FINAL CORE EVENT: THE SUPPLY CHAIN UNCHAINED
11 APRIL 2018, STANHOPE HOTEL, BRUSSELS

On April 11, the Final Event of the Core project 'The Supply Chain Unchained' took place in Brussels, jointly organised by the European Shippers' Council, the coordinator of the project, and CLECAT, the European Freight Forwarders Association.

The below note compiled with the support of Dods monitoring service summarizes the event.

CORE is one of the largest European research and demonstration projects. With around 70 partners, the project has over the last 4 years demonstrated that supply chain security and trade facilitation can go hand in hand, building upon proven concepts from previous R&D projects such as CASSANDRA, INTEGRITY, LOGSEC and CONTAIN.

Within CORE, the partners have worked together with the objective of maximizing the speed and reliability as well as minimizing the cost of fulfilling global trade transactions, making supply chains more transparent and resilient and bringing security to the highest level. CORE has demonstrated how protecting and securing the Global Supply Chain, and reducing its vulnerability to disruption can be done while guaranteeing the promotion of a timely and efficient flow of legitimate commerce through the European Union and other nations around the world.

At the centre of CORE initiatives has been the fostering of the data pipeline. Speakers at the final event gave overviews of projects undertaken to enhance real-time data to better track goods in transit. Advances in this regard have led to greater visibility and reduced operational costs, among other reasons because of faster flows through customs as a result of supplying customs officials with pertinent data prior to the arrival of goods.

Welcome

Nik Delmeire, Secretary General, European Shippers' Council, introduced the project, which has been a huge venture. Therefore only some of the highlights will be presented.

On data pipelines, the key is connectivity, particularly where customs are concerned. Regarding shippers' interests in the data pipeline, he said various tools have assisted shippers for years. However, what has been missing was the tracing of goods once they leave for their destination. Thus, the data pipeline is aimed at filling this gap. CORE key innovative concepts can reduce operational costs and stock levels and increase visibility. The ultimate goal is that exports will be transmitted in the future, and not just transported.

Nicolette van der Jagt, Director General, CLECAT, welcomed participants and noted that CLECAT is representing companies offering logistic, freight forwarding and customs services. Challenges for the

freight community are mounting due to reasons such as the growth of e-commerce and Brexit. Additionally, customs checks are increasing exponentially. The process in general is becoming more and more complex. There is also the need for new competencies for professionals, particularly where customs checks are concerned.

The challenge now is to cope with these developments and she noted CORE had created ways to tackle these challenges head on. Furthermore, digitalisation is not a goal in itself but is needed to process data automatically and add intelligence. Thus, data pipelines will need to be built and better exchange of data will need to be secured, leading to better forecasting when it comes to goods arrival times.

Keynote Address European Commission

Carlos Mestre Zamarreño, Head of Unit, Security, DG MOVE, European Commission talked about key concepts regarding the supply chain, particularly in relation to cybersecurity. A major challenge is to secure the continuous flow of passenger and goods and to ensure the protection provided does not impede economic output. As such, a strategic vision which strikes the right balance is required. In addition, systems must be resilient and adaptable to new threats.

He described the current security situation as negative overall. Attacks are occurring in opportunistic ways which target all types of objectives. DG MOVE believes it is important to work closely with the practitioners: Member States and Industry. It is important to address the concerns of the practitioners both regarding the threats and the measures that are taken to combat them.

The threat situation has deteriorated and terrorists are becoming more sophisticated and omni-present. Terrorists are sophisticated, can attack anywhere, we have both low and high-tech threats. Moreover, he noted his unit brought the Transport perspective to Security in the Union.

For cargo, the EU has been careful to ensure the system in place works. Aviation security is where regulations are more advanced and more detailed. They try to provide an element of cohesiveness to ensure a common approach allows for the smooth flows of cargo. Targeted approaches which are precise and simple are sought. Security measures for cargo take the entire supply chain into account and the application of security measures are based on risk-based approaches. It is important that they are reasonable, proportionate, effective, efficient, transparent and auditable.

A holistic approach must be taken to how security is delivered and DG MOVE works closely with other Commission services to guarantee this. In 2014, a joint customs exercise was carried out which allowed for recognition to speed up custom time. In addition, there is work in progress designed to address transport security so that it does not affect the flow of goods.

Furthermore, the EU works closely with likeminded third countries and across international fora to seek robust actions across the globe. In 2012, mutual recognition of cargo regulatory regimes was reached with the US which has allowed for high levels of flexibility. The secure supply chain has also been exported as operators vetted at Member State level can operate in a more efficient manner abroad. Moreover, the Commission is looking into applying this holistic regulatory approach to transport as a whole and, in January, it published a report on the progress made in working towards a security union.

A key element of the work today is the fact that digitalisation is more and more playing a critical role in providing services and in ensuring that the sector becomes more efficient. However, digitalisation also increases concerns pertaining to cybersecurity. When it comes to responses, a key principle for the Commission is proportionality and the threats, vulnerabilities and consequences must be understood. The best framework is that provided by the EU Cyber Security strategy, adopted in 2013. It aims to reduce cybercrime and to establish coherent international cyberspace policy for the EU, amongst other areas. It identifies transport as a sector which needs to be covered. However, it may not be enough and the

cybersecurity strategy in relation to transport may have to be reinforced. Many companies are innovative in the area of cybersecurity and they should be strengthened and supported. Furthermore, under the NIS directive, there is a public-private cybersecurity partnership (expected to trigger €1.8 billion of investment by 2020, of which €450 million will be from EU investment) which will galvanise cybersecurity in Europe. Awareness is probably the best tool to fight against cyberattacks, he stressed. Cyber-hygiene needs to be taken into account and this constitutes the first layer in the fight against cyberattacks. Concluding, he stated security in the transport sector remains a priority for the Commission.

Introduction of CORE project - the CORE movie

The [movie](#) was made to provide an overview of what CORE is all about. The three most important things that Customs need to know for risk analysis are the names of the buyer and seller, an accurate description of the goods and the country of origin. Providing information to customs will be a by-product to producing earlier, accurate and complete data under the data pipelines. This will achieve coordinated border transactions, in addition to further collateral benefits. Mechanisms for seamless interoperability in the exchange of data is key and innovative security technologies are also required.

Managing this will increase visibility of risk and resilience. To achieve coordinated border management, data pipelines are required which will result in more mature trade lanes and collaborative chain dashboards. Interoperability needs collaboration between disparate technologies, however. Moreover, sensor based security devices can supply visibility in the supply chain and can be displayed in global supply chain visibility tools. Customs can save time by pulling in data from various sources and pooling data.

In addition, risk mitigation strategies are also needed, in particular when it comes to addressing the issue of cybersecurity. Supply chains will also need to be agile enough to respond to disasters. Pilot projects have already been undertaken, such as at Felixstowe. Following this pilot, feedback obtained from UK border agents showed that improved data collection allows for better and earlier data being provided, which also allows for better risk analysis. Better quality data can also result in fewer detentions and relieve supply chain pressures, leading to smoother flows. Concluding, it stated that the data pipeline is in accordance with the EU strategy and action plan on customs risk management.

P&G: Real-Time management of complex supply-chains

Sergio Barbarino, Research Fellow, P&G, talked about what had been achieved in P&G under CORE. In most cases, goods are moved locally. However, sometimes raw materials must be shipped over long distances. The key objective under the project was to create secure and effective trade lanes. Improving visibility to allow for optimisation and increased resilience in long term and complex trade lanes was also central. He said a big challenge today is syncing required manufacturing processes into the supply chain needs.

Speaking about the innovations on Ariel pods for washing machines, he stated that the soluble film was uniquely manufactured by a supplier from Indiana, USA. The process to make the film is energy intensive and energy is cheap in Indiana. Typically, the goods go to Newark and then on to Eindhoven and thus the supply chain is complex. Containers are sealed with a unique serial number. Often checks are not comprehensive and somebody could break the security seal and swap the product with their own product. In such an instance, P&G would be at risk. The solution was to introduce a photographic image of the seal which can show if it has been falsified. Moreover, a crypto-code which cannot be copied can be put on each container. Finally, a container integrity digital solution was installed.

Getting a better estimated time of arrival was also a key component. Lack of visibility can lead to poor planning, a bullwhip effect and poor cashflows. P&G put electronic tracking devices on consignments to track containers. GPS sensors activate the transmitter when worthwhile to save on battery life. The

battery is activated by putting a pin inside to maximise usage. The device then provides information regarding estimated time of arrival and exact location.

Together with Purdue University, an analysis was undertaken following the pilot. Having an accurate estimate of arrival is of higher value than having a good estimate at the beginning of the journey as issues, such as severe weather, can slow shipping. This model can be applied to any supply chain. However, it can be complex to use electronic devices to track the containers in some countries given legal restrictions. Thus, a disposable device is in the pipeline to circumvent this legal issue.

In conclusion, he stated that, thanks to CORE, P&G were able to attain this visibility solution, leading to a much more efficient utilisation of assets.

FloraHolland: Data Pipelines: Driving a global supply chain revolution

Roel Huiden, Senior Supply Chain Consultant, Royal Flora Holland, stated that planting seeds of opportunities for members was at the centre of Flora Holland's ambitions in CORE. As more production has moved towards the equator, the supply chain has grown tremendously over the years. Having reliable and efficient trade lanes is always the goal. The first objective was to gain knowledge of the supply chain. The second was to build up relations with authorities. The third objective was improving reliability, while the final objective was to reinforce the supply chain.

Under CORE, the trade lane between Kenya and The Netherlands was focussed on 9 million boxes of flowers, encompassing over 50,000 shipments and 2,000 flights, sent to The Netherlands from Kenya each year. From there, pallets are received, unloaded and sent on to distribution centres. A visibility dashboard was introduced to gain more visibility of the supply chain. The grower, in Kenya, selects a freight forwarder and an unpacker. The supply chain involves 120 shippers in Kenya and then several airlines and freight forwarders. The goods are then delivered to 2,400 customers when they arrive in The Netherlands.

On the information exchange in the supply chain, there are the horticultural parties, authorities and the logistic service providers. Thus, there are three different domains of information. Sometimes shipments arrive and boxes are missing which results in a lot of e-mails and phone calls to find out where exactly the boxes are. Improving visibility under the dashboard was designed to better track the goods. Logistics information was expanded, especially as estimated times of arrival now come from the control tower in Schiphol airport; there are also five updates sent during the flight itself. Regarding the architecture of the dashboard, it is user-friendly and the data on the shipments can easily be retrieved. The most important aspect is that the data is uploaded directly from the source. The link with the Port Community system is also very important. In addition, the data is secure and a grower, for example, can only see data on his/her goods being shipped.

An additional improvement was made with regards to redesigning import procedures. There are customs (exit) procedures, phytosanitary procedures and customs (entry) procedures. Only 5 per cent of goods are inspected upon arrival. However, because of the stringent procedure, this process could take too long, particularly when time of arrival could not be accurately estimated. Now, information can be provided to Dutch customs on the plants in advance of arrival so they can carry out their risk assessment prior to the arrival at Schiphol and they can notify if there will be a risk assessment. Thus, 95 per cent of the shipments are seamlessly sent on and only 5 per cent need to be kept at Schiphol for inspection. The visibility dashboard has been adopted as a commercial platform and customs and the Dutch Food Safety Authority (NVWA) are ready to further implement clearance at landing.

Seacon logistics blueprint for a trusted trade lane

Joris Tenhagen, Project manager Innovations, Seacon Logistics, took the floor and talked about the smart container transport for trusted sea lanes initiative. Today, information is becoming more important than ever. Connecting logistics with business is all about tailor-made supply chain solutions. The goals under CORE concerned creating resilient supply chains for customers and ensuring a system-based approach for risk management. Moreover, improving efficiency and visibility was also a key objective. Finally, increasing responsiveness and reducing costs by digitalisation and disseminating know-how were also goals for Seacon.

He then showed a video on the trusted trade lane project, showing the creation of a trusted trade lane from Malaysia to The Netherlands. Information is only visible on screened interfaces and allows customs to determine if shipments are safe and reliable. It enhances the speed, reliability and efficiency of global supply chains. The unique smart seal container transport was developed and it is affixed to the container after it has been loaded. It is then activated and the container can be followed continuously. In this way, checks are kept to a minimum due to reliable and secure data.

Mr Tenhagen noted 111 shipments were tracked during the pilot scheme. It focussed on ensuring data integrity and accuracy. He remarked, as a freight forwarder, that the on-boarding procedure is very important. Moreover, compliance, operations and plan-do checks are taken into account. Blacklisted parties are also checked 24/7 for all partners. Then the operation starts and data gathering commences. Partners share pertinent information and it is uploaded into the data pipeline. From there, customs can retrieve the data to look into what is in the containers. Customs can therefore undertake their risk assessment earlier. In addition, there are operational benefits for partners, such as an up to a 30 per cent reduction in administrative costs, improved notifications and a leaner and smarter handover process. Seacon also noted a 10 per cent fall in administration costs; there were additional costs where the technology is concerned, but these costs balanced out. Moreover, all parties have better knowledge of the status of the shipments. In summary, he stressed that every stakeholder benefits. Regarding return on investment for Seacon, this will be seen over a 3-5 year period.

IBM-MAERSK: Global trade digitization: the future of trade data exchange

Prof Dr Yao-Hua Tan, Professor of Information and Communication Technology Delft University of Technology, stated the project started when Maersk and IBM analysed shipments of avocados from Mombasa to Rotterdam. Each shipment required 200 documents. While many documents are now digital, many are still processed manually.

The concept adopted was based on the data pipeline and the idea was that all documents could be exchanged via a platform. This would entail paperless trade and is fully based on blockchain. The key challenge was also to see if it could work with large volumes of data. The answer was yes; this was tested with large companies under various CORE trade lanes. In addition, close and active collaboration with customs was required to allow customs officers to test the new technology.

Global Trade Digitization (GTD) was scaled-up to large volumes and global coverage. GTD is currently connected to container carrier systems, various container terminals and various ports. Once the key terminals are connected, one can install the same software in around 500 terminals worldwide quite far. Moreover, port communities are connected under GTD.

On the shipping information pipeline, a key event is packing the containers. Another event which improved efficiency was to get real-time, accurate information of the unloading of the container as there could be 24 hours between when a container arrives at port and when it is unloaded. Concerning the paperless blockchain network, documents must be securely stored and blockchain is a good way to achieve this. Furthermore, there are all sorts of privacy and access rights which can be made precise and accurate so only authorised individuals can view the information.

The rubber-stamping process typically takes eight hours and now it can be done in seconds when paperless documentation is used. For example, customs in The Netherlands can see when the goods will arrive and other pertinent information. Other stakeholders are provided different data, as applicable. Efficiency for terminals can be greatly improved through this system. In addition, it helps ocean carriers, customs officials and freight forwarders. All the actors in the supply chain become much more efficient and this should result in better prices for shippers in the logistic services. The key to this project was to guarantee governance and the joint venture is operating under an Industry Advisory Board to ensure legal compliance. Moreover, alignment with international standards was required. Members will also be further involved in product enhancement. By the end of this year, there will be general availability of the product and full commercialisation of this joint venture will be established.

Concluding, he reiterated that large volumes of data could be processed under the data pipeline. This type of scaling up takes time and it took three EU projects for IBM and Maersk to build up sufficient IT capabilities and business confidence to scale-up to global commercialisation.

Dutch customs: data pipelines: driving a global supply chain revolution

Frank Heijmann, Head of Trade Relations, Customs Administration of The Netherlands, said that many additional security measures have been implemented across the world over the past decade. Information on cargo must be communicated to customs and this includes information from the bill of lading which is often drawn up after the ship has left the port. In this regard, ICS 1 asks the carrier about security related information and can often result in missing and unclear data. He said it was concluded that more information was required, before goods arrived so that the security risk assessment could be expedited. As such, under ICS 2, multiple filing has been introduced. This makes it possible for all stakeholders to upload information as soon as they have the requisite information. In the new system, there are 59 data elements required and more data is asked for to ensure that risk can be adequately assessed.

One difficulty is the lack of knowledge as to who is providing which part of the information. There can be double (and contradictory) information and there can be missing information, which is the responsibility of the carrier. The solution for this has yet to be found. This does not mean ICS 2 is not a good system; it is better than the previous version, as it seeks to get information from across stakeholders, yet it could still be improved.

The data pipeline could contribute to a better working of ICS 2. When the exporter uploads information, it can be made available for other actors. All parties can provide the necessary information and the source can be traced. The data pipeline contains much more information than previously, such as itineraries of loading and unloading which could be relevant for customs risks assessment. The dashboard allows for more detail to be provided to customs. Customs follow-ups often entail calls and e-mails and it is a time-consuming process. With this system, customs have the information available at their fingertips. For those not using the data pipeline, they will have more chance of being controlled in the future. Customs always want to have more information and Dutch customs are currently trying to build one interface which will be compatible with all types of data pipelines. In addition, this would allow customs to plug into other sources of information to build up a comprehensive overview. Cross-checking data could also allow for

gathering more information and enrich the risk management system. This would lead to lower administrative burdens for shippers and reduced waiting times for goods at ports. For customs, the pipeline showed it was of great value for increased trade facilitation and better security and risk management.

Dr Fernando Caldeira-Saraiva, BMT, then requested feedback from the members of the audience.

Marco Lenherr, Head of Coordination in Customs Matters, Swiss Federal Customs Administration, remarked that Switzerland was in the process of entirely rebuilding its customs administration, having started in January 2018 a 100 Meuro digitization programme. He said it was their goal to eventually roll out a red and green light system which would inform trucks passing through whether they had to stop of if they could keep driving and not have to stop at the border. However, Switzerland must work with four neighbouring EU countries and agreements need to be re-examined. In addition, there are IT challenges which will need to be addressed. He said that it had been very interesting to see what is possible and thanked CORE for its valuable input.

Johan Folkeryd, Senior Intelligence Officer, Swedish Customs, said that he had worked with ICS 1.0 and was very pleased to see the developments that had been presented by Frank Heijmann which showed the Dutch Customs were very advanced. Swedish Customs are in the process of improving their systems; they have not started looking at data pipelines yet, but will do so in the near future.

Yasmina Jarine, Policy Officer, Benelux Union, stated the Benelux countries had started a project with India targeting paperless documents. She noted she would take on board results heard today, especially the FloraHolland-Keny developments which will be taken up by Benelux Cooperation. She said the project had very clear results that will be useful for other countries.

Gordon Wright, Head of Cargo Border Management, IATA, remarked there was a lot of interest being shown by aviation as this sector was facing many of the same challenges, among others data quality and ownership of data issues. However, he was worried that we might end up with a multitude of pipelines and with Customs forcing businesses to use "their" pipeline. In reply **Frank Heijmann** said it was important to keep in mind that the pipelines are created by business for purely business reasons; Customs will only look into the information which business is sharing; therefore, there is no question of Customs forcing businesses to use "their" pipelines. This is not a public-private partnership in this sense, it is a private initiative. In 2005, the framework's standard was adopted to secure global trade and this was designed to support smart and secure trading.

Danny Lippens, Operations and Compliance Manager, Dole, said he had been looking forward to these industry-wide innovations for many years. He stated his organisation already scans many containers export and this information is uploaded and provided to import customs officials, speeding up the shipping process.

Lennart Heip, BPL ITO Risk, Dow Benelux Bc, said he was eagerly awaiting this to become a reality and he expected customers to reap the benefits. This should not be just a pilot and he hoped it would expand. On customs, he stated Dow tried to be as open and transparent as possible. However, he noted that customs should make good on their promises, particularly in the area of centralised clearance.

Damian Viccars, Brussels Representative, World Shipping Council, said the industry must capitalise on digitalisation. Article 1276 under ICS 2 makes it clear who should provide data to customs officials. He stressed that the legal framework is not ambiguous in this regard. He then asked how non-repudiation of data could be ensured in the data pipeline. How can one ensure credibility when it comes to people uploading data? **Prof Dr Yao-Hua Tan** replied that the solution is to link systems to existing identity systems. In this way, identity can be ensured. 'iShare' is available in The Netherlands which has made one identity and access management system. It is used on a personal level and for company identification and it can cope with the complexity of the issue at hand.

Wil van Heeswijk, DG TAXUD, European Commission, stated he was involved in kicking off the CORE project and it had brought much insight into the complexity of global SCs. This project has also adapted to technological developments such as blockchain and he welcomed this. The long term vision of DG TAXUD is focussed on fully controlled global supply chains. This implies detection in data and detection in goods. CORE is one of the first projects that concerns directly the Strategic programme of DG TAXUD; deliverables will be checked to see what is useful for its development. It is important that we learn now, as CORE is the last of a series of projects. He said he was grateful and impressed by the results and was looking forward to the policy recommendations report.

Hans Maessen, Business Development Manager, SGS, said we expect an increase in freight and customs procedures, because of Brexit and eCommerce and stated GTD will be of great use in helping business to cope. He also said that reusing export data to make import declarations is viable and that is a great benefit of having a pipeline and being able to reuse data.

Sven Verstrepen, Head of Supply Network Innovation and Analytics, Ahlers, was interested to learn how this will be rolled out and how companies can gain access to the information, particularly when it comes to education material. In reply, **Juha Hintsa, CBRA,** said that a large amount of educational material is available, encompassing not only the data pipeline but a number of other CORE themes.

Howard Knott, Logistics Consultant, Irish Exporters Association, said Ireland would be particularly affected by Brexit as a number of exporters never had to deal with Customs procedures before. He said that providing the information in a simple way to people who now, all of a sudden, find themselves having to deal with customs would be extremely helpful and he thanked CORE for the work carried out.

Summary and Policy Recommendations

David Hesketh, Consultant, BMT, took the floor for the final remarks. He said this project was about supply chain visibility and improving data along the supply chain. Data pipeline is a product, an output and its core business purpose is achieving better data at the right time. If users benefit, customs will also benefit and this will speed up the whole process. This will empower all actors and ensure an improvement of the supply chain security.

The themes which came out from the presentations included irregularity of supply, wanting to have a better relationship with customs and ensuring the integrity of supply chains. Underlying all this is visibility and empowering the real customer at the end of the supply chain. He stated it was about tackling perceptions and CORE has been an engine of innovation and delivered products which will in the future make a difference.

Concerning policy recommendations, he stated that customs and other border agencies must be aware of the enormous opportunities contained in pipelines. Secondly, digitalisation is key and this must also be extended to quality control. Get the data right and it can be used many times and reduce administrative burdens. However, cybersecurity poses a real risk and data must be kept secure.Thirdly, the Commission should work towards the harmonisation of international transport conventions.

Finally, he called on the Commission to create the necessary government-to-government channels to expedite trade. The reality is that IT and digitalisation are taking off across the world and Europe needs to be a global leader in this regard. Europe must wake up to data pipelines. This way, the supply chain will be unchained, he concluded.