Pilot project
The digital distribution of plastic pipe product information with a 2D barcode

The Finnish Plastics Industries Federation and its partners piloted the digital distribution of plastic pipe product information with a machine-readable code. The pilot project tested how such code could make the management of network information easier in water supply. The investigations on the incorporation of GTIN into machine-readable code yielded good results. The pilot was part of a project to facilitate the storage of product information and to improve the management of network assets in water utilities.

Based on the pilot's findings, the view was strengthened that a machine-readable code could streamline data collection without a significant increase in workload during the data collection phase. A smoother collection of data would enable the traceability of objects in the future, as well as improve the quality of online data.

GS1 Standards
Based on the Proof of Concept (POC), which was carried out as a part of the pilot, it is recommended to use a GS1 DataMatrix barcode or a GS1 QR code as a data carrier. This is because they fit in a small space, can accommodate more information than a linear barcode, and remain better readable despite possible wear. For data content, the minimum requirement is the GTIN of the product and the batch or production date information. By searching with the GTIN, other information related to the product can be found from the LVI-INFO product register.
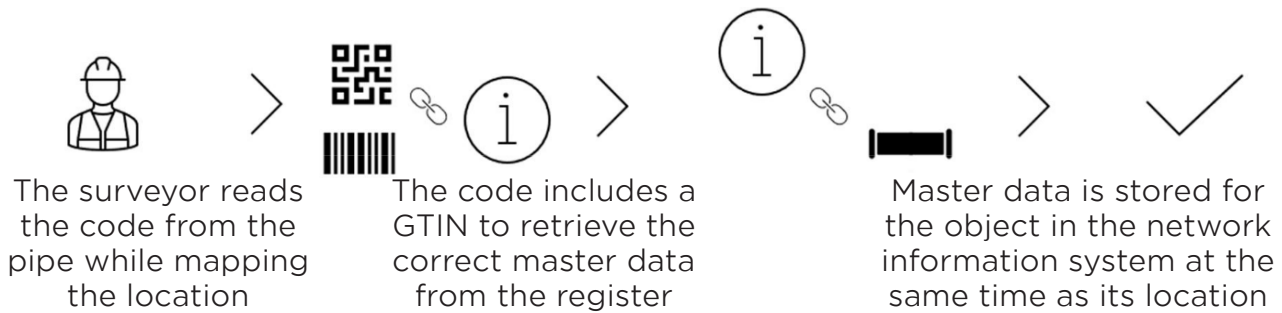
The batch number or production date allows the item to be traced with the accuracy of the place and time of manufacture. If necessary, other information can be added to the data content with GS1 Application Identifiers.
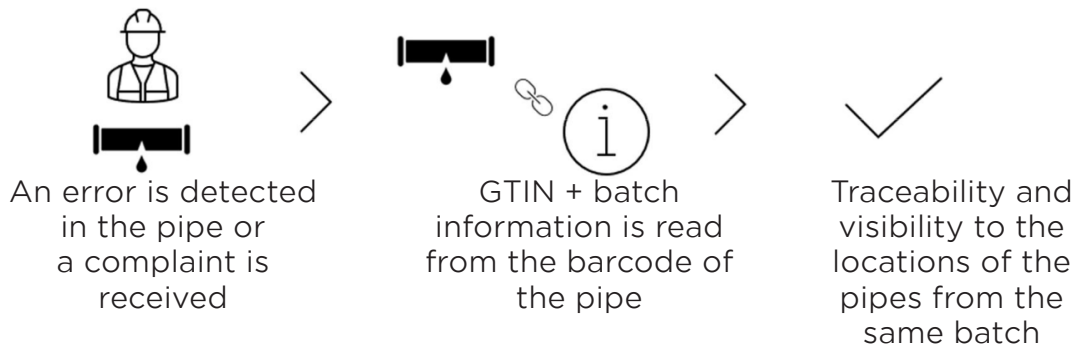
Future requrements
The above requires development in the processes and systems of different actors. Adding code to a product requires manufacturers to make changes to the current process and possibly invest in equipment, which has economic implications. The technology already exists, but it requires more detailed testing. Product labeling for plastic pipes can be implemented within the technical limits of laser and inkjet printers. In addition, product labels can be developed with adhesive labels. The next essential task for the continuation of the project is to find out the technical possibilities and cost implications for adding the presented code to the products.

The implementation also requires that the detailed information of the product is correctly stored in the product information database – in this case the LVI-INFO product register. Manufacturers and importers should ensure that all the necessary information can be found. From the point of view of the water supply operator, the implementation requires the specification of the instructions, the development of the systems in use and possibly the purchase of equipment.

Use case 1. Utilization of machine-readable code in the work of a surveyor

The surveyor reads the code from the pipe while mapping the location

The code includes a GTIN to retrieve the correct master data from the register

Master data is stored for the object in the network information system at the same time as its location

Use case 2. Object tracing in the event of a failure of material

An error is detected in the pipe or a complaint is received

GTIN + batch information is read from the barcode of the pipe

Traceability and visibility to the locations of the pipes from the same batch

Opportunities for the industry

The implementation of the machine-readable code will increase the level of digitalisation in the water supply industry, which will bring new opportunities for information management.

The aim of this pilot was to identify the suitable data carrier and its content and to outline a unified process for the industry, which will enable the implementation of a sustainable solution for different actors in the future.

The use of digital tools reduces manual work in the collection of network data during the construction phase, which in turn reduces errors that are result of misinterpretations in the manual work. The quality of the online data collected improves when there is less chance of error.

Expanding information content enables better asset management. Better utilization of the opportunities of digitalisation in the industry offers manufacturers of plastic pipes the opportunity to provide water supply operators with more comprehensive information about their products. For example, the place of manufacture information in connection with the object creates a basis for calculating the carbon footprint.

This paper is a translation of the summary of the pilot project report that was originally published in the website of Finnish Plastics Industries Federation. Purpose of the translation is to give non-Finnish readers a general idea of the content of the pilot project.

The original Finnish report is available from anyone involved in the implementation of the pilot.