CONTROL PURPOSES. This concept allows an extended assessment of risks, and thus an improvement of the transparency in global container transportation.

The strategic impact for businesses is a better supply chain performance and cost efficiency by reducing administrative and planning errors along the chain. Within the scope of government agencies, the new Risk-Based Approach will help Customs to assess business processes and identify secure supply chains. In general,
CASSANDRA facilitates the European and global trade by improving security and the effectiveness of businesses and government operations.

**RISK-BASED APPROACH AND PIGGY-BACKING**

Currently, each cross-border trade transaction is inspected individually, based on declaration data submitted to government authorities. CASSANDRA shifts the attention from transaction data quality to overall process quality. In terms of supply chain management this means, that with a Risk-Based Approach (RBA) secure and known container flows are identified. This System-Based Approach allows government authorities to use accessible data of businesses for their own risk assessment of the cargo processes. This re-use is called the Piggy-Backing Principle, giving more opportunity to investigate riskier container flows.

**DATA PIPELINE**

The core innovation of CASSANDRA is the development of an Data Pipeline or Information Pipeline for sharing information across the supply chain and the government inspection agencies. CASSANDRA will achieve interoperability of heterogeneous systems by combining state of the art IT innovations. The pipeline consists of interoperable solutions, communicating in an open, flexible and standardized manner.

**LIVING LABS**

The Living Lab research approach studies the project’s innovations in complex real world settings. There will be three global Living Labs: Asia-Europe, Europe-USA and Europe-Africa. Each Lab holds one or more trade lanes. Rotterdam, Bremerhaven, Felixstowe, Barcelona and Setúbal container ports will be involved. The freight forwarding companies DHL, Kuehne+Nagel, Seacon and BAP will provide the Living Labs with actual container flows.

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**WHO KNOWS WHAT’S IN THE CONTAINER - A CUSTOMS PERSPECTIVE**

*Interview with Frank Heijmann, Head Trade Relations for the Customs Administration of The Netherlands, and David Hesketh, Senior Business Manager on Research and Development Programmes of HM Revenue and Customs, United Kingdom.*

**Please describe the current situation for Customs in container transports.**

Frank Heijmann: Just imagine: A passenger arrives at an airport and Customs asks him some questions about the suitcase he wants to check in.

- “Is this your suitcase?”
- “No.”
- “Did you pack it yourself?”
- “No.”
- “Do you know what it contains?”
- “No, it was packed by someone else”
- “Could it contain anything dangerous?”
- “I have no idea.”

With these answers there isn’t much chance of the passenger joining the flight. But this is precisely what happens every day with many of the containers presented to Customs. The shipping company...
provides information about the goods it imports in a container, but without having seen the contents itself. Without having packed the container itself. And without knowing who was involved in filling it.

**Does this mean the one who transports the container does not know its contents?**

**Frank Heijmann:** When he receives the container he places his signature under the heading “said to contain”, which more or less means: “I am signing for the receipt of a container, and somebody else has told me which goods it contains.”

**How does this fit with Customs regulations?**

**Frank Heijmann:** There are Customs regulations – certainly those concerning security – which brought us in the situation where we asked the wrong person for the wrong information at the wrong time.

**Who would be the right person to ask for the data?**

**David Hesketh:** There are some critical elements in the CASSANDRA project. One of them is to capture accurate data from the right source by piggy-backing on the commercial processes used to buy, pay for and ship goods. As far as possible a buyer will not leave any ambiguity about the goods he wants and is prepared to buy. A seller will not leave any ambiguity about the money he expects to be paid. This commercial transaction is where the accurate data rests. We need to know who is doing business with whom and verify that they are genuine companies and not a front for illegal activities. We need an accurate description about the goods being bought and shipped using international standards such as the HS code to six digits. Then we need to know that the goods are secure in their movement from seller to buyer. All this data resides in commercial systems. The pipeline concept is to join up the systems that hold this data, create a coherent picture and make that picture and its data available only to the parties that need it and are authorised. We know that there is an important distinction to be made between the comprehensive commercial data, which of course has its understandable sensitivities, the data needed by customs and tax authorities for fiscal purposes such as the payment of duties and taxes based on international valuation terms, the more limited data needed for safety and security assurance before the goods are shipped and the very limited data needed by the carriers such as size, weight, hazardous, where loaded and where discharged. In the past the means of capturing and sharing these different data layers have been bundled together based on old, outdated paper based systems, such as bills of lading, manifests and declarations. We now have the opportunity to capture accurate data electronically at source, lock it into a data package and messaging systems and either push it or pull it. Wherever possible this will
remove the need for re-keying and transposing or ‘simplifying’ the data at the expense of accuracy and accountability.

**So, a data pipeline would improve the transparency?**

David Hesketh: The provision of accurate and appropriate information and data is key to risk based customs controls and interventions and the development of trade facilitation schemes. Over the past decade trade supply chain providers, governments and customs administrations have invested considerable resources in the establishment of sustainable data and related trade facilitation schemes. Examples include SAFE and AEO.

However, inaccurate data provided to customs is a chronic problem and contributes to non-compliance, an inability to assess risk and misleading trade statistics. There is ample evidence that goods are not described or despatched properly for transport and regulatory purposes, creating risks to letters of credit, risks to the buyer, risks to carriers from overweight and hazardous goods and risks to society from prohibited and restricted goods and the non-payment of much needed revenue.

A recent audit report revealed that one out of every three customs import entry lines is misclassified. Apart from the less obvious negative fiscal impact on such areas as trade statistics, trade policy, risk assessment, targeting and customs controls and admissibility it is estimated that US$22 billion per year is owed to government treasuries worldwide because of misclassification alone. Various estimates suggest that the cost of trade procedures may range from 2% to 15% of the value of traded goods. It is also estimated that 77% of the administrative burden on businesses from international trade related regulation is attributed to Customs. Data inaccuracy among retailers and their suppliers can cost as much as 1% of total revenue.

A report by the UK Department of Business Innovation and Skills estimates that a 1% saving in the cost of goods traded across UK borders would be worth almost £6 billion annually in trade admin burden reduction and a 50% reduction in the administrative burden from HMRC could be worth around £370 million.

Data inaccuracy among the United Kingdom’s top five retailers and their suppliers is costing as much as £1.4 billion per year – 1 per cent of total revenue. Annual losses in international trade caused by maritime fraud are estimated to be as high as US$31 billion. Documentary maritime frauds involving the letter of credit and traditional ocean bills of lading account for nearly two-thirds of these losses.
So, of course there will be benefits from the pipeline concept and what we are trying to do in CAS-
SANDBRA. Accurate data is the key to compliance, assurance, accountability and decision making. Commercial benefits of CASSANDRA supply chain visibility include:

- reducing inventory,
- better logistics, purchase and sales planning,
- identification of costs,
- choices of service provider,
- better risk management and reduction of risk and fraud,
- reduced losses and insurance premiums,
- reduction in error, re-work and returns,
- regulatory control will be of higher quality and possibly less costly to trade,
- overall supply chain visibility, and
- information to protect profit and capture more market share.

How does this data pipeline vision will be transferred into reality?

Frank Heijmann: The CASSANDRA project is currently building on the first implementation of a
web-based data pipeline. All of the supply chain partners involved can use this to make the data
available by taking data and access measures into account.

For Customs the source of the declaration data is made visible, companies’ trade movements can
be traced and goods flows analysed. All of this provides input for Customs’ client, risk analysis and
intelligence systems.

What is so special about risk analysis in CASSANDRA?

David Hesketh: Modern, risk based regulatory supervision, advocated by CASSANDRA, con-
­sists of a system based approach enhanced by
and including transaction based control.

Where possible and appropriate businesses
should apply risk based supply chain manage-
ment to their own processes to be fully compliant
with government agencies. In case supply chain
actors cannot comply to this approach, and to
these quality standards, government agencies
can resort to transaction based supervision.

An essential element of risk based government
supervision is the piggy-backing principle allowing
the re-use of supply chain data and risk assess-
ment outcomes of supply chain actors by regula-
tory authorities for their own risk assessment.

Government agencies require that the cargo is
secure from the point of origin, and that it remains
secure during transit until the point of deconsolidation and domestic distribution. Government agen-
cies want to achieve this objective by shifting from the (physical) control of goods and containers
to a modern risk based regulatory supervision. The CASSANDRA project will introduce this risk
based regulatory supervision that consists of a system based approach enhanced by and including transaction based control. With system based approach, we mean that government agencies use an audit methodology to assess compliance to rules and regulations based on the evaluation of the integrity, reliability and internal consistency of a business and IT systems.

The government agencies need information at an early stage in the supply chain process to identify high-risk container flows before it approaches the European Union. Information must be reliable and come from prime records (origin data). Therefore the Piggy Backing principle is a significant building block in the CASSANDRA project.

An important prerequisite for risk based regulatory supervision is the introduction of a risk based supply chain management. This means that all dimensions of supply chain management should be based on a transparent and reliable assessment and treatment of risks. The assessment of risks depends to a large extent on the availability of timely, reliable and complete information.

Customs, among other government agencies, can benefit from reusing existing internal control (risk based supply chain management) from the businesses own information systems for government control purposes. Government agencies will perform audits on the structural qualities and integrity of a business system. It focuses effort where it is needed and will have the most impact.

_Frank and David, many thanks for the interview!_
THE LIVING LAB ASIA-EUROPE

The CASSANDRA innovations and concepts are put to practice and demonstrated in three so-called ‘Living Labs’. A Living Lab research describes a novel approach that shifts the development of a new product from the laboratory into the real world. These Living Labs are set up around major European trade lanes, including Asia – Europe (Living Lab 1), Europe – US (Living Lab 2) and North Africa – Europe (Living Lab 3).

Major demonstrations of the CASSANDRA project take place on trade routes between Asia and Europe. With the support of the four freight forwarders BAP, Seacon, DHL, Kuehne+Nagel that are part of the project consortium, TNO and Erasmus University have identified multiple trade lanes between for example China, Malaysia, Hong Kong and Singapore in Asia and the ports of Rotterdam (The Netherlands) and Felixstowe (United Kingdom) in Europe. The freight forwarders are key participants in these trade lanes, together with leading information solution providers (such as GS1 and Descartes). With help and consent of these forwarders and their business partners on these trade lanes, the information sources are located and the IT providers are looking for ways to collect and combine information in a safe and secure way and to thereby enhance supply chain visibility. Supported by TNO and TU Delft, existing business IT solutions are linked with new integration and dashboard functionalities, thereby creating a data pipeline that holds accurate trade lane information gathered from fragmented sources such as documents and systems. By doing this, the pipeline can offer added value to any business participating in this project by opening up additional reliable data sources with the prospect of enhancing the quality of the data used.

The implementation of the CASSANDRA concepts in Living Lab 1 has already started in 2011 with the identification of the different trade lanes. Based on the current way of working in these lanes and the existing IT infrastructure, pipeline configurations are now being developed. The first integrated solutions are expected to be running by the end of 2012. From there on the solutions will be extended with more information sources, innovations and parties. Customs innovations will also be explored in Living Lab 1. For example, by using the high quality pipeline information to generate different declarations, like export, import and security (ENS) declarations, compliance can be supported. Evaluation sessions with all participants will be organized regularly to create as much business benefits from the solution as possible.

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MEET CASSANDRA ON 5<sup>th</sup> ECITL 2012

Since the project kick-off in summer 2011, CASSANDRA has been presented on several global events on transport and logistics. For example, the members of the consortium introduced the project’s contents and its concept, talked about the aim of improving security in intermodal transportation or discussed the assessment of risks in the field of containerized cargo.

Now we would like to invite you to meet CASSANDRA at the 5<sup>th</sup> European Conference on ICT for Transport Logistics (ECITL) from November 7<sup>th</sup> to 9<sup>th</sup>, 2012 in Gothenburg, Sweden. This year’s conference will focus on “Smart Freight to enable sustainable logistics solutions” and will highlight innovations and applications in this area. The conference aims to close the gap between research and innovation and the logistics industry, moving research results into real world innovation and driving the competitiveness of European companies in the transport logistics sector. This year’s ECITL features an academic session on Wednesday and a two-day industrial session on Thursday and Friday. Research and Industry alike are invited to propose interesting contributions to this year’s ECITL line-up.

>> www.ecitl.eu

CASSANDRA GENERAL ASSEMBLY MEETING

After a project duration of one year, the second CASSANDRA General Assembly Meeting took place from May 7<sup>th</sup> to 8<sup>th</sup>, 2012 in Delft, The Netherlands. The General Assembly Meeting proceeds once a year and aims to bring all of the 26 CASSANDRA consortium members together for a general update on the project’s progress. During the event, every partner has been informed about the latest developments, followed by a discussion on current topics and challenges. Main focus was on the three Living Labs and on the specification phase of the IT development. On the second day, discussions on each of the nine work package have been specified in various workshops.

CASSANDRA COMPENDIUM AVAILABLE

The purpose of this Compendium is to provide a common reference document for CASSANDRA scope, concepts and terminology. It discusses different aspects regarding supply chain visibility, presents the different actors and highlights various problem areas. The Compendium also discusses future trends in the different supply chain visibility-related areas and presents conclusions and implications to the CASSANDRA project.

>> www.cassandra-project.eu/downloads
COMMON ASSESSMENT AND ANALYSIS OF RISK IN GLOBAL SUPPLY CHAINS

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