

Development project

Packaging material information data model and digital sharing of data

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The importance of packaging information is increasing rapidly as part of regulation, responsibility and value chain information management. The EU Packaging and Packaging Waste Regulation and other sustainability regulations will require increasingly detailed, structured and verifiable information on packaging and its material composition. Internationally, the trend is from fragmented reporting data towards standardised, shared and interoperable master data, with information moving efficiently between different parties and systems.

This creates a need for common operating models and structures to manage and share packaging information more efficiently between different parties. The development project led by GS1 Finland examined how packaging material information can be uniquely identified, managed and distributed in the Finnish food chain.

Identification and a common data model

The development project assessed how the GS1 standards can be used in the management of packaging information. The recommended solution was to use GTIN-13 code-based identification for packaging components. The GTIN-13 code makes it possible to uniformly identify packaging components throughout the value chain. To support the implementation of codes, three operating models were created for different packaging components: unmodified components, fully customised components and made-to-order components.

The project also created a data model for packaging material information, which defines a common structure for what information about packaging components is required and how the information is presented between

different parties. Initially, the data model was limited to the most important basic information of the packaging components, such as identification, material, recycling and sustainability information.

At the same time, it was acknowledged that different parties have different roles and needs for information data: the packaging material manufacturer produces material-specific basic information, the packaging manufacturer combines the information into product information, and the retailer uses the information in, for example, reporting, sustainability communications and consumer information.

Stepwise adoption

A step-by-step roadmap was prepared for the implementation of the data model. The first phase focuses on the definition and piloting of a common information foundation, data model and operating models for identification. In the next step, the data model will be integrated into the companies' systems and information exchange, making packaging information management more efficient and automated.

In the long term, the aim is to build a broader ecosystem in which packaging information flows interoperably between different parties, systems and markets and supports new digital services and the implementation of regulations.

A common data model offers the opportunity to build a cost-effective and internationally interoperable way of managing packaging material information in Finland.

Key conclusions

- **A common data model is a prerequisite for data interoperability**

Efficient use of packaging material data requires a jointly agreed data model. Without common definitions, the risk of data fragmentation increases and parties have to build overlapping solutions.

- **Packaging information must be integrated into product information as a whole**

Combining packaging information with the product's GTIN and existing data streams facilitates the efficient use of information without building parallel systems.

- **Identification is a key enabler**

Without sufficient identification, it is challenging to allocate, combine and share information. However, the level and practices of identification must be defined in a balanced manner so that they support both the practical feasibility and future information needs.

- **Deployment requires step-by-step progress and collaboration**

The deployment of the data model requires piloting, a joint roadmap and the commitment of the different parties. The development can be accelerated by using existing solutions and progressing step by step from the key information needs.



Why is this important now?

- Regulations are tightening rapidly: the requirements for packaging information are increasing in terms of both content and reporting.
- The cost impacts are significant: without joint solutions, investments and operational costs will increase.
- The information already exists, but is fragmented: in the current state, the biggest challenge is not the lack of information, but its interoperability.
- International development is progressing: packaging information is moving towards standardised and distributable master data.

Project presentation

The Packaging material information data model and digital sharing of data development project was part of the Interoperable Traceability programme coordinated by GS1 Finland, which aims to improve the information management and competitiveness of the food chain through common standards and operating models.

The aim of the project was to develop an operating model for the identification of packaging components together with key industry parties and to define a data model for packaging material information as part of product information. The work used data structures and principles created in previous GS1 Finland development projects, such as the Data Model of Raw Material Master Data and the Data Model of Food Sustainability.

The project was implemented in early 2026. The work included reviewing international examples, mapping out the current situation and joint industry workshops in which solutions related to the identification

of packaging, key information needs and the prerequisites for the implementation of the data model were identified. A large number of companies in the food industry, retailers and packaging sector participated in the work, which made it possible to take different perspectives into account when defining the data model.

The outputs of the project were:

- a description of the operating model for the identification of packaging components
- limited packaging material information data model
- a structure of the principles of information management and information exchange in the value chain
- a preliminary roadmap for the deployment of the data model

We would like to thank the following companies for participating in the development project

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