Data model of
food sustainability

Summary

Future business opportunities are built today

The food chain's business environment is undergoing major changes worldwide. A single actor cannot solve the growing needs for sustainability information. They can be met through the cooperation of the food chain. The next joint step is to build international competitiveness for Finnish food using data from sustainability – to make sustainability visible with the help of data and develop it further.

CONSISTENTLY AND STANDARDIZED

Using data based on global standards, it is possible to communicate sustainability from farms all the way to international consumers. The transmission and utilization of information in the food chain is all the more efficient the more actors use uniform and standardized elements, e.g. in the identification of products and raw materials or in the structure of the products' master data.

The data model of food sustainability is GS1 Finland's proposal on how sustainability-related data could be collected and in what form it could be shared in the chain. GS1 Finland's proposal for a data model is based on the utilization of GS1 standards, and in order to prepare the model and map the needs, GS1 Finland has held discussions with various players and companies in the industry. The data model can be used freely by the operators of the entire food chain, and each com-

pany independently chooses to what extent it will use or whether to use the proposed data model at all.

In the product's basic information, sustainability consists of four modules:
- origin information
- packaging material information
- packaging labels and certificates
- carbon footprint.

Future elements of the transmission of information may include e.g.
- a standard identifying raw material production and product manufacturing batches
- GS1 2D code, which enables more accurate product identification information in a machine-readable format
- the GS1 Digital Link standard, which enhances communication related to the product or its manufacturing batch both to the consumer and from the consumer back all the way to the producer

With consistent and traceable data…

- the international competitiveness of the food chain grows
- companies can develop a more consumer-oriented selection
- companies prepare for stricter information requirements in legislation
- consumers can make choices based on sustainability.

Example GS1 2D code, which can be scanned to read the user manual of the sustainability data model, in Finnish.

Consumer   Store or restaurant   Retailer   Supplier   Raw material production   Authorities

GS1 Finland's action proposals to implement the business opportunities of the data model

2023

- The origin information is specified by production stage, both for the finished product and for the raw materials. Primary production and food companies produce origin information systematically, and trade operators ensure receipt of origin information at the ingredient level, primarily for the main raw materials.
- The GLN location and party identifier will be implemented throughout the value chain, so that future traceability solutions and the identification of production phases related to the origin are possible systematically and efficiently.

- The construction of the data model for initial production will be started and the GS1 system will be implemented for everyone to use.
- Cooperation is intensified to enable the efficient transmission of carbon footprint information and to agree on operating models.
- GS1 Finland specifies the reporting of packaging materials and product-related certificates as part of the Synkka service development work.
- Collaboratively building capacities for the introduction of GS1 2D codes in the next few years to ensure cost efficiency.

2024

- The possibilities of reporting the origin information on a batch-by-batch basis, when needed, will be investigated.
- A model for the automatic and systematic distribution of facility certificates and various certificate files is defined.
- Work will be started to promote the wider collection and sharing of carbon footprint

information in the food chain. When communicating carbon footprint information, it is important to consider the results of various ongoing projects (e.g. LCA FoodPrint)..
- Coordinated by GS1 Finland, the data model of packaging materials will be specified as part of the Synkka service development work.

2025

- As the use of GLN identifiers expands, the sharing and utilization of information in various use cases throughout the entire chain will be enabled.
- More and more calculated and verified value is used to convey the carbon footprint. If product-specific values are not available, it is important to use average data from a generally accepted and agreed upon database. The goal is that more and more products

have a calculated carbon footprint value, and the information can be better utilized, e.g. in selection planning and calculation of companies' emission calculations and possibly in consumer communication.
- Defining, in cooperation, the possibility to expand the data model to e.g. environmental footprint and carbon footprint data and to add social sustainability data elements to the data model.

The development project for the data model of food sustainability

The Food Data Finland growth engine project, which aims to increase the export of the Finnish food chain by billions, brings together the actors of primary production, industry and trade to develop a food chain based on open standards and utilizing data, and thereby promote innovations in products and services with high added value.

In September 2022, GS1 Finland implemented a development project Data model of food sustainability, which was part of the Food Data Finland program. The end result of the development project, completed in March 2023, was GS1 Finland's proposal on what kind of sustainability-related data could be collected and in what form it could be shared in the chain. GS1 Finland's proposal for a data model is based on the utilization of GS1 standards. In order to prepare the model and map out the needs, GS1 Finland had discussions with various actors and companies in the food chain. The starting point of the data model was strongly taken from the consumer's point of view, i.e. the information needs and wishes related to the consumer's purchase process.

WE THANK THE FOLLOWING COMPANIES AND ORGANIZATIONS FOR THEIR EXPERT HELP DURING THE PROJECT