



SAFE AND SECURE TRADE LANES

Digital highway for safe and secure trade

FACULTY OF TECHNOLOGY, POLICY AND MANAGEMENT

The Netherlands plays a key role in the world of international trade. With its 12 million containers every year, the Port of Rotterdam is the gateway to Europe and Schiphol airport is one of the most important hubs for air cargo. In recent years, the demand for safe and secure trade has increased, causing an explosive growth in expensive and time-consuming border controls. TU Delft has the answer: ICT solutions for more efficient, safe and secure trade lanes.

International trade chains are an important driving force behind the economic recovery of the Netherlands. However, terrorism and illegal trafficking are on the rise, while product and food safety is also a major cause for concern. As a result, border controls have been significantly tightened, conducted by Customs, the Dutch Food and Consumer Product Safety Authority (NVWA) and around 12 other enforcement agencies. The inspections they conduct are based on risk analysis: only suspicious consignments are inspected. However, the data required for this is often not available until a ship or aircraft has already arrived. Due to this delay in data availability it often takes another couple of days to select the right containers.

Improving the efficiency of border controls

Importing or exporting a single container requires an average of 20 documents to be submitted to a whole range of governmental and other agencies, adding extra costs to international trade of hundreds of billions of dollars a year worldwide. There is also a wider impact: greater numbers of physical inspections and the associated bureaucracy lead to delays in processing and extremely long waiting times at the border, traffic congestion in urban areas and pollution from CO₂, together with all of the related logistical costs and other expenditure. The crucial question is: how can more effective border controls be carried out in the interests of public safety (creating more safe and secure trade lanes), without causing more congestion and pollution around mainports such as the Port of Rotterdam and Schiphol? Internationally, the term 'trade facilitation' is used in this context. >>

CASSANDRA

PROVEN TO BE EFFECTIVE

CASSANDRA (Common Assessment and Analysis of Risk in Global Supply Chains) was intended to improve transparency in the logistical supply chain. This European project also aimed to improve the efficiency and effectiveness of border controls, as well as logistical operations. This makes it a socio-technological puzzle on a global scale, and therefore an exciting challenge for researchers such as those in the TPM's ICT section. CASSANDRA reached its successful conclusion in May 2014. A pilot involving port companies in China and the UK proved that optimum sharing of data results in extremely efficient logistics.

ICT TRADE LANE THINK TANK YAO-HUA TAN

Prof. Yao-Hua Tan (1958) is professor of Information and Communication Technology at TU Delft. He also regularly acts as an expert for the Dutch government's Top Sector Logistics, the European Commission and the UN and was actively involved in setting up the NWO programme ISCOM.

"Cloud computing and web services are technically extremely complex, and therefore for a techie like me wonderful to be involved with. Moreover, political and administrative issues play a major role, which makes it even more interesting as a socio-technical area of research. In addition, there is also the international dimension, even right up to EU and UN level. If you want projects such as CORE, JUST and SATIN to succeed, you have to be involved in international forums and participate as an actor. As a university, we have an important supporting role. Together with our other partners in the business and government, we add weight internationally to the innovative strength of the Netherlands. And that is quite inspiring."



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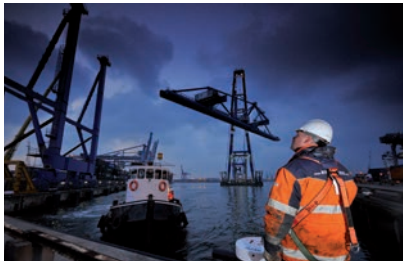
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>> The solution can be found in improved exchange of data between the various partners in the chain of international trade, especially in the country where the goods originate, and the bodies responsible for border controls. This means that knowledge is available well in advance about which containers are arriving, enabling those that are suspicious to be identified in advance by enforcement agencies. Most consignments can then pass through immediately and only a small percentage will have to be stopped for physical inspection. These advanced risk analyses make inspections more effective and vastly improve the efficiency of freight and cargo transport. TU Delft is designing the ICT resources required to build the data pipeline: an innovative IT architecture whose main components are cloud computing and web services. As a result, a digital highway is created for the secure sharing of more accurate data between all parties involved in the international trade lanes. TPM's ICT section is currently working on a range of areas, including the infrastructure and organisation of the data pipeline, cost/benefits models, governance models and multi-agent models.

Pioneering role

The researchers in the ICT section at TU Delft have been playing a pioneering role in trade facilitation in Europe for 12 years. The first EU project was ITAIDE (2006 - 2010), followed by CASSANDRA (2010-2014) and CORE (2014 - 2018). The Netherlands Organisation for Scientific Research (NWO) is now funding the ISCOM research programme (Innovation in Supply Chain Compliance and Border Management), which was established in cooperation with Dutch Customs.



TU Delft has had two successful research proposals within ISCOM: JUST and SATIN. The world is literally open for TU Delft, since the World Trade Organisation has now made trade facilitation its main theme for the next coming years and our Dutch government intends to play a leading role in this. Following the example of water management and other areas, the government intends to promote the innovation knowledge of TU Delft and its partners in the area of trade facilitation internationally. This innovation is set to become an export product itself!



CORE

THE FOLLOW-UP TO CASSANDRA

CORE is a new EU project in the context of FP7 and a large-scale follow-up to CASSANDRA. It is one of Europe's largest transport security research projects and aims to implement the data pipeline in international logistics across various sectors. The project started this year and runs until 2018.

JUST

LEGAL ISSUES

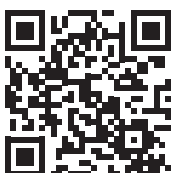
NWO project JUST (JUridical and context-aware Sharing of informaTion for ensuring compliance) focuses on issues of law. Is Customs legally authorised to use information from carriers in its own risk analyses? JUST focuses on the possibilities for this, with a view to improving regulatory compliance. The research project is a collaborative venture between TU Delft, Erasmus University Rotterdam and Maersk Line IT.

SATIN

MANAGEMENT MECHANISMS

The Netherlands has been an important trading country for centuries based on the combination of the ability both to quickly and efficiently organise trade, logistics and transport, and to efficiently comply with the relevant regulations in the international business environment. SATIN (Supply Chain Control and Compliance) will lead to new control mechanisms in international supply chains that contribute to this combined objective. SATIN is a joint project involving TU Delft, TU Eindhoven, business partners ASML, IBM, Philips, Seacon Logistics and research partners TNO and CWI.

www.ict.tbm.tudelft.nl



Want to know more?

- www.cassandra-project.eu
- www.coreproject.eu
- www.tbm.tudelft.nl/iscom

**Would you like to find out what the ICT section can do for your organisation?
Send an e-mail to Y.Tan@tudelft.nl**