

SMART TAGS DRIVEN SERVICE PLATFORM
FOR ENABLING ECOSYSTEMS OF
CONNECTED OBJECTS

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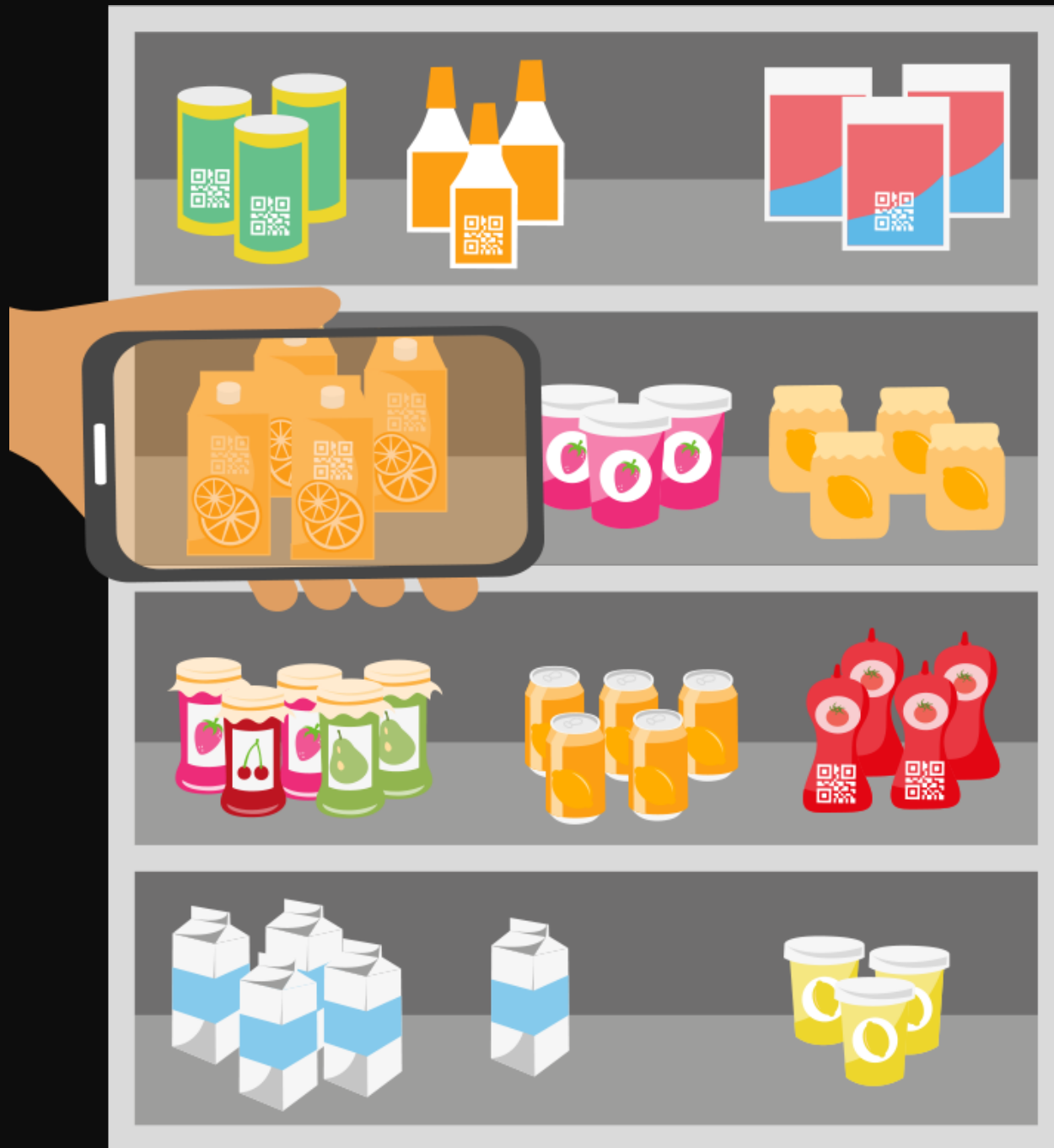
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Do you
know their
story?



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Let them
speak...



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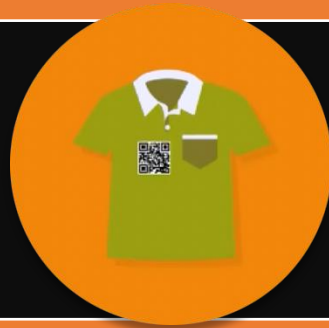
Scorching
hot...
or cold and
cozy...



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Overall project objective

Connected mass market products

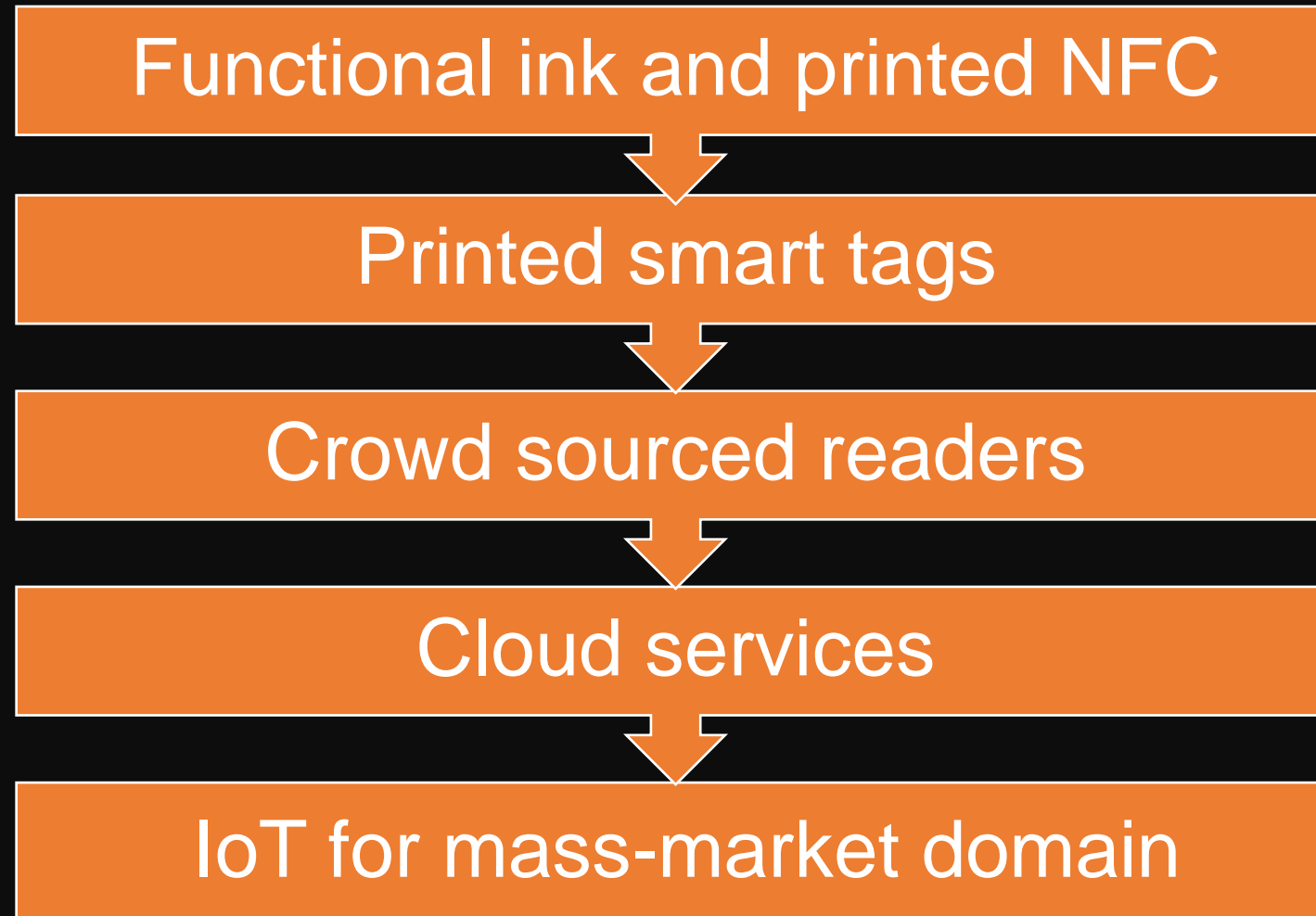


with unique identity that can report on their environment



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Overall vision





**Smart printed tags + smartphones + cloud =
IoT for mass-market products**



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Stakeholders' benefits

Manufacturers: able to control products throughout the lifecycle and create a channel to communicate and interact with consumers and other stakeholders

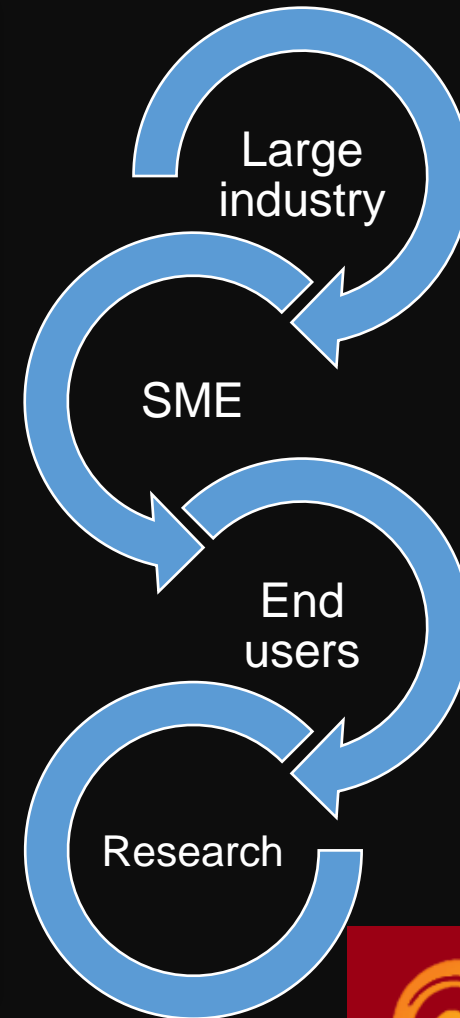
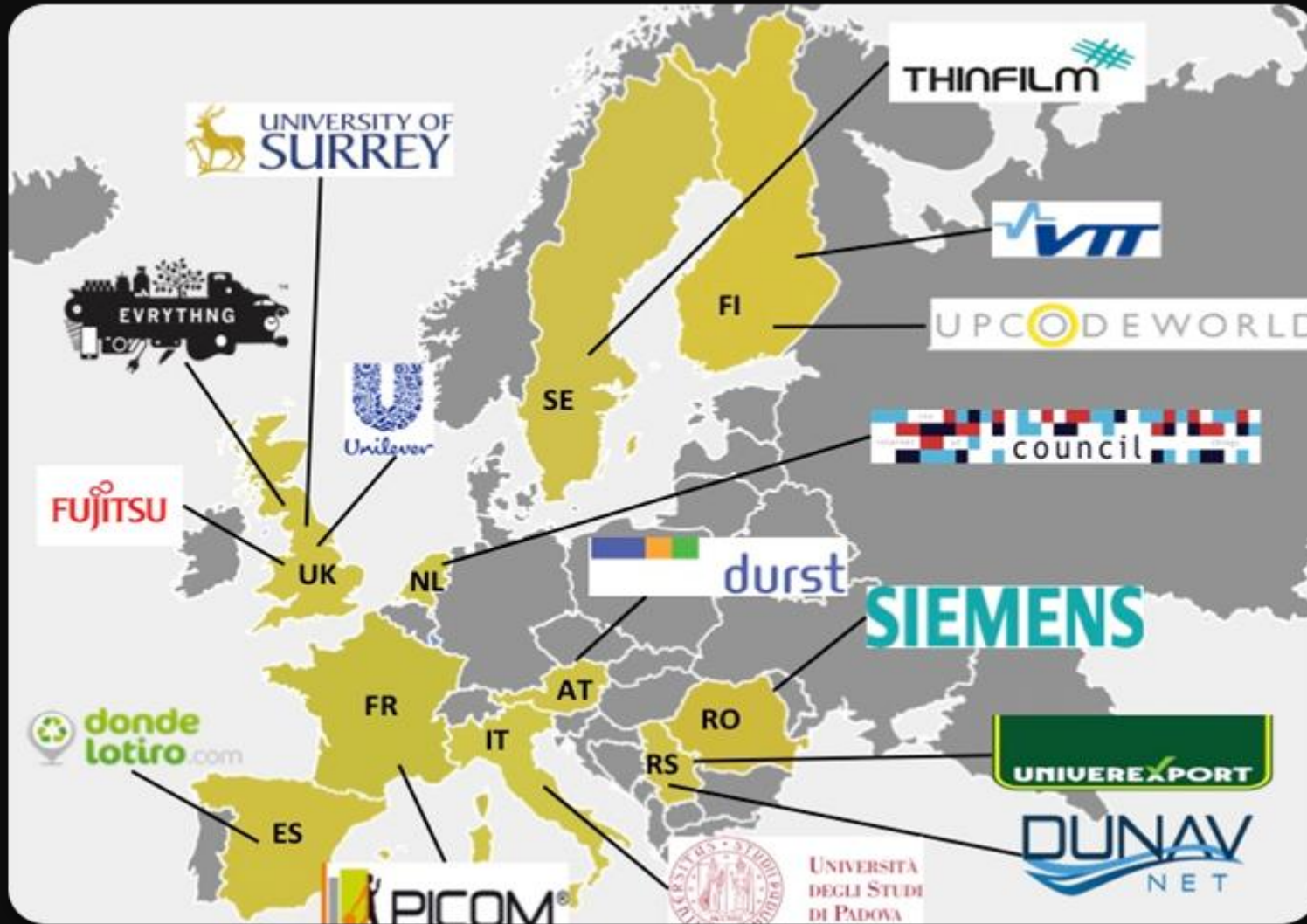
Logistics and transport companies: get relevant information about the products and can ensure right transportation conditions

Retailers: better engagement with consumers, item level control, actionable data to increase customer satisfaction and boost sales

Consumers: get to know item level story of each product, new services tailored to the context and time



We are...



Web: www.tagitsmart.eu

Email: info@tagitsmart.eu



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SmartTags



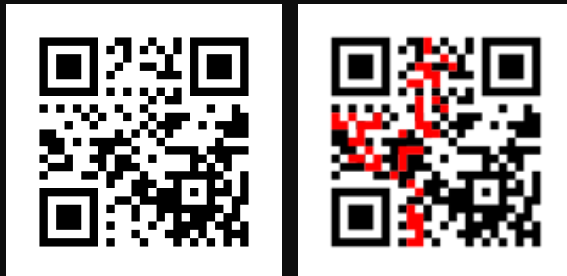
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Smart Tag encoding



Data Matrix code with sensor area

- 1st, 2nd and 3rd generation based on the existing standard, 3rd generation selected



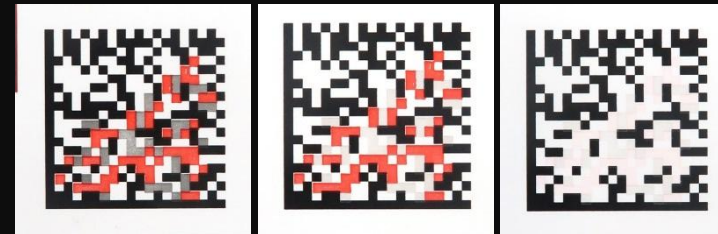
Dual QR code

- Code content changes when functional ink (red area) appears or disappears, limitation in URLs used



QR code combined with an image

- 25 digit alphanumeric value, red area is the sensor



Smart Tag with multiple functional inks with the same threshold for color change

- 2 codes in one tag, no limitation in URLs used



Smart Tag and label designs for use cases



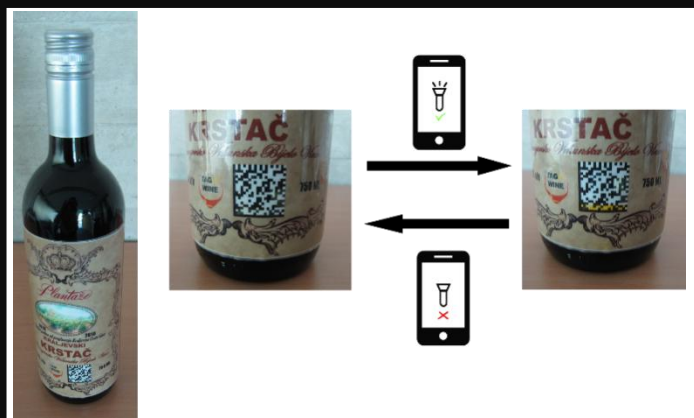
*Life-cycle
management*



Digital product



Brand protection



Home services



Dynamic pricing



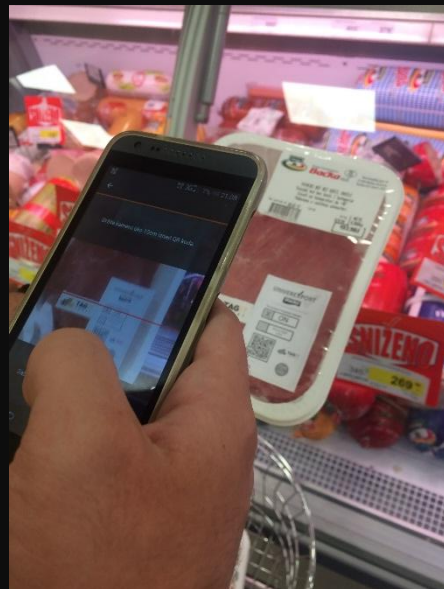
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Smart Tag scanning



Data Matrix with sensor

- **Sensor value (mobile app) is compared into VE info**
- **Information of reading procedure is updated into TagItSmart database**



QR code with image

- **Optimal scanning distance defined**
- **There is possibility to fetch more than one tag with the scanner**

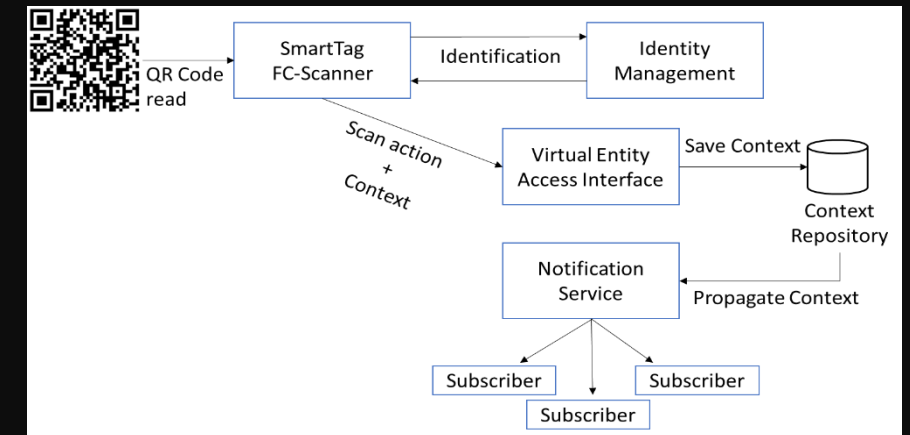
NFC scanning

- **Test setup at TFE**



Scanning with context

- **Context information can be added to the scanning action by either the FC-Scanner or the services that process the scanning**



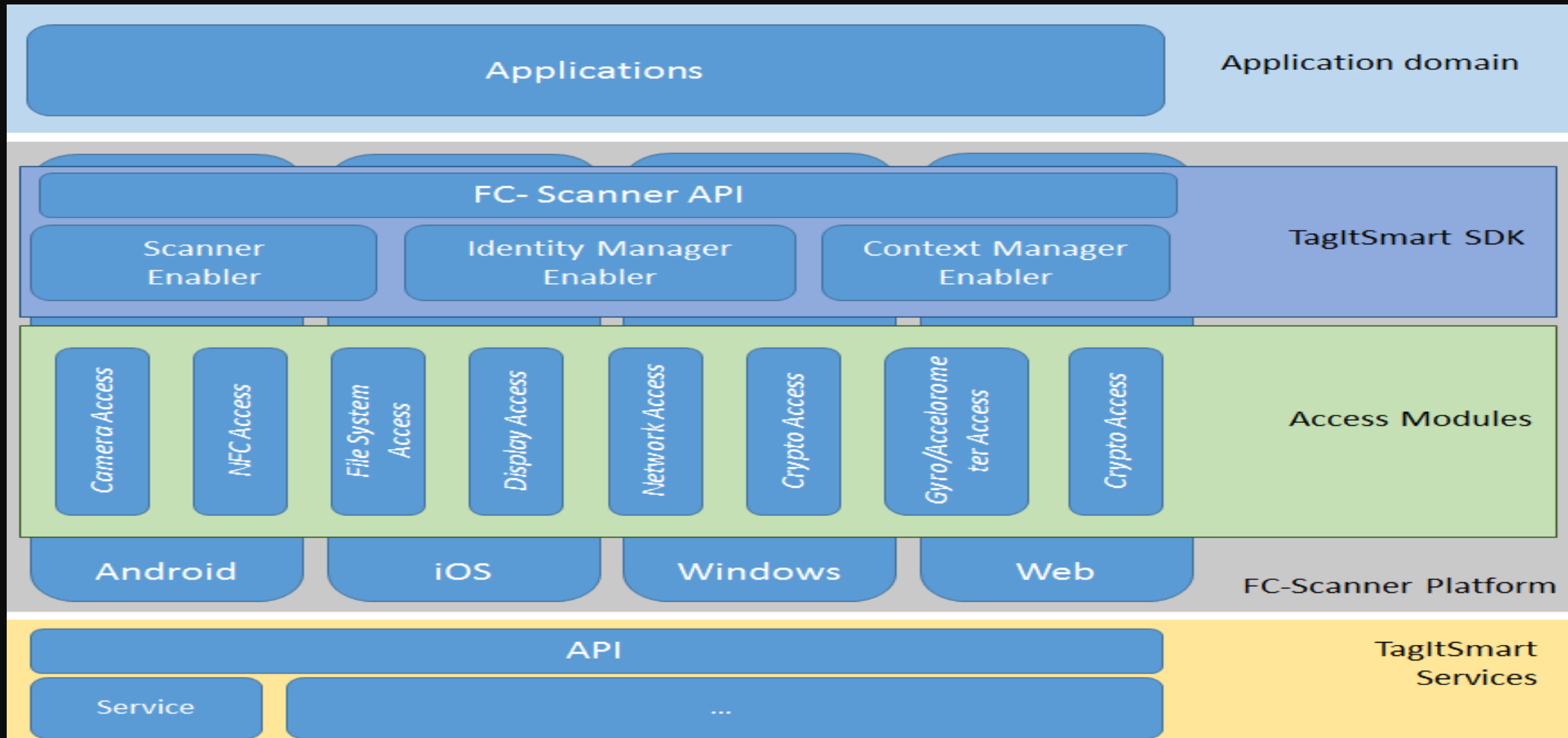
FC-Scanner



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Development of FC-Scanner Enablers (1/2)

- Top-level enabler architecture



Development of FC-Scanner Enablers (2/2)

- Enabler features

Scanner

- QR and NFC support
- Provides colour and geometry information
- Uses device camera or NFC H/W

Authentication and IDM

- User authentication based on login credentials
- Utilises token authentication methods
- Token contains all the relevant information about user rights and capabilities used for the context management
- Will be extended with more sophisticated methods (i.e. behaviour, movement)

Context management

- Provides information based on the token, scanned code (QR or NFC), location etc.
- Information provided reflects the user context (location, role, type of product scanned, application used)
- Information is retrieved from the backend cloud infrastructure
- Text, multimedia files (images, audio, video) Augmented Reality and Virtual Reality content

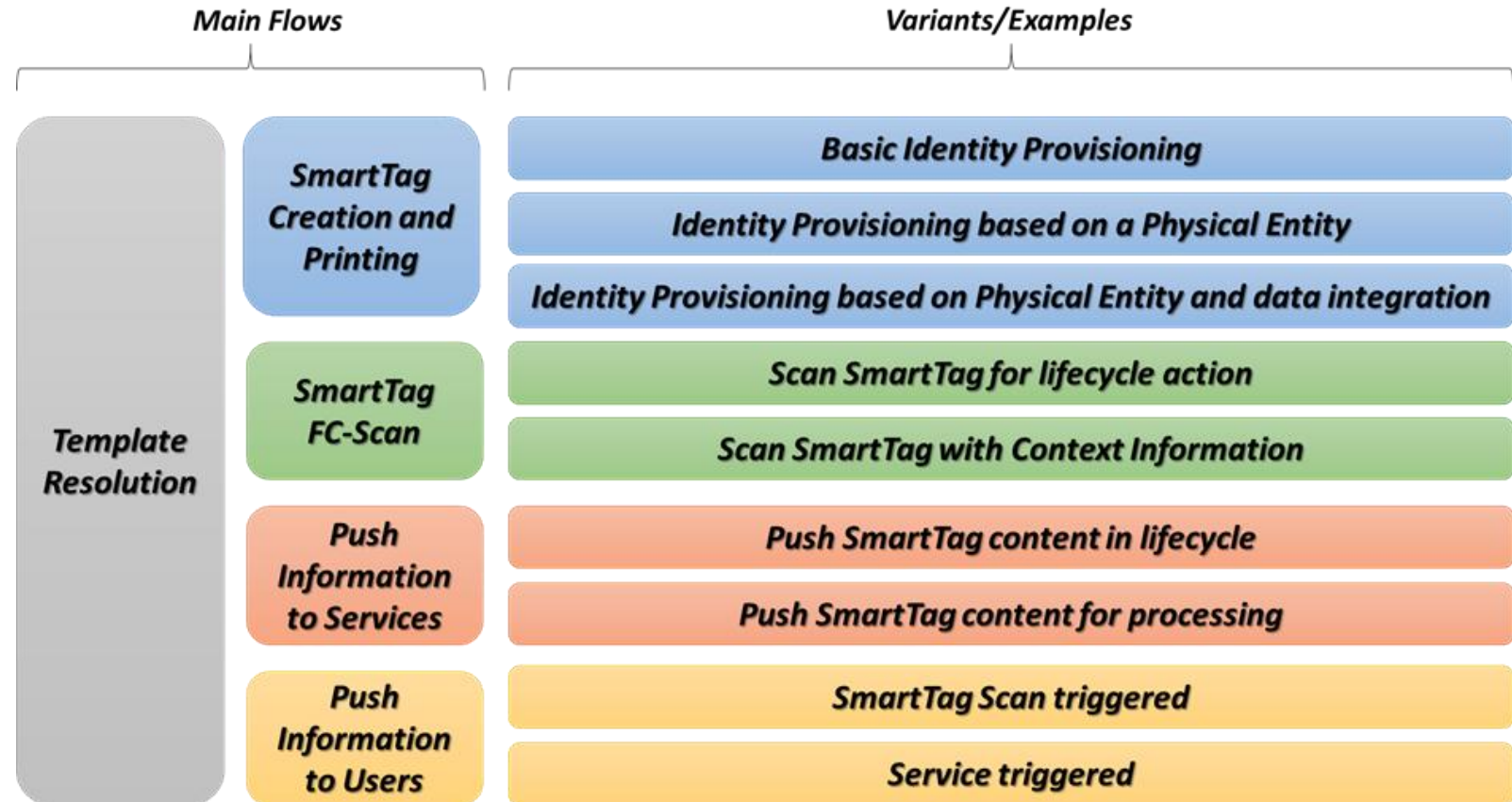


FC-Scanner Application

- *FC-Scanner is developed as a mobile application to scan SmartTAGs*
- *Features of FC-Scanner includes:*
 - *performs user authenticate*
 - *able to decode DM (Data Matrix) and NFC codes*
 - *able to collect and send the requested context information along with the extracted data to the TIS platform*



Information Views



Use cases
description and
requirements
extraction



Use cases and pilots

LIFECYCLE MANAGEMENT

Consumer engagement through recycling



Wirral, UK
(November 2017)
Palma de Mallorca, Spain
(July - October 2018)

Greenbranding, engagement, consumer information

The idea: Implementing a system that provides information on how to recycle every consumer packaged good (CPG) and rewards the citizen who recycles. Tracking the FMCG lifecycle and obtaining valuable consumer behaviour information.



Ice cream trials
100 smart tags
50 end users



FMCG trials and pilot
6,000 smart tags
10,000 end users

Functional inks to detect problems in the cold chain (TTI irreversible inks) and indicate the best temperature to eat the ice cream (Temperature Indicator reversible ink).

IoT QR codes and NFC labels to reward citizens who use the TagItSmart app to scan the products they buy, consume and recycle in the correct recycling containers and banks.



DIGITAL LIFE TAGITWINE!

Beer Manufacturing Originality proof



UPCODE Ltd.



Podgorica, Montenegro

Lifecycle management consumer-directed market

The idea: Attaching smart product personalization, control and distribution. The beer is manufactured until the recycling.

VIS-photochromic textures (reversibly activate-able with smartphone flashlight)

The idea: Tagging wine bottles, boxes, and pallets to trace and control the wines through the supply chain and during the product life cycle. Enabling product authenticity control, consumer-product interaction, customer loyalty and brand protection.



1. **Switch on the flashlight** of your handheld device.
2. **Get your flashlight** in direct contact to the code.
3. **Move the handheld** within 5 s across all textures; colored textures appear.

OPEN CALL PILOT

Experience, improved loyalty

of cold supply chain
– Smart labels attached about its authenticity, discount information.



HOME SERVICES

Service sales



Lille, France
during 2018 Q1,
involving 30 customers

Business model transition to service

The idea: Managing maintenance schedule of customer's appliances as far as consumables reorder planning. Empowering customer for service order and consumables reorder.



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End User involvement

Nowadays consumers are familiar with QR codes but they not willing to read them regularly by their mobile phones; they feel that they do not get any **additional value** from it

They see the **most potential** in

- Unique and / or personalized products, with high quality content
- Ensuring food safety
- Ensuring the authenticity of the products
- Creating connection to producers

Consumers were **suspicious about**

- If it is too easy to counterfeit the codes
- Recycling of the tags
- Privacy issues

It is essential that the consumer can **trust** the service and service provider

DWELA



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THANK YOU

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