



PROVIDING IN THE FOOD





TRANSPARENCY SUPPLY CHAIN

Food safety is a major priority for supermarkets, where stringent processes and checks are required to ensure all standards are achieved – from sourcing to production and distribution. Daniel Moore talks to Hans-Dieter Philipowski, Founder and President of ENFIT – International Association Supply Chain Safety, Germany, who discusses the association’s ‘bulkvision’ blockchain initiative, and how this programme is being used to improve the transparency and traceability of products on a global scale

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roduct recalls have been the bane of supermarkets for a long time, which, more often than not, cause damage to a brand's reputation, consumer confidence and incur further costs for business. One of the most serious cases for this was the horse meat scandal – described by some as the biggest food fraud of the 21st century. The scandal made national headlines in 2013 after tests were conducted by the Food Safety Authority of Ireland (FSAI) on some supermarket frozen food samples in November 2012. From the FSAI's findings, one-third of beef samples contained horse DNA and 85 per cent had traces of pig in them. And with the Irish and UK supermarket supply chains being closely integrated, the FSAI warned the UK's Food Standards Agency (FSA) of its discovery, in an attempt to prevent further contaminants from entering food stores in England, Wales and Northern Ireland.

As the investigation continued, Silvercrest Foods (Ireland), Dalepak (Yorkshire) and Liffey Meats (Ireland), were identified as three factories and sources of beef products that had been contaminated or adulterated, according to *The Guardian's* report: Horsemeat scandal: the essential guide. Both Silvercrest and Dalepak are subsidiaries of the ABP Food Group – one of the largest beef processors in Europe – which pointed the finger at its suppliers in Poland for horse meat entering the supply chain. However, the Polish government took immediate action, by "checking its horse slaughterhouses and found no irregularities in labelling", *The Guardian* report notes.

The lack of transparency and communication between suppliers consequently led to health and safety risks across all ends of the supply chain, leaving long- and short-term damages to both customer and brand loyalty. While there were many lessons to be learned from this scenario, product recalls are still an ongoing and costly

issue for many supermarket chains in current times.

To improve the traceability of raw materials and produce from end-to-end, ENFIT – an international association, specialising in the standardisation of food safety and compliance – has developed 'bulkvision', a global container identification system designed for tracing foodstuffs and allergens in company supply chains. Hans-Dieter Philipowski, founder of ENFIT, and one of the software developers for the association's bulkvision global container identification system, talks to *Quality World* about how bulkvision is being used to spearhead quality, traceability and the transportation of products – and hopefully make product recalls a thing of the past.

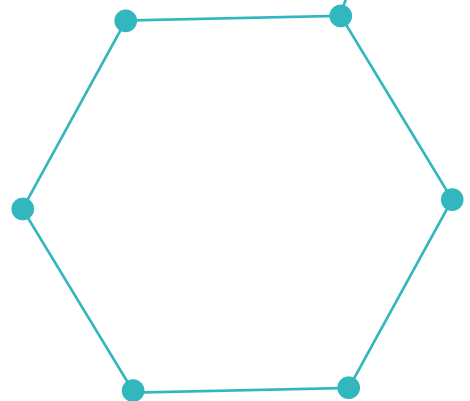
Quality World: What is ENFIT's main purpose and objectives?

Hans-Dieter Philipowski: ENFIT is a not-for-profit association in Germany, whose main goal is to ensure food safety and compliance are adhered to globally. The association does this by developing international standards, which includes ENFIT HQF (High Quality Food/Feed) – Certification of cleaning stations; the ECC-ENFIT Cleaning Certificate®; certified transport hygiene and certified ENFIT-DIN 10502-1 container inspection. These standards aim to increase security, safety and transparency in the supply chain worldwide, and are based on Regulation (EC) 178/2002, which lay down the general principles and requirements of food law, the Codex Alimentarius (UN) – "Food safety standards and HACCP hazard analysis" and others.



Above: ENFIT Founder and President Hans-Dieter Philipowski is hoping that bulkvision and ENFIT's latest guidelines will support global food safety.

Below: The Global Identification Number for transport containers is a key component of bulkvision.



The diagram shows a blue label with the text 'GLOBAL TRACEABILITY' at the top. Below the text are three identification methods: a standard barcode, a QR code, and an RFID transponder symbol. Lines connect each method to a green box on the right containing its name and digit count: 'BAR-CODE 16-digits', 'QR-CODE 16-digits', and 'RFID-TRANSPONDER DIGITAL KEY'. At the bottom of the label, it reads 'ENFIT - INTERNATIONAL ASSOCIATION - SUPPLY CHAIN SAFETY www.enfit.eu'.

We work closely with many companies, such as GMP+ International, a company based in the Netherlands that has developed the worldwide standard for Feed Safety: GMP+ FSA (Feed Safety Assurance) certification. The company also cooperates with DNV (formerly DNV GL), who act as a third-party certification body on behalf of ENFIT, by auditing businesses to ENFIT's standards. At present, the association has 118 members and counting!

QW: What sectors/industries belong to ENFIT's membership?

HP: ENFIT's membership comprises of food producers, logistics companies, cleaning stations, plant building companies, consulting businesses among others. International standards are developed by our members in different working groups, which are then published worldwide for quality managers and those who deal with food safety on a regular basis. Above all, ENFIT's standards are voluntary and help to protect the health of consumers, the manufacturing industry and retailers from costly product recalls.

QW: Could you tell us more about the bulkvision blockchain initiative and what it entails?

HP: ENFIT's bulkvision is a blockchain solution that has been developed to ensure full traceability for all stakeholders – from raw material and ingredient suppliers (eg, farms, mining/oil production) to manufacturers, logistic companies (eg, primary and secondary production), cleaning stations and transport workers/drivers. To do this, the blockchain product enables each company or individual

within the supply chain to check the transportation routes/locations of each transport units (eg, pallets, intermediate bulk containers and silos) from the latter's global identification number (GID).

To begin, users must download the bulkvision app on their tablet or smartphone device, and log in to their IT system via Saas (Software as a Service). After downloading the app and completing the registration process, individuals or companies can then access, add or update any important information, such as their personal details and the GID on the bulkvision labels, which are located on each transport/container unit.

Data is electronically documented in real-time, allowing organisations, individuals and other stakeholders to track and trace each container, by accessing the documentation and every process step that has been undertaken thus far. The process steps are shown in a list format, where viewers can see who performed the job, where it took place, the date the task was completed, or is set to be completed, and to which standard(s).

QW: How does bulkvision tie in with ENFIT's international and European standards?

HP: For the first time, the bulkvision software fully meets the requirements of the European Regulation (EC) 178/2002 (Regulation laying down the general principles and requirements of food law), which also includes the requirements for the tracing of raw materials and food. Up until now, it was only possible to carry out tracing using delivery documents and product specifications.

What wasn't previously possible was the tracking of a product's physical path, especially when the product is transported (unpacked) in transport units and is therefore exposed to other unknown influences (cleanliness and suitability for foodstuffs of the transport unit).

QW: Why was it important to bring bulkvision to the market?

HP: Often, incorrect or inadequate information about the cleaning procedure of a transport container is given, or it is not checked whether

the cleaning was successful or not. Logisticians also have different interests compared to producers where they're always looking to reduce costs. In practice, it is only possible to reduce costs by curtailing cleaning costs, which, of course, comes at the expense of quality.

This is the field of tension in which the food and feed industry finds itself. On the one hand, transport should be as cheap as possible, and on the other, the industry needs security and transparency, which is why it was vital to develop and bring bulkvision to the forefront.

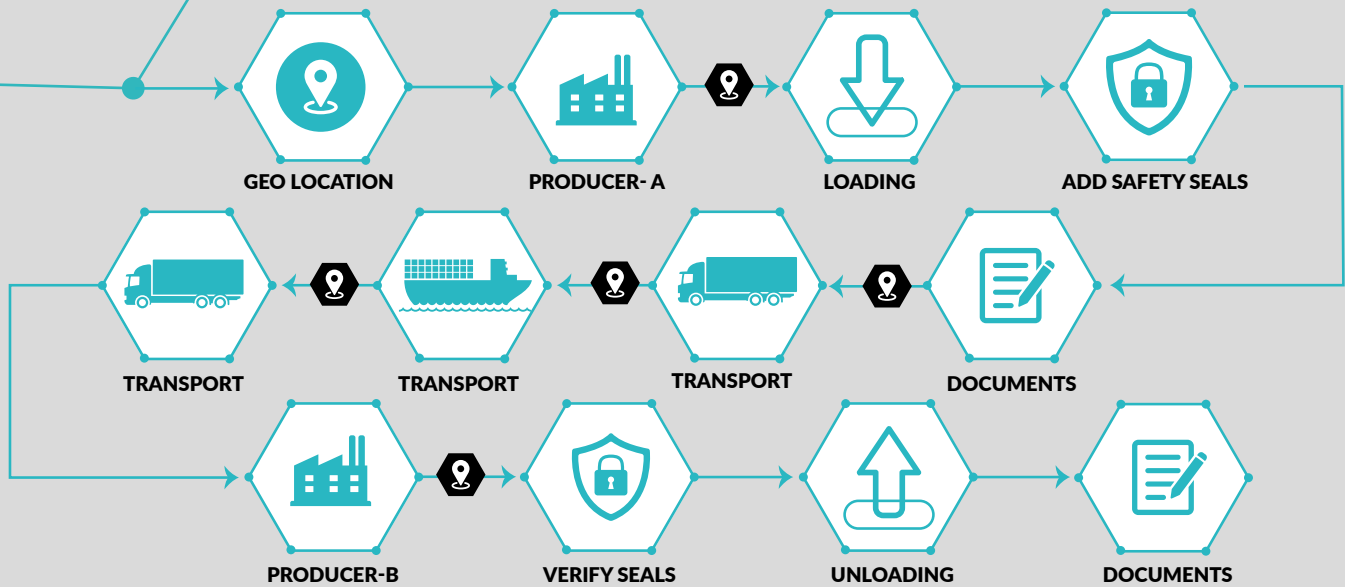
Another reason for its inception was after I discovered a lack of transparency and security in the supply chain. From my research, I found that the food and feed sector lacks concrete knowledge of how logistics works and has no real control over defining specific and controllable requirements. However, we anticipate that this will change dramatically with ENFIT's new guideline: 'Food Safety in the supply chain – transport of unpacked raw materials and food in transport containers'.

QW: What are some of main advantages of using bulkvision?

HP: Through the latest offering and GID, producers are able to save information about a product, including its details, allergens and GMOs [genetically modified organisms], in the cloud when it is loaded. The recipient (eg, a processing producer) can then check and verify this information. The same also works for the cleaning of transport containers, where a cleaning station records its data ▶

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TRACK AND TRACE ACROSS THE ENTIRE SUPPLY CHAIN



on the ENFIT cleaning programme, as well as their single process steps. Some of those procedures include the main wash, spilling, drying, cleaning validation and verification, plus detailed information about the time duration, temperature and concentration of the cleaning agents.

The ENFIT cleaning programme, together with the ECC-ENFIT Cleaning Certificate® – which is uploaded to the cloud, and states whether the cleaning station is certified and qualified according to the ENFIT HQF-standard – provides the next loader with all the information he/she needs without manipulation, following the aforementioned procedures that have been undertaken across the supply chain.

QW: What steps are involved for businesses to qualify and receive the ECC-ENFIT Cleaning Certificate®?

HP: This certificate can only be issued to cleaning stations that have successfully completed the ENFIT HQF certification. The ENFIT HQF certification is divided into the following three areas: Questionnaire/checklist (A), Inspection of cleaning technology (B), and Level of training of the cleaning staff and checking of the cleaning results (C).

The ECC-ENFIT Cleaning Certificate® is provided with an authenticity code

via blockchain, which can be verified by the next loader using the bulkvision software. Tampering with the cleaning certificate is therefore impossible, due to the verification certification processes that we have put in place.

QW: How does bulkvision ensure data is protected and free from manipulation?

HP: Logistic companies are very strict about the sensitive information they put out because there are so many different stakeholders and even competitors involved in the supply

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chain. Through bulkvision, everybody in the chain only gets access to the information that is vital to them. For example, in the production of milk chocolate, an individual might only have the details about where the milk powder was transported and when, but he/she cannot see who the loader is and in which place the product was loaded.

The only one who can see all the information is the logistics company that carries out the transport from one to the other and is the owner of the shipping container.

The decisive factor about bulkvision is that the sensitive data, for example, about the preliminary products, is exchanged directly between the producers. Only then can the producers be sure that the data has been truthfully provided.

To avoid data manipulation, a digital fingerprint identification function is embedded into the system so that users can see whether any blocks of information have been added or removed from the database. This will assist both businesses and individuals with ensuring all the data entering the system/supply chain is “trustworthy and standardised” from end to end.

In the event of a recall, the logistician can make the system accessible to customers (producers) or the control authorities, where all the individual

steps are seamlessly tracked with a time stamp, geographic location, who did what according to which standard, and uncover the cause of contamination.

The servers on which the data is stored in the cloud are operated according to European data protection regulations and hosted by ENFIT. Many stakeholders are afraid of storing their data on private platforms and therefore, as an association, ENFIT decided to host the data ourselves. Our association does not belong to any individual, and is not a provisional company that can be sold to anyone at some point – it belongs to its members. This gives the company's stakeholders maximum security.

QW: How does ENFIT deal with Covid-19 concerns and ensure there are measures in place for this through bulkvision?

HP: bulkvision contains an additional module called 'Cleaners Identification' which can be used to identify who has carried out cleaning for each container. If an individual becomes sick and contracts Covid, transport containers that have been cleaned by this specific person can then be withdrawn before the next load.

Another function is the digital check-in and check-out at production facilities. This means that a driver no longer has to stand in line to fill out a check-in questionnaire and leave his ID at the gate. With the bulkvision Driver app, the driver can now check in and out digitally – helping to reinforce and maintain social distancing.

QW: Are there any further updates or functionalities being introduced for bulkvision this year?

HP: Some of our new updates will include the bulkvision Supply Chain app, which allows drivers to invite the recipient into the bulkvision system after loading, so that the remaining travel time and the estimated time of arrival (ETA) are visible to the recipient(s). This means that an unloader – akin to a loader or cleaning station – can be informed directly about all changes in the arrival time without having to make long phone calls or emails. Additionally, producers and cleaning stations can use the bulkvision Supply Chain app to optimise their own processes.

QW: What are some of the main challenges that ENFIT has encountered and how does it plan to overcome them?

HP: A primary concern for ENFIT is the cross-contamination of raw materials, where viruses, bacteria, mould, allergens and salmonella have appeared as a result of transport containers that have not been cleaned or sanitised properly.

To overcome this obstacle, 58 representatives from logistic organisations, cleaning stations and certification companies came together to help create ENFIT's new guideline: 'Food Safety in the Supply Chain – Transport of unpacked raw materials and food in transport containers'. The guideline documents valuable and practical solutions to reduce risk in the transportation of raw foods/materials, which are easy to implement across all ends of the supply chain.

The guideline has been sent to many businesses (upon request) in Brazil, Egypt, Malaysia, UK, India and many other countries around the world. The recipients that have already reviewed it have provided us with positive feedback, explaining that the document is easy to follow, due to the number of illustrations and practical examples that help to highlight critical areas in the transportation of unpackaged food and raw materials.

QW: Looking ahead, what other projects does ENFIT have planned for this year?

HP: In February, we established a new working group that has been tasked with developing ENFIT's new 'Cleaning and Disinfection of Refrigerated and Box Vehicles and Overseas Containers guideline'. The association is aiming to have this ready for industry in Q4 2021.

In Covid times, this is an important topic that we want to answer as transparently and professionally as possible, akin to what we've done already in the area of unpacked goods.

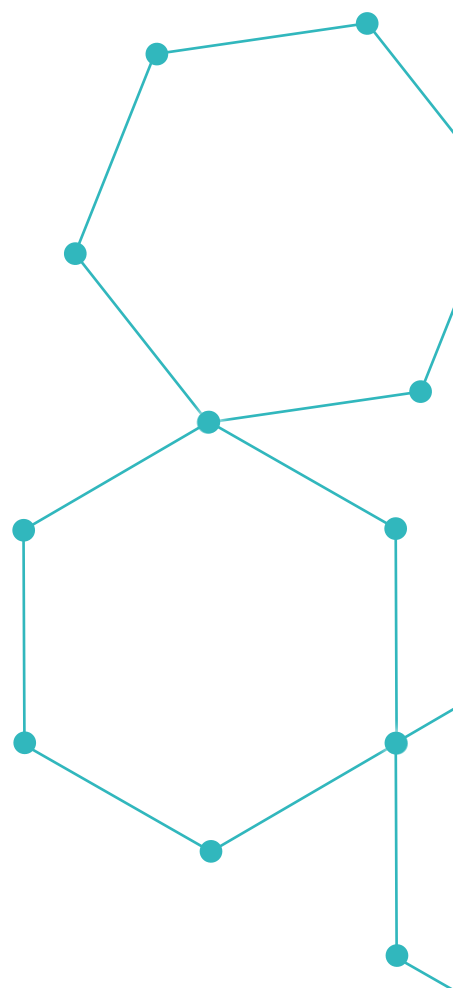
QW: What advice would you give to your members and other businesses who are trying to stop costly product recalls from happening?

HP: We recommend for all those involved in the supply chain to only use transport containers that are verifiably

suitable for transporting food (regular ENFIT-DIN 10502-1 inspection) and are regularly cleaned and disinfected in cleaning stations – certified to the ENFIT HQF standard.

The association has and continues to advise its members to follow ENFIT's HQF Standard for cleaning stations, its cleaning programmes, and carrying out regular validation and verification to stop viruses and, more importantly, costly recalls from occurring as a result of bad hygiene.

Track and trace is important for the supermarket and producer chains, particularly in this current decade. Therefore, we are hoping that bulkvision, together with our latest guidelines, will reiterate our message about the importance of food safety to the rest of the world. ●



For further information on ENFIT's bulkvision programme, go to:

enft.eu