



In response to the European Union's objective aiming at tracing and controlling fishery products throughout the entire chain, Visveiling Urk initiated a pilot project for a uniform identification and traceability of fish boxes and their content during all phases of catch, sale and processing.

The goal of the project is to create a proof of concept based on RFID technology amongst others, allowing the realisation of a sound "track & trace" methodology and environment that can serve as a model for the rest of the fisheries industry. The final concept has to be accessible and practicable for all chain partners – big and small – and should therefore be based on the latest technological developments, while also being approachable enough for smaller companies to join.

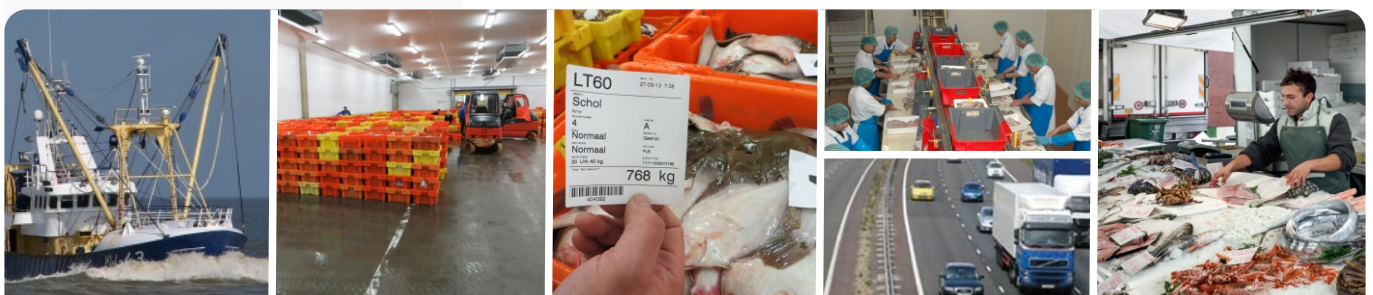
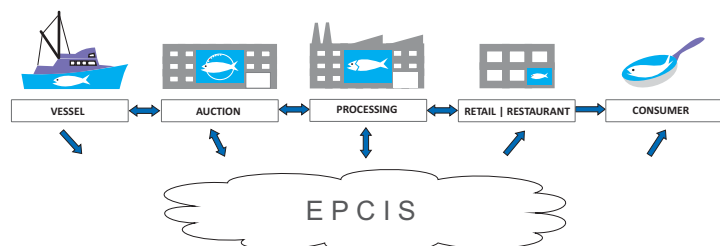
For the realisation of the pilot project, Visveiling Urk opted to work with RFID technology. Boxes were equipped with RFID tags, each tag having a unique identification number to which all relevant box and content information is linked. This information can be completed, read, updated and managed throughout the entire chain.



Tracking and tracing of fish and fish boxes using RFID technology

The challenge

- The environmental conditions in the fishing industry are harsh; equipment and technology must be resistant to water, moisture, salt and rough handling.
- The identification of fish boxes and their content must be started on board of the vessel and be integrated in the electronic logbook (E-Catch).
- The fish boxes are transported in different positions throughout the chain; it must be possible to read the RFID tag during all transitions.
- The data stream from the electronic logbook to the electronic sales system and from there to the processing industry has to be based on a uniform protocol that can be used in all of the fish auctions in the E.U. and can be connected to a central database in the cloud.





The solution

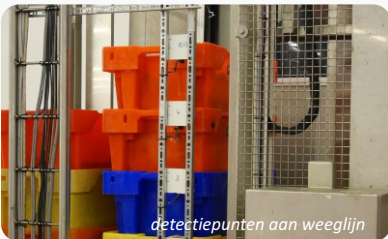
RFID fish boxes

In collaboration with box manufacturer Craemer a new fish box was developed based on a durable and future-oriented concept that guarantees identification:

- In every box 2 slots were incorporated in which RFID tags can be slid. These slots have been positioned in such a way that the RFID tags can be read in whatever position the box is placed.
- The boxes and tags are resistant to cleaning under high temperature (80 °C) and high pressure.
- The boxes have a lifespan of over 10 years and as technological developments evolve rapidly, the RFID tags can be replaced by newer versions at any time.
- The boxes can be supplied with or without RFID tags, allowing a buyer to adopt RFID technology at a later time.
- Every box has a clearly visible unique number.
- It is possible to provide a pre-printed label that can be scanned with barcode or QR-code scanner in case no RFID technology is available.



RFID portaal distributie naar boten



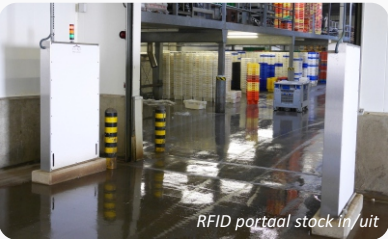
detectiepunten aan weeglijn



RFID portaal distributie naar kopers



detectiepunten aan wasstraat



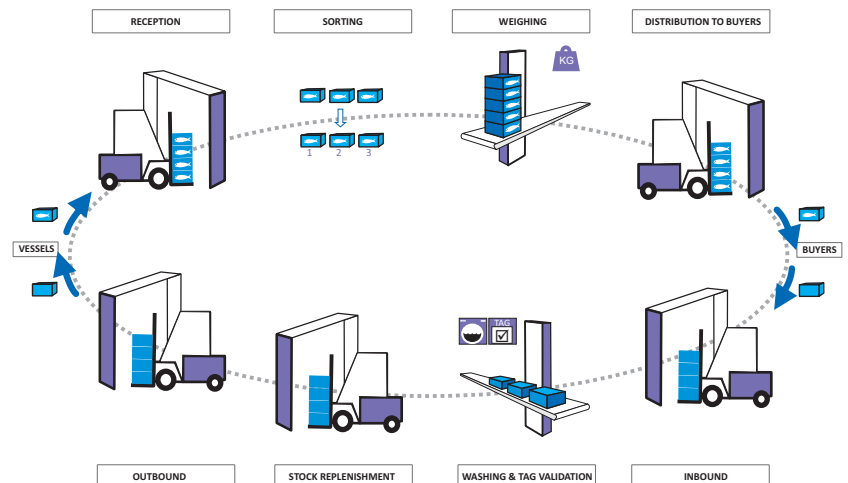
RFID portaal stock in/uit

RFID portals

On 4 locations on the fish boxes' route (arrival, distribution, reception of empty boxes and stock) RFID portals were installed that automatically detect and identify the fish boxes and their content. These portals were constructed using materials that are highly resistant to the wet and salty environmental conditions.

RFID detection points

On the conveyor belt of the weighing line RFID antennas were installed that register which boxes are being weighed. Here a link is established between a box and its content. In the washing line RFID antennas were installed along the conveyor belt that check, before and after the manual sorting, whether both tags in the box are still perfectly working.



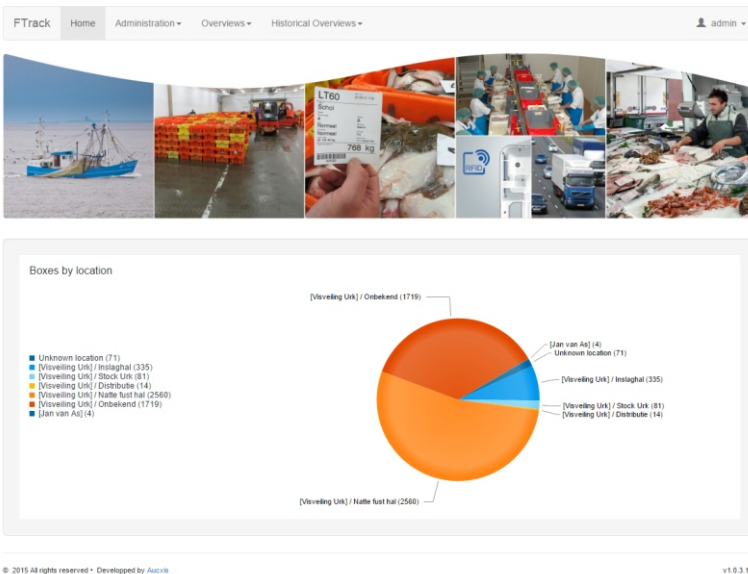
RFID handheld reading equipment

For situations where manual handling is required – e.g. when a sold lot has to be split up towards different buyers – 2 handheld scanners were provided for the scanning of the tags. These devices can also be used as back-up scanners in case a portal is not available.

The F-Track web portal

Aucxis developed a web portal, called F-Track, on which the location of all fish boxes and their content can be consulted in real time during all the steps in the chain (vessel, auction, buyer, transporter, processing company).

The data originates from a database which is based on the EPCIS platform of GS1 and allows a uniform data exchange with, amongst others, the electronic logbook(E-Catch), the sales system of the auction and its administrative software package (A-Fish).



The result

The “track & trace” concept that emerged from the enthusiastic collaboration of all parties involved in the project was tested by practical experience. We are excited to announce that the results achieved are very promising! Today the team continues to fine-tune its durable solution, suitable to operate in the specific environmental conditions of the fishing industry and offering a forward-looking answer to the European legislation regarding traceability of fish throughout the chain, from net to plate.

- Visveiling Urk knows, at any time, the position of its tagged boxes.
- All parties involved can identify, at any time, the fish in the fish boxes.
- Through box management, losses and theft are easily detected; consequently they can be considerably reduced in the future.
- Fish boxes can be used more efficiently as all relevant information, such as the turn-around time, are known.
- The potential input of wrong data at manual actions is excluded.

X Aucxis RFID Solutions 11:18

Scan transactie tag

urn:epc:id:grai:8717921.00001.1
urn:epc:id:grai:8717921.00001.15
urn:epc:id:grai:5412345.00001.2

Clear

Epc: urn:epc:id:grai:8717921.00001.1
Id: 5846090
Aanvoerder: UK-112 - Wilhelmina
Vissoort: Tong
Koper: 999 - Doordraai
Gewicht: 80.00 kg
Aantal kisten: 2

<< Terug

Verder >>

screen shot of the handheld application: box transaction details

Further evolution of the project

- Replacement of the complete fish box pool at Visveiling Urk with new RFID boxes. Since this entails a huge investment, fish box producer Craemer investigates whether the existing boxes can be re-used by means of recycling of the plastic.
- Extension of the number of detection points.
- Extension of the “track & trace” concept with additional identification methods such as barcode and QR-code technology in order to improve the accessibility and acceptance within the industry.
- Integration of the fish box management in the administrative software (A-Fish).
- Automatic data detection and data exchange will considerably reduce the amount of paper, now being used e.g. for the printing of various tickets.
- Development of middleware which allows connection to existing administrative software through standard communication.
- Cross-border extension of the concept to achieve the traceability of fish and fish boxes of all European fish auctions on a central European web portal.
- Grouped purchases and centralised hard- and software will result in considerable cost savings.

The partners



Visveiling Urk, established in 2008 as a result of the fusion of the fish auction markets of Urk and Harlingen, is a nationally and internationally renowned company that is, in terms of turnover and volume, the largest fish auction of the Netherlands and one of the most important in Europe.
Contribution to the project: initiator, knowledge of the industry.



E-Catch B.V. is supplier of the electronic logbook of the same name "E-Catch" that was developed in collaboration with Aucxis.
Contribution to the project: integration of the RFID box identification number in the landings application of the electronic logbook.



Visserij Coöperatie Urk (VCU) is a maritime specialist offering a full-service concept of both goods and services. VCU's product range includes complete fish processing systems on board of fishing vessels.
Contribution to the project: extension of its CatchManagement System for the weighing and registration of fish on board.



Craemer is one of the world's leading manufacturers of high quality plastic pallets, and also recognised as one of Europe's market leaders in storage and transport containers.
Contribution to the project: development of a universal fish box with integrated RFID tag.



Versvishandel Jan van As is a family business that offers a broad range of high-quality fish, crustaceans and shellfish to the hotel and catering industry, large-scale consumers and retail business in the Netherlands.
Contribution to the project: testing of the incoming and outgoing tagged boxes.



Aucxis is a renowned expert in business automation, offering over 30 years of international experience in the development of tailor-made automation solutions.
Contribution to the project:

- The development of an RFID tag suitable for use in the inherent environmental conditions of a fish auction and perfectly integrated in a fish box.
- The determination of the position of the RFID tag in the fish box so that reading is guaranteed in different positions.
- The determination, implementation and evaluation of the most suitable RFID reading points and equipment.
- The development, implementation and evaluation of the necessary software for data processing and data management based on the standard EPCIS communication protocol of GS1.

Catch Date Vessel Species Weight Fishing Zone Fishing Method

Catch date	Supplier	Species	Weight (kg)	Zone	Visiemethode
6-3-2015 23:26	UK-158	Giet	38,20	27.04.b	PUL - Pulswaig
6-3-2015 23:25	UK-158	Rog - Steekling gewone ro	38,10	27.04.b	PUL - Pulswaig
6-3-2015 23:24	UK-158	Kabeijaar	103,68	27.04.b	PUL - Pulswaig
6-3-2015 23:24	UK-158	Talbot	37,32	27.04.b	PUL - Pulswaig

Box number

Detections

Lot number	Species	Size Label	Weight (kg)	Box Count	Created On	Removed on
▶	Schol		40,11		8-3-2015 10:07	9-3-2015 8:00
▶	Schol		39,98		8-3-2015 10:07	9-3-2015 8:00

Event-time	Company	Biz Step	Biz Location	Disposition	Box Count	Buyer
8-3-2015 10:07		Weighing on vessel (commissioning)		On ship weighted	1	-
9-3-2015 7:13	Visveiling Urk	Intake	Inslaghal	Taken in	1	-

Buyer

F-Track

Loads created (Load Count : 2)

Lot number	Species	Size Label	Weight (kg)	Box Count	Created On	Removed on
▶ 51	Schol		62,00	2	9-3-2015 8:13	

Event time	Company	Biz Step	Biz Location	Disposition	Box Count	Buyer
9-3-2015 8:13	Visveiling Urk	Weighing	Inslaghal	Weighted	2	-
9-3-2015 11:36	Visveiling Urk	Distribution	Distributie	Distributed	2	59 - Urk Export

09:00

9-3-2015

Buyer