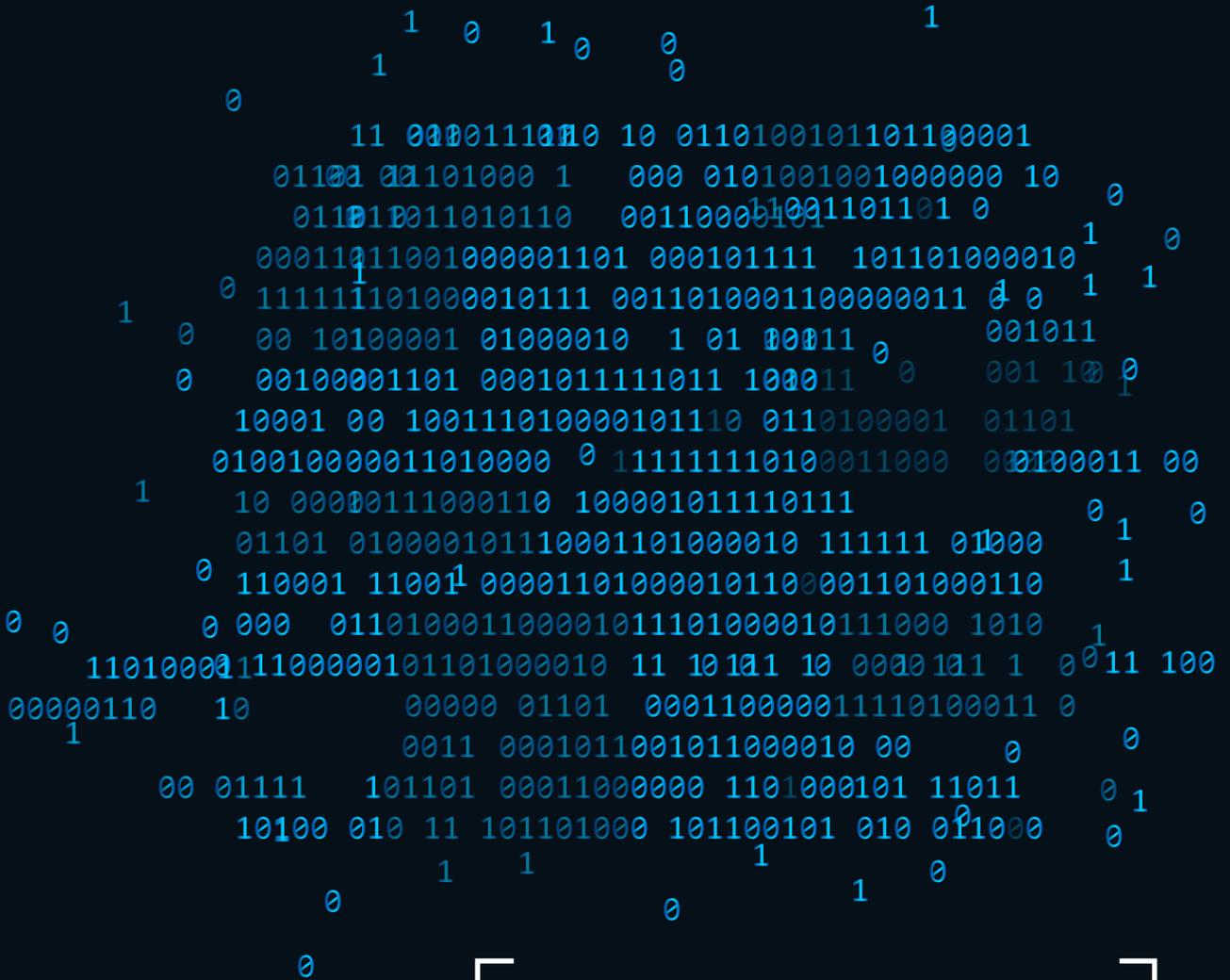


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// GET INVOLVED: THE FUTURE OF LOGISTICS IS OPEN SOURCE



.No 1.2023 {

Success factors of communities,
Dr. Stephan Peters, Rhenus: 4;

The eCMR is becoming compatible: 6;

Setting standards with open source,
Stefan Hohm, Dachser: 9;

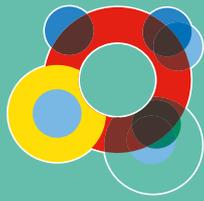
Blockchain – how can it improve customs
processes?: 10;

The mindset makes the difference,
Christa Koenen, DB Schenker: 13;

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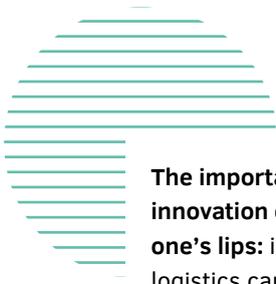
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Welcome



The importance of open source as an innovation driver is currently on everyone's lips: indeed, the “pain points” of logistics can be solved with the help of open source. Also from an economic point of view, open source in logistics is a good idea for companies.

Until now, each company has been developing for itself. The result is a multitude of different solutions that work side by side but not with each other. Connecting these solutions costs more time – and money. The fact that each company must keep its solution up to date, update it and correct errors is another cost factor.

Even today, companies are lacking experts for software development, the skill gap is larger than ever before. Every company must therefore be concerned with making the best possible use of the available resources. If ten programmers in ten companies develop software for the same logistical problem in parallel, and none of the companies can earn money with the solution, then that time spend there is simply going to waste. This a disservice to the industry: the digital transformation of logistics will not succeed without the use of open source.

On the other hand, if these ten people from ten companies work together in an open source project, they need less time and will create a great, unifying solution. Moreover, they get to have resources

available to work on market-differentiating software for their respective companies. An important basis for this can also be the standard components that they have developed with others through open source and published in the Open Logistics Repository of the Open Logistics Foundation. Companies can build individual functionalities based on these joint innovations, also for non-open extensions and

services. This is because our Open Logistics Foundation License allows them to incorporate the source and object code into other components, combine it with other components, modify it and transform it, even for commercial purposes.

With this in mind, I look forward to you sharing your resources in the Open Logistics Foundation to create resources for your business!



Andreas Nettsträter

CEO

Open Logistics Foundation

A community thrives on the contribution and unique expertise of each individual



Dr. Stephan Peters, Chairman of the Board of Directors at the Open Logistics Foundation and Member of the Management Board of the Rhenus Group, on **success factors of communities** – an invitation.

BECOME A PART OF OUR COMMUNITY AND SHAPE THE FUTURE OF LOGISTICS WITH US.

Dear Community, when it comes to top quality, reliable and efficient logistics services, Germany and Europe have been setting high benchmarks for many years. However, the tables turn when it comes to digitalisation and standardisation of processes. In global comparison, European logistics companies reach at best a moderate position in these two aspects. This is mainly because over the years, the IT processes have evolved in silo structures. In other words, companies have either independently developed their own digital solutions or rely on standard solutions from individual system providers.

This is precisely the crux of the matter: such a heterogeneous system landscape will not adequately meet the demands and challenges of a globally connected supply chain. Therefore, in light of the advanced innovation coming in the form of digitalised platforms coming from the USA and China, we simply can no longer afford such an approach.

That is why we currently see IT as perhaps the most important driver of innovation – for our industry and across the board. With the establishment of the Open Logistics Foundation, we have set ourselves the goal, to jointly drive forward the development of an open-source community for digitalisation in logistics and supply chain. Our aspiration is the connectivity, compatibility, and interoperability of IT systems in logistics beyond our own corporate borders. Because one thing is clear: digitalisation must not be an end in itself; it overcomes interfaces and via open source, is accessible for use and further development to everyone free of charge.

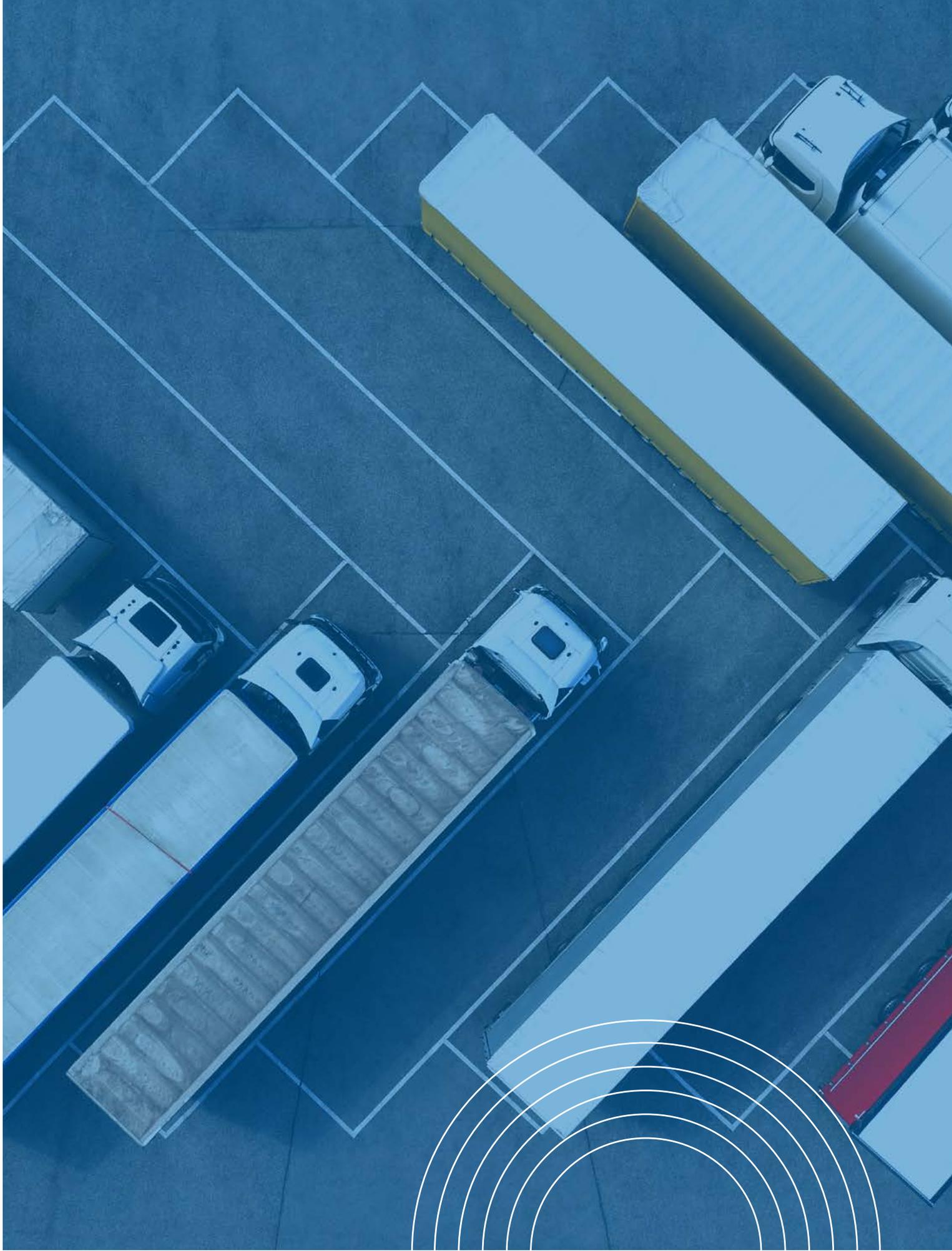
To accomplish this, we need the expertise and experience of all of you – Companies operating in logistics, from the shipping industry, from industry and trade, and of course IT. Within the Open Logistics Foundation, you have the opportunity

to work together in working groups and projects, on precisely the topics of interest and of pressing concern to you and us as a community in our day-to-day business. For example, the Working Group “Electronic Transport Documents”, which oversees the “eCMR” project – our first lighthouse project – struck a nerve in the industry right from the start.

The important thing here is that all developments are publicly available. This means that every single component is available in our Open Logistics Repository – a technical platform with software and hardware, interfaces, and references implementations under a free license. I would, thus, like to invite you to become part of our community and join forces with us in shaping the future of logistics.

Already today, we can proudly say that we are on the right track with the Open Logistics Foundation. The foundation’s community includes over 20 member organisations, among them are the four founding members Dachser, DB Schenker, duisport and Rhenus. The spectrum of companies ranges from start-ups and SMEs to large international corporates. The most recent additions include DHL, TransFollow and IP Customs Solutions.

I am particularly pleased to inform you that you are holding the very first issue of our new magazine today. Released biannually, the magazine will present noteworthy topics and developments of the community and keep you informed about current developments. I strongly encourage you to take part in enriching the community with your contributions, help to shape it, and ultimately make it a benefit for all. </>



The eCMR is becoming compatible - finally!

Taking into account established templates and **international standards**, the eCMR will allow companies to uniformly create, edit, save, forward and archive shipping documents in a human- and machine-readable format.

WITH THE ECMR, THE OPEN LOGISTICS FOUNDATION AIMS TO CREATE A STANDARD FOR ELECTRONIC TRANSPORT DOCUMENTS.

■ **Until a couple of years ago, all freight and transport information had to be written** and forwarded on paper.

The consignment note for international road freight transport (CMR), for example, has been paper-based since 1956. The structures that have grown through decades of use have resulted in high administrative costs with numerous manual activities, a multitude of different formats, media disruptions and transmission errors. Meanwhile, shipping documents for international carriage of goods by road (CMR) may be electronic. In recent years, there have been attempts to make these types of documents available in different electronic formats; however, these formats are not compatible, resulting in media discontinuity, transcription errors, and tedious manual rework. Against this background, the companies within the Open Logistics Foundation Community have set up the eCMR project.

Our approach

The work is based on the results of the eCMR project, which was carried out at the Fraunhofer Institute for Material Flow and Logistics IML as part of the “Silicon Economy”. The electronic consignment note relies on the generation, storage and transmission of digital consignment notes in human- and machine-readable format, taking into account established templates and international standards. In the meantime, the eCMR is carried out as a reference implementation and is being used by pilot companies. As a common data source, the eCMR is also intended to serve as an “enabler” for further digital processes, such as automatic billing and payment.

All developed components are made available to companies in the Open Logistics Foundation Repository. The authenticity and integrity of the transport information is guaranteed by a digital signature, a revision history that includes all changes, and the storage of the hash value – a digital fingerprint – in a blockchain. During implementation, emphasis is placed on the use of existing standards (e. g. UN/CEFACT data standard, CMR template of the International Road Transport Union IRU, ECDSA signature procedure) to ensure interoperability. </>



eCMR

Shipping documents are required for identification and handling of cargo on its way from sender to receiver. The eCMR is intended to enable the creation, storage, and further processing of digital consignment notes.

Project details

Project started

May 2022

Working Group

Electronic Transport Documents

Members

Aventeon, Dachser, DB Schenker, DSLV, duisport, Fraunhofer IML, GSI Germany, Markant, Rhenus, TradeLink, TransFollow, Veroo

Project lead

Ingo Müller, Dachser

Maintainer

Maximilian Schellert, Fraunhofer IML // Patrick Becker, Fraunhofer IML



/* to the eCMR in the Open Logistics Repository */

Setting standards with open source

■ **At the international logistics service provider Dachser, advocating the use of standards has tradition.** With this in mind, the company is also involved in the Open Logistics Foundation. As a co-founder of the Foundation and a member of Working Groups and Projects, Dachser is driving forward the digitalisation of logistics – especially with a view to the so-called commodities. Commodities are basic services companies can make available to their customers (a track-and-trace app, for example) or basic elements that enable the communication between enterprise systems (an API interface, for instance). As these services, functions, or elements are not market-differentiating, companies have no possibility to profitably monetise them.

“For Dachser, standards have always paid off in the long run“, says Stefan Hohm, CDO and Member of the Executive Board at Dachser as well as Member of the Board of Directors at Open Logistics Foundation. “With the establishment of the Open Logistics Foundation, we now set ourselves the goal of making basic applications publicly available in order to promote de-facto standards that are accepted across the entire industry.”

The Open Logistics Foundation is an opportunity for all companies in logistics – whether logistics service providers, platform operators, IT, forwarding or shipping companies – to convert certain hardware and software components into de-facto standards and – what is special – not only to provide user recommendations, but also to deliver code lines for them. Open source provides the basis.

Each company still develops future-proof software and intelligent processes for itself and its



// OPEN LOGISTICS FOUNDATION

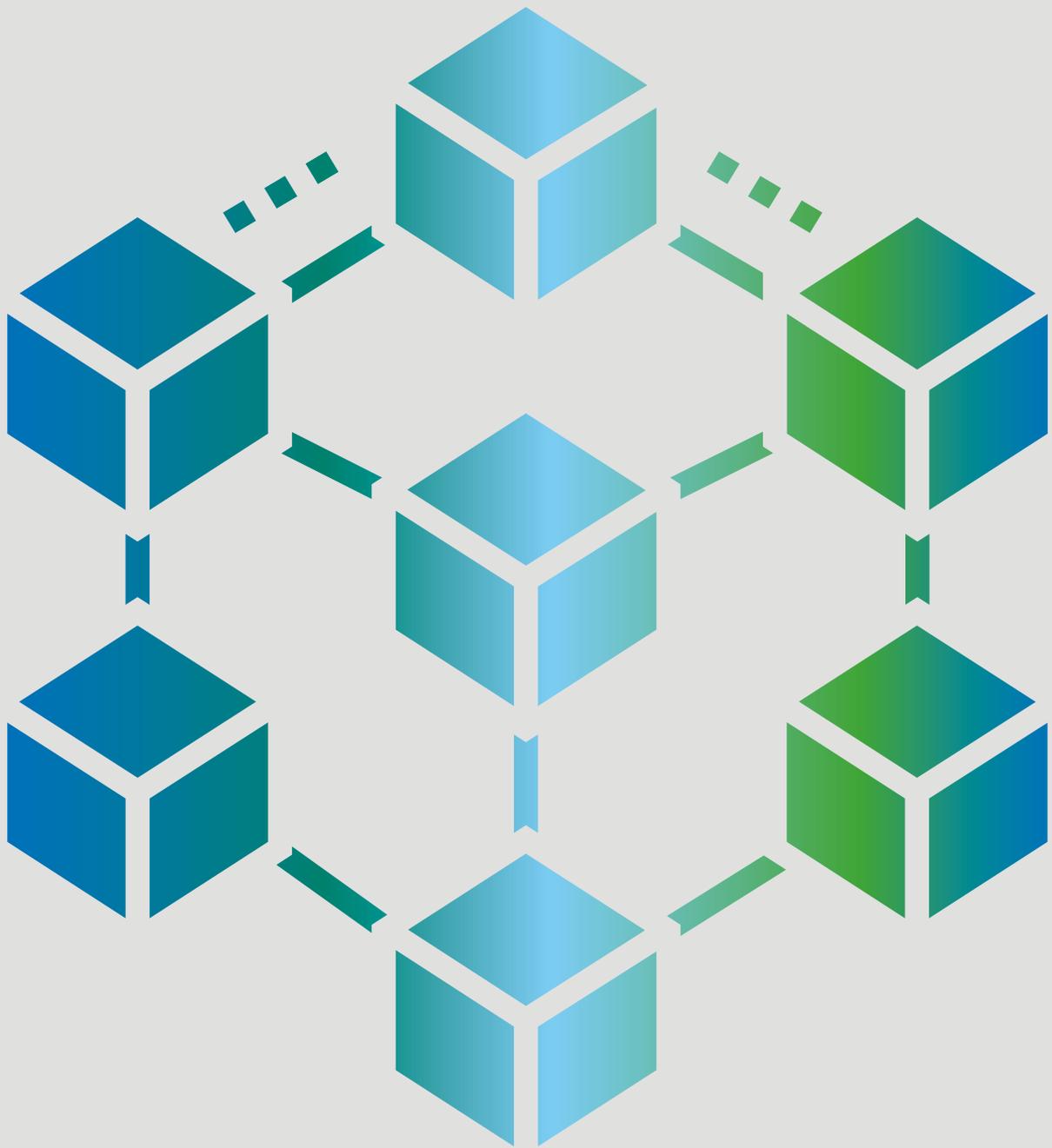
Stefan Hohm from Dachser sees the Open Logistics Foundation as an opportunity for all logistics companies.

customers on its own. But it helps each individual and the entire economy, if companies from different industries jointly develop and share commodity applications and codes in the future. Stefan Hohm: “By using open source software we are moving away from isolated solutions. This allows companies to refrain from building basic applications and instead use their valuable resources to create real customer value and USPs.”

OPEN SOURCE LIBERATES US FROM THE DEPENDENCY ON COMMERCIAL PROVIDERS – OPEN SOURCE WON'T DISAPPEAR.

Stefan Hohm





Blockchain – how can it improve customs processes?

Blockchain offers real potential for authorities to reduce interventions at borders and overall to bring more transparency into customs clearance and logistics processes by further **digitalising** the relevant data and documents. Roman Koller, Research Associate, Fraunhofer IML, and Michael Douglas, Senior Consultant, Rhenus/ALS Customs Services, answer three key questions.

What are the main benefits of Blockchain?

The potential benefits are manifold, for customs clearance blockchain technology introduces multiple exciting possibilities at once, most prominently:

- Eliminating duty evasion
- Reducing fraud
- Making borders delay-free
- Simplifying post-clearance audits
- Improving information exchange between authorities and economic operators

This potential is recognised by customs authorities around the globe, as the Report on Disruptive Technologies of the World Customs Organization (WCO) and the World Trade Organization (WTO) shows. First functioning implementations prove that authorities can even be drivers of innovation, if they wish so.

What is currently preventing a global application?

Complexity and cost make it difficult to introduce blockchain-based functions unilaterally. As the first functional examples show, authorities must be on board to achieve a full scale integration of blockchain with existing customs processes and systems. Firstly, to give their approval to a blockchain based (i. e. decentralised and tamper proof) exchange of customs data and documentation and secondly to facilitate technical connectivity and to help make regulatory adjustments where needed.

Furthermore, the existing real-world applications also indicate how the commercial fees involved and the extensive datasets required by most parties, can hamper a simple replication of existing solutions in other customs territories.

How can a broader application be achieved?

In a joint application-oriented initiative, leading logistics and customs service providers as part of the Open Logistics Foundation together with R&D experts from Fraunhofer Institute for Material Flow and Logistics (IML) launched a Working Group to make blockchain for customs and logistics processing easily attainable at a lower cost. Their project combines simplified sets of key customs data, open source blockchain software, and focuses on the needs of both authorities and supply chain partners. With development well underway, the consortium is now accessible to customs authorities (EU customs union and non EU members) to launch a test version in a pilot project. </>

BLOCKCHAIN HELPS TO CONNECT AUTHORITIES AND SUPPLY CHAIN ACTORS IN DIFFERENT TERRITORIES MORE CLOSELY.



BORDER

BORDER is a blockchain-based web application. The use of blockchain technology enables the digital handling of customs-related documents, data and processes including the documentation of status and data changes – trustworthy and tamper-proof for all parties involved.

Project details

Project started
February 2023

Working Group
Open Customs Blockchain

Members

AEB, Dachser, DB Schenker, Fraunhofer IML, IP Customs Solutions, Rhenus

Project lead

Roman Koller, Fraunhofer IML
// Michael Douglas, Rhenus/
ALS Customs Services



/* to BORDER in the Open Logistics Repository */

The mindset makes the difference

Open source is integral to the technological endeavors of any organisation or enterprise that aspires to play successfully in the digital arena.

The emergence of revolutionary innovations such as cloud, IoT, Big Data, or AI are inconceivable without open source. Although the idea itself has long been known in freight forwarding and logistics, as it already started to revolutionise the industry decades ago, the right mindset is what makes the difference.

The idea of open source promotes collaboration, transparency, and innovation in the development and distribution of software, and has been widely adopted by communities and organisations globally. Logistics companies around the globe must manage complex supply chains and handle large amounts of data, making open source solutions an attractive option. The advantages of expanding open source activities across our industry are manifold. They range from standardisation, flexibility, innovation to cost efficiency and security. Together as an industry, we aim to develop common software standards, tools, and services based on the trustworthy collaboration of partners.

Going back a few decades in the history of the logistics industry, to the time before computers and code were commonplace and fundamental to the way we do business, we see, that the open source idea and mindset has been integral to our industry for quite some time. In the 1950s, the American entrepreneur Malcom McLean revolutionised the industry with his invention of the shipping container. With his idea, McLean encountered an environment of established

structures with few standardised modes of transport in global supply chains. After the first successful voyage of his container, McLean – keeping with the idea of transparency, standardisation and collaboration – made the design plans for his container public, thus enabling the entire industry to participate in his revolutionary idea and paving the way for international standardisation.

McLean's legacy serves as a testament to the power of open source thinking in driving innovation. Open thinking and mindset are crucial for successful open source as it relies on a community of contributors who share a common goal and work together to achieve it. This community is built on a foundation of trust, collaboration, and mutual respect, guided by a set of shared values and principles. These values help to build a strong and resilient community that is able to overcome challenges and achieve its goals over the long term.

By valuing trust, collaboration, transparency, communication, and a commitment to quality, we can revolutionise the industry by creating high-quality solutions that help improve operations through standardisation, drive innovation, and ultimately provide exceptional services to our customers. </>

Christa Koenen is Member of the Board of Directors at the Open Logistics Foundation as well as CIO/CDO and Member of the Board of Management at DB Schenker.





// Open Logistics Foundation

In the panel “Digital transport documents along the supply chain – legally secure and open source” at the Digital Summit of the Federal Government of Germany, the Open Logistics Foundation used the example of the eConsignment note (eCMR) to show how joint development of open source solutions can bring together an entire industry.

Growing day by day

The Community of the Open Logistics Foundation is comprised of companies, large and small ones, from all areas of logistics and supply chain management. All interested companies can become a member in the Support Association of the Foundation, Open Logistics e. V., to actively work on open source projects and to become a part of the Innovation Community.

Current members are:

- AEB / Aventeon / BLG Logistics / Dachser / DB Schenker / DHL / DSLV / duisport / Fraunhofer IML / Gebrüder Weiss / GS1 Germany / Interface21.io / IP Customs Solutions / LKW Walter / logistics.cloud / Markant / Rhenus / Setlog / Sitra / TradeLink / TransFollow / Veroo / Viastore



Listen to it

In the podcast episode #135 of the Bundesvereinigung Logistik (BVL) Andreas Nettsträter, CEO of the Open Logistics Foundation, and Ingo Müller, Department Head Prototyping & Testing, Dachser, and project lead of the Working Group Electronic Transport Documents, talk about the importance of “Open Source in Logistics and Supply Chain”.



[/* Scan for more information */](#)

Markus Sandbrink, Rhenus Group’s Chief Information Officer, and Andreas Nettsträter, CEO of the Open Logistics Foundation, are guests in the podcast “Logistics People Talk“, powered by Rhenus. They emphasise how competitors can confidently and successfully share ideas.



[/* Scan for more information */](#)

Get inspired

Our newsletter “Get inspired” gives you short updates on what happened in the Foundation and the Foundation’s Community once a month. If you would like to be kept up to date about our latest activities, you can subscribe to the free newsletter on our website.



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