM, AND SECURE THAT TRANSPORT!**



SECURED TRANSPORT

GPS-trackers inside boxes can trace valuable products once they're stolen.

RESEARCH BY: SANDER BLEEKER

Renting special protected vehicles for the transportation of high quality goods can be expensive. CTS Group, a company in Nieuw-Vennep specializing in road transport throughout Europe, offers an affordable solution for the protection of these goods: Secured supply chain distribution.

How? With GPRS. A small GPS-tracker is hidden inside a box of valuable products. Usually the transport sector uses black boxes to monitor transport and protect against theft. But while a black box is

useful in localising a trailer, that trailer, once found, will often be empty; the goods will have vanished, untraceable. With GPRS, criminals who steal pallets or boxes can be traced. While this can also be done with radio-frequency identification-tags, GPRS has a longer range and criminals can easily remove RFID-tags. With GPRS, the goods can be traced across Europe.

Secured supply chain distribution is available at CTS-group / Nieuw-Venep
www.ctsgroup.nl / +31 (0) 252628900



A SMALL GPS-TRACKER IS HIDDEN INSIDE A BOX OF VALUABLE PRODUCTS





MULTILINE: ALL-IN-ONE INSURANCE

Insuring transport and storage
throughout the supply chain
with just one policy.

RESEARCH: MICHAEL SIEVAL, FRÉDÉRIQUE VERHAGEN

Usually, insurance products for logistics companies fall in three distinct categories: fire, liability and transportation. These categories don't mix. But insurance broker Mandema and Partners has broken down the virtual wall between fire and transportation insurance to develop a whole new hybrid insurance product: Multi-Line insurance is created by collaboration between two departments of risk insurances: fire and transport. This means clients can insure

THIS INSURANCE BROKER HAS BROKEN DOWN THE VIRTUAL WALL BETWEEN FIRE AND TRANSPORTATION INSURANCE

transport and storage throughout the supply chain with just one custom-made insurance policy. The two departments work together to set up a MultiLine for a client. First, Mandema and the client map out the client's current supply chain. Then Mandema analyses the supply chain and determines the risks. Mandema will then issue a report advising the client on the possible risks and the best way to set-up a MultiLine insurance. The client can decide for himself.

MultiLine is multi-advantageous:

It's all-in-one: the complete logistical process is insured into one package.

It's cheaper: the premium is significantly lower than when you pay for two separate insurances, you are not needlessly paying for overlapping insurances, you will save 21 percent direct insurance tax and other insurance companies are able to give premium discounts because the whole transport is insured.

It's faster: because there is only one policy, your insurance providers will not argue amongst themselves about paying for the damage.

It's post-pay: pay only after the damage occurred and not advance through the premium.

Use own risk: the own risk is capped at the average cost of claims per year.

MultiLine insurance is offered by Mandema & Partners / The Hague
www.mandema.nl / +31 (0) 703022222





WATCHING FLOWERS

INTERVIEW WITH FLOWERWATCH'S
JEROEN VAN DER HULST



FLOWER SUPPLY CHAIN

DESIGNER DREAMS OF SEA ROUTE:

MOMBASA- AMSTERDAM

Flowerwatch's Jeroen van der Hulst created his own job: supply chain designer. Based in Amsterdam and now Nairobi too, he studies full flower supply chains and figures out how to improve them. He dreams of a regular shipping line between Amsterdam and Mombasa.

RESEARCH BY: ROBERTO OOSTERWOLDE

When Jeroen van der Hulst was working as an auction master at Greenport Aalsmeer, back in 2003, he often noticed the huge differences in price between very similar flowers, grown on very similar farms in Kenya. 'A difference of two cents per flower



IT INSERTS CHIPS IN PALLETS AND CONTAINERS TO BE ABLE TO MONITOR THE AIR TEMPERATURE OF THE FLOWERS DURING AIR OR SEA TRANSPORT

doesn't seem like much,' he says, 'but when you're talking about a million flowers per farm per week, it adds up.' Once Van der Hulst had done the math, he couldn't stop thinking about ideas to bring those price differences down. He realised he had to look at the whole supply chain to see where things could be improved. And that's when he started Flowerwatch, basically creating his own profession: supply chain designer.

INTEGRAL APPROACH

Flowerwatch monitors floricultural supply chains from the moment the flowers are cultivated till the moment they arrive at a florist. The

company analyses supply chains, measures temperatures, audits facilities and processes and tests the vase life of flowers, in short, it does everything to find out how its customers – both retailers in Europe and flower farmers in Europe, East Africa and South America – can make their supply chain more efficient. Flowerwatch takes an integral approach: it looks at temperature, hygiene, transport options, packaging, cool chain management technology and finance, and it can train personnel. This integral approach is highly innovative. 'The focus on the whole chain is what makes us unique,' Van der Hulst explains.

VASE LIFE

For him, knowledge, generally underestimated within the supply chain, is key. That's why the company has its own lab in the Amsterdam metropolitan area, where it uses the newest technology to study flower quality and vase life and to research new transport and storage methods and treatments for the flowers. Van der Hulst, who has a background in lab technology, tests 1000 bouquets a month, monitoring them daily with camera's. What does he look at? Their reactions to lighting, humidity conditions and temperature, and sustainability. Then he provides 'quality reports' and 'vase life reports', rating and commenting on the quality and vase life of the flowers the farmers grow, and advises these farmers how they can improve them. In this way, Flowerwatch is constantly spreading knowledge among his customers. He advises farmers and retailers, freight forwarders, trucking companies and airlines, thereby improving the transport of 3,5 million flowers a day. That's quite a bunch.

DITCH THE BUCKETS

Flowerwatch is big on technology too. It inserts chips in pallets and containers to be able to monitor the air temperature of the flowers during air or sea transport; temperature is a vital aspect of preserving the flowers' longevity. 'In the first phase of our company, between 2003 and 2009, we were just fixing the holes in the system. Now we have a few customers where we really know the supply chain inside and out, and have covered all the risks. So now we're entering a new phase with them. It turns out flowers aren't as perishable as you'd think. Flowers used to be transported in buckets of water to keep them from wilting, which happens when water evaporates from the leaves. But with better cooling and packaging, you can prevent flowers from losing water, which means you can ditch the buckets



'I REALLY HOPE SOMEONE READS THIS AND THINKS: A DIRECT LINE BETWEEN MOMBASA AND AMSTERDAM? SURE, I'LL MAKE THAT HAPPEN, GET THAT SHIP IN THE WATER.'

and transport the flowers dry in a box, resulting in a 500 percent higher pack rate. This means that truck only has to make three of four trips a week instead of fifteen. And that is really awesome.'

INTERCONTINENTAL AWESOMENESS

Nowadays, Van der Hulst has gone intercontinental with his awesomeness: in addition to his Amsterdam office, where he employs eight people, he has opened an office in Nairobi, Kenya, with three local employees whom he educates personally. This office, too, will have its own lab. 'I haven't told my family yet,' he says jokingly, but yes, he plans to relocate to Kenya for the next few years, while keeping his Amsterdam office. The flower supply chain runs between East Africa and the Netherlands, so it makes sense to branch out to the end of the supply chain where most of the clients are, and where improvements can still be made. 'Before, we would fly in every eight weeks to see how our suggested changes were working out. Now we can check within a week. That means better results.'

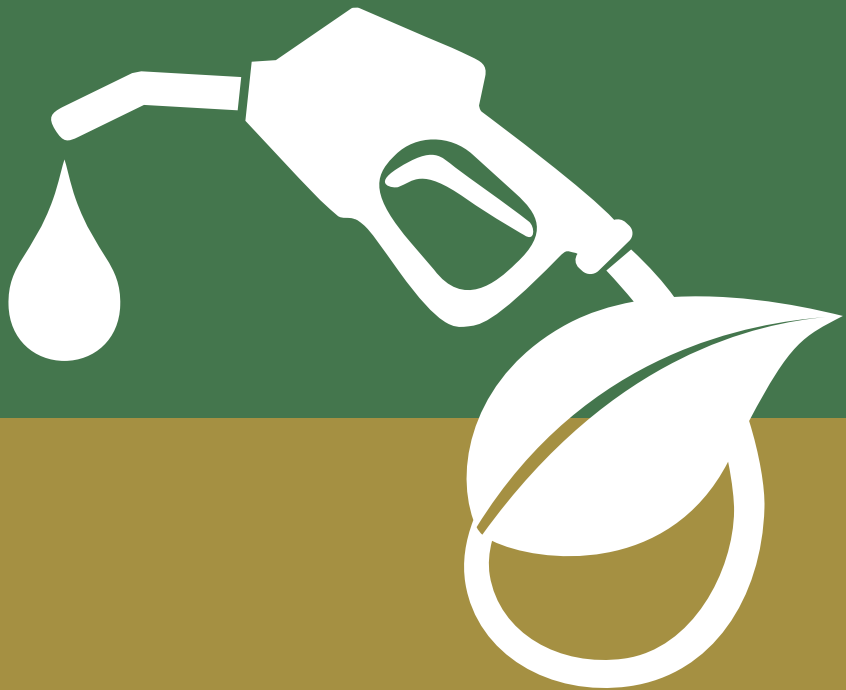
BOYHOOD DREAM

Van der Hulst's clients appreciate his services. 'At the flower fair in Nairobi I noticed wholesalers ask each other whether they worked with Flowerwatch. If the answer was yes, the deal was made. I am able to provide a service that makes our clients more successful. That's something I'm proud of and grateful for.' And being his own boss suits Van der Hulst too, who confesses to being a bit of a smart Aleck. 'When I was nine, I wrote a school essay about what I wanted to be when I grow up: a farmer in New Zealand. Now I'm almost forty and I'm going to work with flowers in Kenya. I guess you could say it's a boyhood dream come true.'

BEAUTIFUL THINGS

But Van der Hulst has more dreams for the future and they involve another boyish fantasy: seafaring. 'Right now we are heavily involved in the development of flower transport by ship rather than by plane. We're testing new packaging, new kinds of flowers to see if they can survive the sea voyage.' The tests are all positive. In fact, there is only one thing that currently prevents this fantasy from becoming reality: ships don't run between Mombasa and Amsterdam. There is no regular service. Van der Hulst thinks there really should be: 'We have a great airport in Amsterdam. Now it's time to start developing the seaport. Then, beautiful things can happen. So I really hope someone reads this and thinks: A direct line between Mombasa and Amsterdam? Sure, I'll make that happen, get that ship in the water.'

Flowerwatch / Roelofarendsveen / www.flowerwatch.nl / +31 (0) 713319058



GOING GREEN ON THE ROAD

FOR LOGISTICS SERVICE PROVIDERS REDUCING THEIR USE OF FOSSIL FUELS MAKES NOT ONLY ENVIRONMENTAL, BUT ALSO FINANCIAL SENSE. HOW TO GO ABOUT IT? THREE COMPANIES, THREE DIFFERENT SOLUTIONS.



THE DOUBLE-DECK TRAILER

Dobbe's green fleet transports
30 percent more.

RESEARCH BY: MARK OUD, JESSE NIENS

Dobbe Transport is a company in Roelofarendsveen, near Amsterdam Airport Schiphol, specializing in transportation and warehousing. It caters to a wide variety of sectors and strives to achieve maximum sustainability. To achieve this, Dobbe Transport uses a so-called 'green fleet'. Half of their trucks are fitted with a Euro 5 EEV engine, as well as all of the trucks used for urban distribution. In 2010, Dobbe Transport was the first logistics service provider in the Netherlands to start using double-deck trailers: centre-axle trail-



DOBBE TRANSPORT WAS THE FIRST LOGISTICS SERVICE PROVIDER IN THE NETHERLANDS TO START USING DOUBLE-DECK TRAILERS

ers equipped with a double layer, that are linked to a rigid vehicle. By using a double floor, the total volume of a trailer can be increased by 30 percent. Dobbe Transport developed and produced the double-deck trailer themselves, in cooperation with Burgers Carrosserie from Aalsmeer.

This has been a great success as the total cargo volume, compared to a regular trailer, has increased by 40 percent. Since the loading time for a double-deck trailer increases by 50 percent, the trailer is most suitable for long distance routes. But the trailer does allow the company to transport 30 percent more volume compared to transporters using conventional trailers, which results in a 30 percent decrease of CO₂-emissions.

The double-deck trailer is produced by Dobbe transport / Roelofarendsveen
www.dobbetransport.nl / +31 (0) 713312974



THE LONG AND HEAVY VEHICLE

Yes it's huge, but so are the rewards.

RESEARCH BY: ISAAC NOOTER

Tracon Trailers is the first company in the Netherlands to develop and sell LHV-trucks, especially useful for transporting bigger and lighter loads. These trucks are available in standard sizes but can also be custom-made. Tracon also has a large depot of spare parts, which is unique in Europe.

The maximum weight of a LHV is 60 ton (truck and cargo), whereas a normal truck is allowed to weigh 50 ton. In a LHV there is a maximum volume of around 146 m³. The engine has to be at least 5 Kw per ton – needless to say there are a lot of rules and regulations surrounding



***TRACON ALSO HAS A LARGE DEPOT OF
SPARE PARTS, WHICH IS UNIQUE IN EUROPE***



THE CHASSIS OF THE TRAILER IS ABLE TO BEND BACKWARDS

these trucks. Residential areas and city centers are out of bounds. Some significant investments have to be made: the drivers need to get additional certificates to be allowed to drive these LHV's. The trucks itself are more expensive than regular trucks. Some other modifications have to be made too, like larger loading blocks. Software has to be modified for the increased load of cargo and the requirements for maximum weight. But you reach break-even point quickly and the rewards are great, because you can carry much more cargo than with a normal truck. Tracons newest product is the mega-combitrain. The chassis of the trailer is able to bend backwards, allowing clients to connect a normal trailer to the system. That way, a client is not forced to invest in a whole new LHV but can simply buy some parts of the concept. Tracon has also developed the only trailer configurator in Europe: it enables customers to choose their preferred models and add all the options they want to assemble their own personal trailer.

The trailers are produced by Tracon Ecocombi / Giessen
www.tracontrailers.nl / +31 (0) 138712900



THE GREEN GAS TRUCK

A definite business case
for sustainability.

RESEARCH BY: THOMAS KOOPMANSCHAP, JESPER VAN TOL.

De Rooy is a family company that started out distributing fruit and vegetables to locals. Now it is an international distributor with almost 100 employees and a total of 50 trucks. Five years ago, the company made a conscious decision to become more sustainable. Since then, de Rooy have installed solar panels on the rooftop of their 1200 m² warehouse, purchased eight green gas vehicles and is at this very moment building an electric truck, the first one in the Netherlands. De Rooy also has its own ‘Transport forest’. This is

GOING GREEN MEANS GRANTS, PUBLICITY AND, MOST IMPORTANTLY, NEW CLIENTS!

a piece of land that the company uses to compensate for the CO₂-emissions they produce with their 'normal' trucks. De Rooy made the list of the top 100 innovative companies in Holland, landing at 85th place with their green gas truck. Implementing these trucks was not easy - the company had to add a gas pump to its own petrol station, among other adjustments - but the benefits of driving with a green gas truck are huge:

- 50 percent noise reduction
- 90 percent reduction in soot emission
- 45 percent reduction in NO₂-emissions (nitrogen dioxide)
- 20 percent reduction in CO₂- emissions (carbon dioxide)

And of course , the value of having a green image is incalculable. De Rooij knows this, making a point of using the trucks close to home, for city logistics projects in Houten and Utrecht. An example of how having a green image can pay off: the trucks have access to the bus lane in Utrecht. Going green means grants, publicity and, most importantly, new clients!

De Rooy transport / Houten / www.derooijtransport.nl / +31 (0) 306346777

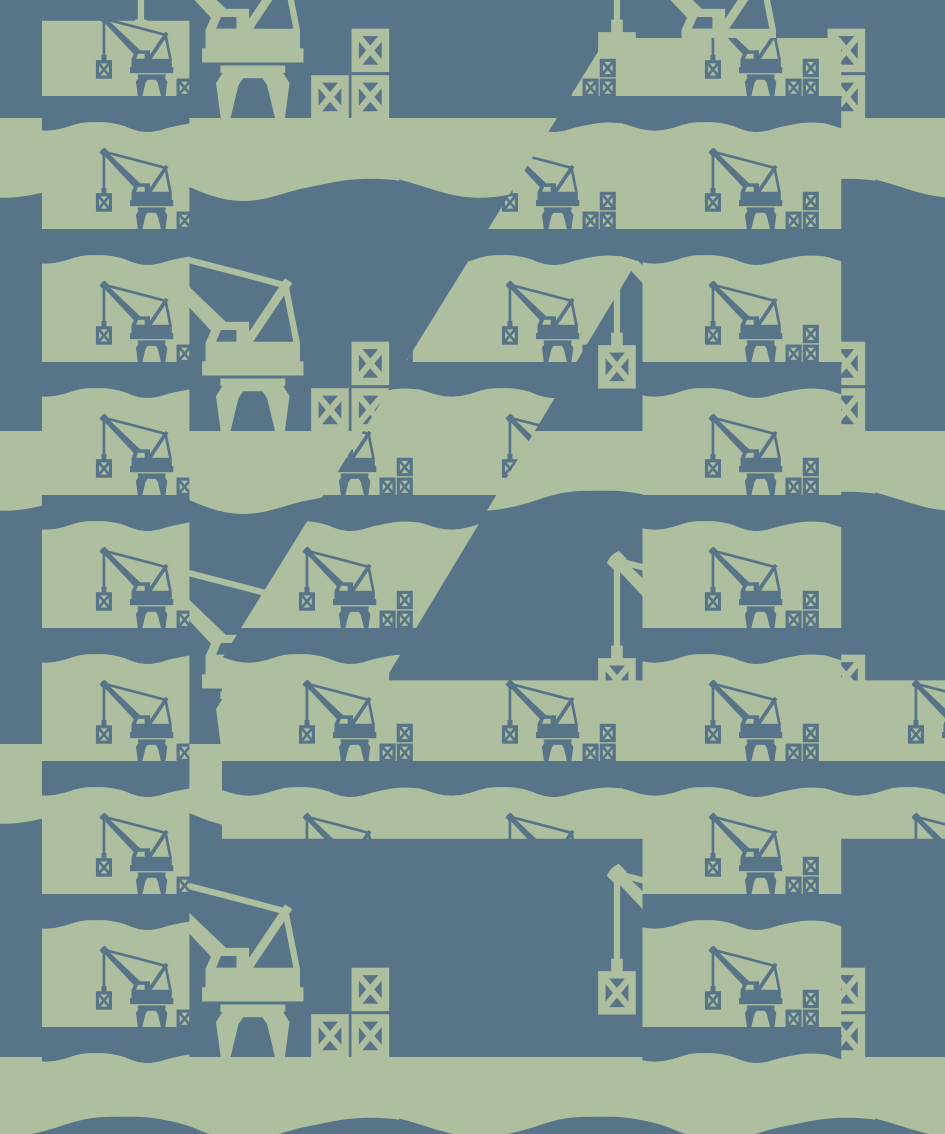
DE ROOY ALSO HAS ITS OWN 'TRANSPORT FOREST'





GOING OFF-ROAD

MULTI-, EVEN SYNCHROMODAL TRANSPORT IS ALL THE RAGE. THESE COMPANIES HAVE BEEN EXPLORING ALTERNATIVES TO REGULAR ROAD TRANSPORT.



GATEWAY TO EUROPE

European Gateway Services connects deep-sea terminals in Rotterdam with inland terminals.

RESEARCH BY: MARK OUD, JESSE NIENS, MARIN BREMAN

Europe Container Terminals (ECT) handles more than 7.000.000 TEU's per year in the Port of Rotterdam, across three different terminals. In 2010 ECT launched a new concept called European Gateway Services (EGS). This concept connected deep-sea terminals in Rotterdam with inland terminals (both rail and barge) in the Netherlands, Belgium, Germany, France, Switzerland and Austria. Through more environmentally friendly transport, the Port of Rotterdam is connected to nineteen inland terminals, which function as extended gates.

*THROUGH THIS ENVIRONMENTALLY FRIENDLY
FORM OF TRANSPORT, THE PORT OF ROTTERDAM
IS CONNECTED TO NINETEEN INLAND TERMINALS*

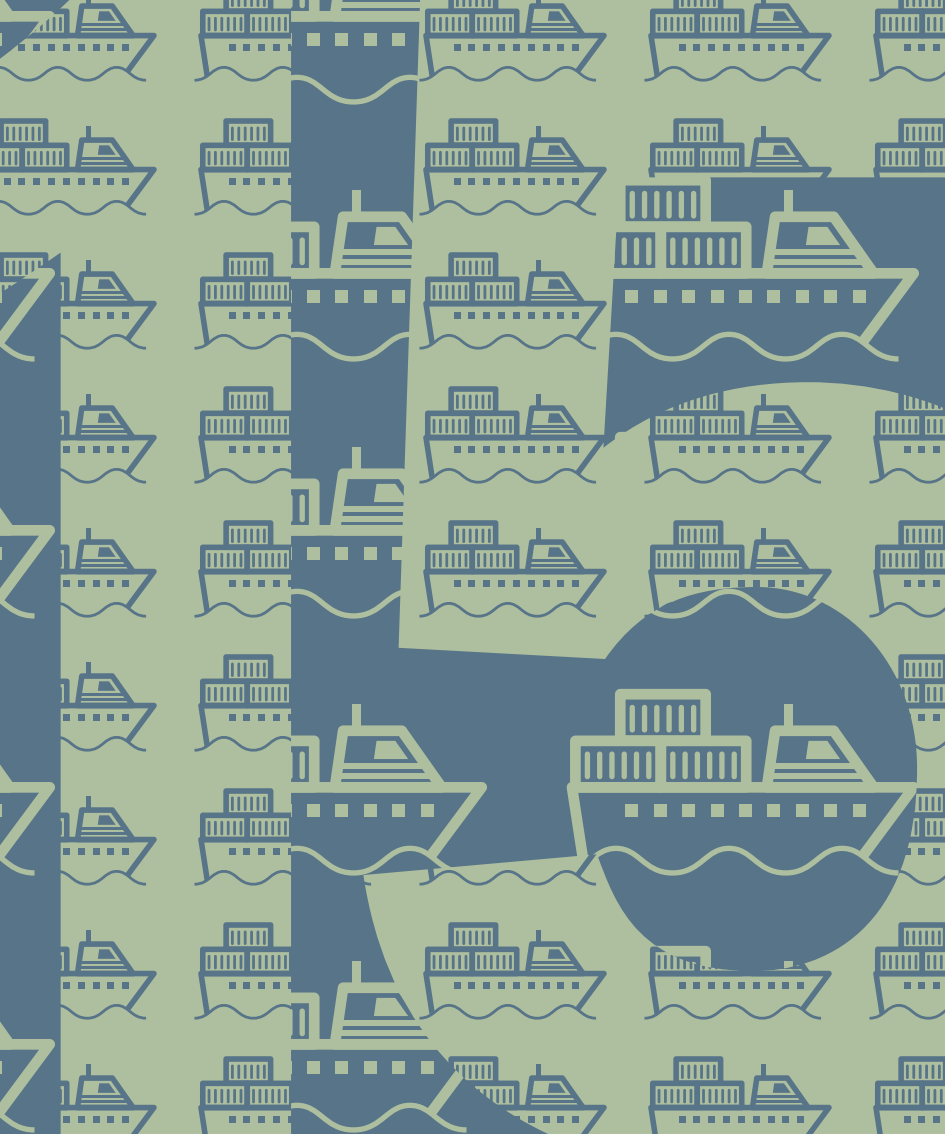


*EGS WILL DOUBTLESS PLAY AN IMPORTANT
ROLE IN GREEN AND SUSTAINABLE CONTAINER
TRANSSHIPMENT IN THE FUTURE.*

Large but also small and medium-sized enterprises benefit from ECT's network and vice versa; reputable partners maintain the highly frequent rail- and barge connections between ECT's deep-sea terminals in Rotterdam and the extended gates. Most of these partners are small and medium-sized enterprises, such as Danser Container Line, a barge operator specialized in transport of containers over the European inland waterways.

In 2013, ECT was rewarded the Lean and Green Star award (in 2010 ECT already won it for – among other things – European Gateway Services. Lean & Green is a nationwide initiative focusing on reducing the carbon footprint of logistics activities. EGS helps ECT reduce its CO₂-emission, and will also help change the modal split of inland container movements and keep the Dutch roads accessible. EGS will doubtless play an important role in green and sustainable container transshipment in the future.

European Gateway Services (www.egs.nl) is an affiliate of Europe Container Terminals / Rotterdam / www.ect.nl / +31 (0) 181278278



A FRESH CORRIDOR OVER WATER

Five brave fruit importers decided the time was ripe for barge transportation.

Wayz advises and supports shippers and transporters in order to optimize the logistics process. One of its projects is 'Coolport Shuttles Region Rotterdam'. This project aims to reduce road transport and increase the use of barge transport, to reduce road congestion and CO₂-emissions.

It was masterminded by Fresh Corridor, a cooperation between fruit and vegetable trading platform Frugi Venta and the Port of Rotterdam, in order to optimize the supply chain of fresh goods. Fresh Cor-

ridor had approached nine fruit importers to discuss possibilities for barge transport. Bakker Barendrecht, De Jong Coldstores, Hillfresh, Hispa Fruit & Vegetables and Olympic Fruit decided to participate in this project, aware of the importance of innovating in view of future laws for reducing road transportation and the completion of the second 'Maasvlakte'.

Before, each party importing fruit and vegetables would organize its own trucking companies to transport the goods from the sea terminal in Rotterdam to a trading centre in Barendrecht. Wayz took over this link in the supply chain. Now, transport companies Danser, Groenenboom Containertransferium Ridderkerk, Post-Kogeko, PVL, Kamps and Visbeen transport inbound fruit- and vegetable containers by barge for the first 40 kilometers of this route (to Ridderkerk). The remaining 10 kilometers to Barendrecht are traversed by truck. They have been doing this since February 2012.

Speed and proper planning are key factors for the success of Coolport Shuttle. Wayz' task is to organize all this. The importers provide information about arrival times of containers and Wayz subsequently warns Danser and Groenenboom, which ensure the containers arrive at Ridderkerk and inform Wayz of the actual arrival of the containers. Then, Wayz makes sure one of Post-Kogeko's, PVL's, Kamp's or Visbeen's trucks is ready for loading at Ridderkerk to bridge the last 10 kilometers. Finally, Wayz will contact the importer about the arrival of the truck, so measures for unloading can be taken.

En-route, delays can occur, due to handling at the sea terminal and weather conditions. Therefore, it is essential that Wayz can offer flex-



***SPEED AND PROPER PLANNING ARE KEY FACTORS
FOR THE SUCCESS OF COOLPORT SHUTTLE***



THE RATE FOR THE SERVICE IS ALWAYS THE SAME, WHETHER IT'S TRANSPORTED BY ROAD ALONE OR MULTIMODALLY

ibility. Flexibility is realized by the insight Wayz has in supply and demand. Wayz can always call for road transport on the entire trip when necessary, to ensure the cargo is always reaches its destination on time. An unforeseen by-effect of the project has been the optimization of the chain further along the line, because of the extra stop at the inland terminal, where service is trustworthy and fast. It can be beneficial for small fruit importers to use this service. Combining volumes with those of larger importers can have practical and financial benefits. The rate for the service is always the same, whether it's transported by road alone or multimodally. The stability of the costs can be good for small and medium-sized enterprises. Possibilities like this have been discussed for years in the barging sector. Now, because of five courageous fruit importers, these ideas finally became a reality.

Coolport Shuttles Region Rotterdam is organized by Wayz / Maasdijk
www.wayz.nu / +31 (0) 881187400



PERFECT MEASUREMENTS

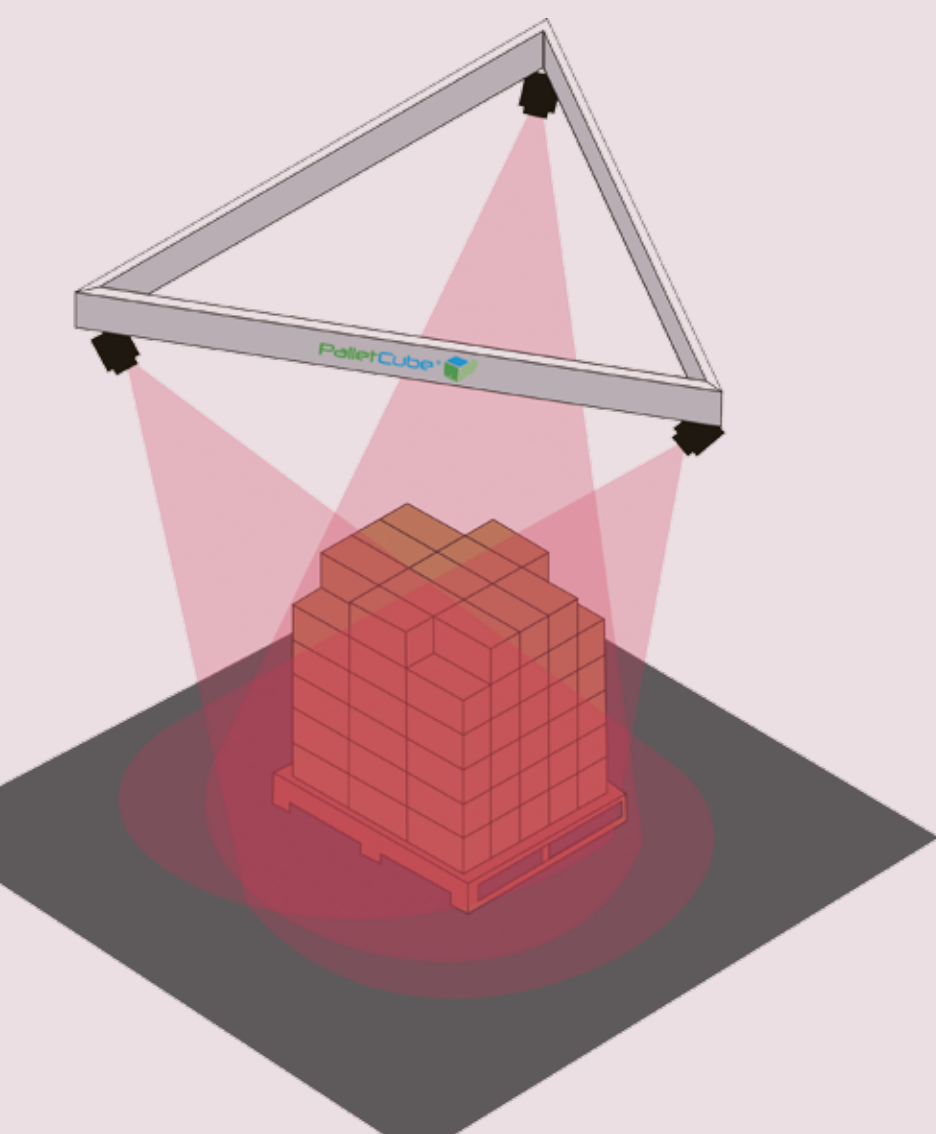
NOTHING IS AS IMPORTANT AS EXACTLY
KNOWING WHAT YOU'RE TRANSPORTING.



SEEING INFRARED

PalletCube uses camera's to measure volume and save time.

When transporting or warehousing goods, being able to calculate their volume is indispensable. Often, this is done by hand, which can be time-consuming and inaccurate, especially when measuring odd-shaped loads. The PalletCube is an instrument for measuring the length, width and height of pallets and crates using three infrared camera's equipped with integrated software. Within 50 and 250 milliseconds, PalletCube will have measured the dimensions and volume of the object and generated pictures of it. Within 3 seconds, it will have calculated the required loading surface, which is necessary for the calculation of the load-



WITHIN 3 SECONDS, IT WILL HAVE CALCULATED THE REQUIRED LOADING SURFACE

meter. All the data are forwarded wirelessly. Weight can be measured using a fork scale. All the relevant data including the shipping information generated from the special shipping software can then be printed on one label.

The PalletCube has recently won an award for 'best product' in the category 'software, communication and IT' at the Logimat trade fair in Stuttgart. It can be used at different stages in the supply chain. Currently only a static system is available - the infrared cameras are attached to the warehouse roof - but a dynamic system which will be attached to the forklift is in development. Also currently available are 'spin offs' like the CartonCube, which measures boxes using ultrasound, and the ProductCube, which measures and weighs unevenly shaped and/or unpackaged products.

The PalletCube is produced by Logitrade Logistic Systems BV / Uden / together with German partner Heidler / Wolfschlügen / www.logitrade.nl / +31 (0) 413747183



WAYS TO WORK TOGETHER

WHEN TIMES ARE TOUGH, GOING IT ALONE IS NOT ALWAYS THE BEST SOLUTION. IT'S BETTER TO JOIN FORCES. BUT HOW? THESE COMPANIES SHOW YOU SOME OPTIONS.




COOPERATE!

Crossdocking Flower bulbs for maximum efficiency.

RESEARCH: DANIELLE DUITTS, ROY VAN 'T KRUIS

Van Dooren Transport was founded in 1908 by J.G. van Dooren. Nowadays, it is a successful flower bulb transporter in Hillegom working together intensively with Bakker & Schilder from 't Zand in their joint project Greenlog. The partnership was created because – about ten years ago - the volume of flower bulbs per transport decreased, while the amount of transports per grower increased. The decrease in volume was caused by the increase in daily trading at the time. Exporters don't tend to build stock, but place orders for what they need that very same day. This meant lots of small amounts had to be transported from multiple growers to multiple customers. That's why the abovementioned two companies founded Greenlog. Since 2005, the Greenlog concept combines the transport flows. Cargo is picked up from the growers and transported to the barn of



***LOTS OF SMALL AMOUNTS HAD TO BE
TRANSPORTED FROM MULTIPLE GROWERS
TO MULTIPLE CUSTOMERS***

either Van Dooren or Bakker & Schilder. At the barn, the flower bulbs are sorted per destination region. This is called cross docking. Subsequently, the bulbs are forwarded to the customers. The benefit for Van Dooren and Bakker & Schilder is the reduction in loading and unloading moments per truck or car, which ensures a



ALSO, THE TRUCKS ARE USED MORE EFFICIENTLY BECAUSE OF BETTER LOAD FACTORS

significant time reduction. Also, the trucks are used more efficiently because of better load factors, which accounts for a reduction in truck movements and minimizes stops. The growers benefit too: only two trucks arrive for loading instead of as many trucks as they have customers. The exporters profit too: now, they can give orders up to as late as 6 p.m., and they will be processed and delivered the next day, and all bulbs will arrive in one large delivery instead of multiple small ones. Through this increased efficiency, Van Dooren was able to reduce their costs.

The concept of Greenlog can definitely be adapted by other SME-transporters for their own use. Crossdocking has definitely reduced transport costs for these companies, and in the years since they started Greenlog, they have expanded their client base.

Van Dooren Transport / Hillegom / www.vandooren.nl / +31 (0) 252521064



MERGE!

How two companies that were each other's fiercest competitors ended up together.

RESEARCH BY: MASSIH AMINI

Sometimes working together just doesn't cut it. Some companies take that leap of faith: they get rid of all boundaries and merge. Two such companies who came together are former transport companies Wondergem Kapelle en Van der Wekken Food Logistics. Together, they have become 2W logistiek BV: the 2W a shout-out to their 'maiden names', both of which start with the letter 'w'. The company delivers food to retailers and restaurants. Unique in the Netherlands is the fact they drive onto the beach to deliver to over sixty shops and restaurants there! Their special 4 by 4 trucks traverse the sand in the mornings and are available for regular road transport later in the day. This merger was a way for both companies to expand in a critical market. The main reason for the merger was that they discovered



IT TOOK TIME, THEY HAD TO WORK ON IT. BUT AFTER A WHILE, IT GOT BETTER

opportunities to cooperate as a transport company for a sizable client: 'Sligro Food Group'. Before the merger, Wondergem Kapelle and van der Wekken Food Logistics were competitors and both had the same main supplier: Sligro. This meant they kept an eye on each other's every move. For example: if one of them implemented an innovation, the other one would do the same. In fact, they were so focused on each other, neither of them worked effectively towards improving their own companies. Both companies being small companies, they had a lot in common: trouble getting loans from the bank for major investments, never being taken seriously by potential big clients... These two companies had long foreseen the advantages of cooperating, but refused to do anything about it or even say it out loud. It took an intermediary, but then they tied the knot fairly soon. And of course, it was not a happily ever after: two different company cultures did not ensure effortless cooperation. It took time, They had to work on it. But after a while, it got better. Now they can focus on growth together. They have bigger clients. And they have even started cooling electrically rather than with Diesel. A perfect ending to a perfect story.

2W Logistiek BV / Kapelle / www.2wlogistiek.nl / + 31 (0) 113342007

COLOPHON

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Hogeschool van Amsterdam





**SMART TRANSFERS / FANCY WRAPS /
DIGITISING THE PAPER TRAIL / SUPPLY
CHAIN SECURITY / WATCHING FLOWERS /
GOING GREEN ON THE ROAD / GOING
OFF-ROAD / PERFECT MEASUREMENTS /
WAYS TO WORK TOGETHER**