

오픈소스로 여는 뉴노멀

2020 공개SW 페스티벌



과학기술정보통신부
Ministry of Science and ICT



정보통신산업진흥원
National IT Industry Promotion Agency

Oliot 사물인터넷 오픈소스 플랫폼 - 스마트시티로의 여정 -

Auto-ID Labs, KAIST
김대영



2019년10월 27일 인도네시아 발리



Global Dialogue on Seafood Traceability Trackathon

DEVPOST

Hackathons

Projects

For organizations



GLOBAL DIALOGUE
on Seafood Traceability

GDST Cologne Trackathon, 21-22 October 2019

The Global Dialogue is hosting its second Seafood Trackathon of 2019!

Thank you!
Sponsors and
Partners



KAIST



METRO

TRACE



WIPOTEC OCS



Microsoft



SECOND
MUSE



Bali Trackathon, 26-27 October 2019

Global Dialogue on Seafood Traceability (GDST) is hosting its second Seafood Trackathon of 2019!

- Auto-ID Labs, KAIST is kindly supporting the hackathon with access and use of its **OLIOT EPCIS** engine.



<https://traceability-dialogue.org/gdst-news-2/gdst-seafood-traceability-hackathon-2>



"With the data Global Fishing Watch provides, governments, fishery management organizations, researchers and the fishing industry can work together to rebuild fisheries and protect critical marine habitats."

— Leonardo DiCaprio

The Leonardo DiCaprio Foundation is proud to be a Funding Partner of Global Fishing Watch.



Oliot Open Source Project (KAIST) Apache License

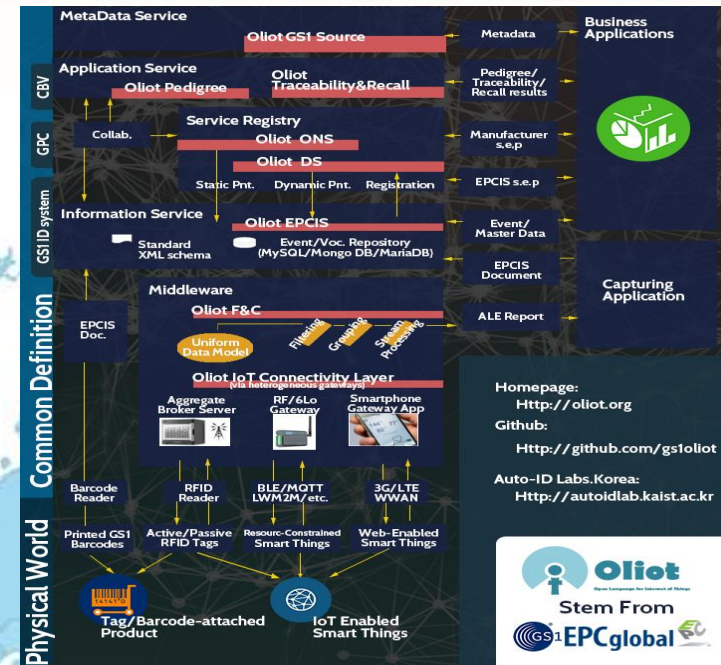
popularity

2014년 6월25일 (Oliot 1.0)
2016년 (Oliot 1.2)
2020년 하반기 예정 (Oliot 2.0)



1 5,454

6 Continents, 103 countries, 1159 Cities,
14,205 Organizations/Companies/Individuals
2020.10.21.



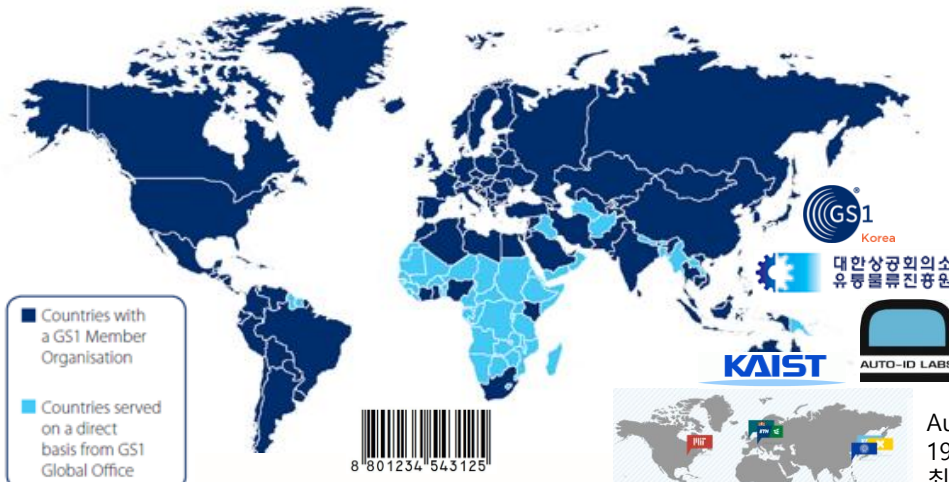
GS1 비영리 국제표준기구 – 세계최대 민간 국제표준기구 (비즈니스, 산업, 사물인터넷, 데이터)



The Global Language of Business

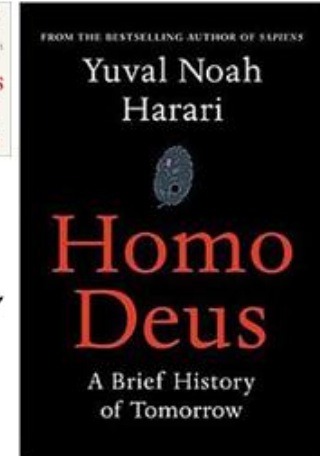
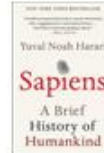
115개국 국가-MO (Member Organizations), 170개 국가 공식 활용
2백만 이상의 기업 멤버로 구성된 세계최대의 비영리 국제표준기구

한국은 **대한상공회의소** 산하의 **GS1 Korea (유통물류진흥원)** 와
Auto-ID Labs, KAIST GS1 국제표준공동연구소 운영
(KAIST, MIT, Cambridge, ETH Zurich, Keio, Fudan University)



Auto-ID Labs가
1999년 세계
최초로
사물인터넷 소개





RECORD, UPLOAD, SHARE!



The Global Language of Business

Identify,
식별하고,

Capture,
기록하고,

Share,
공유하고,

Use
활용한다

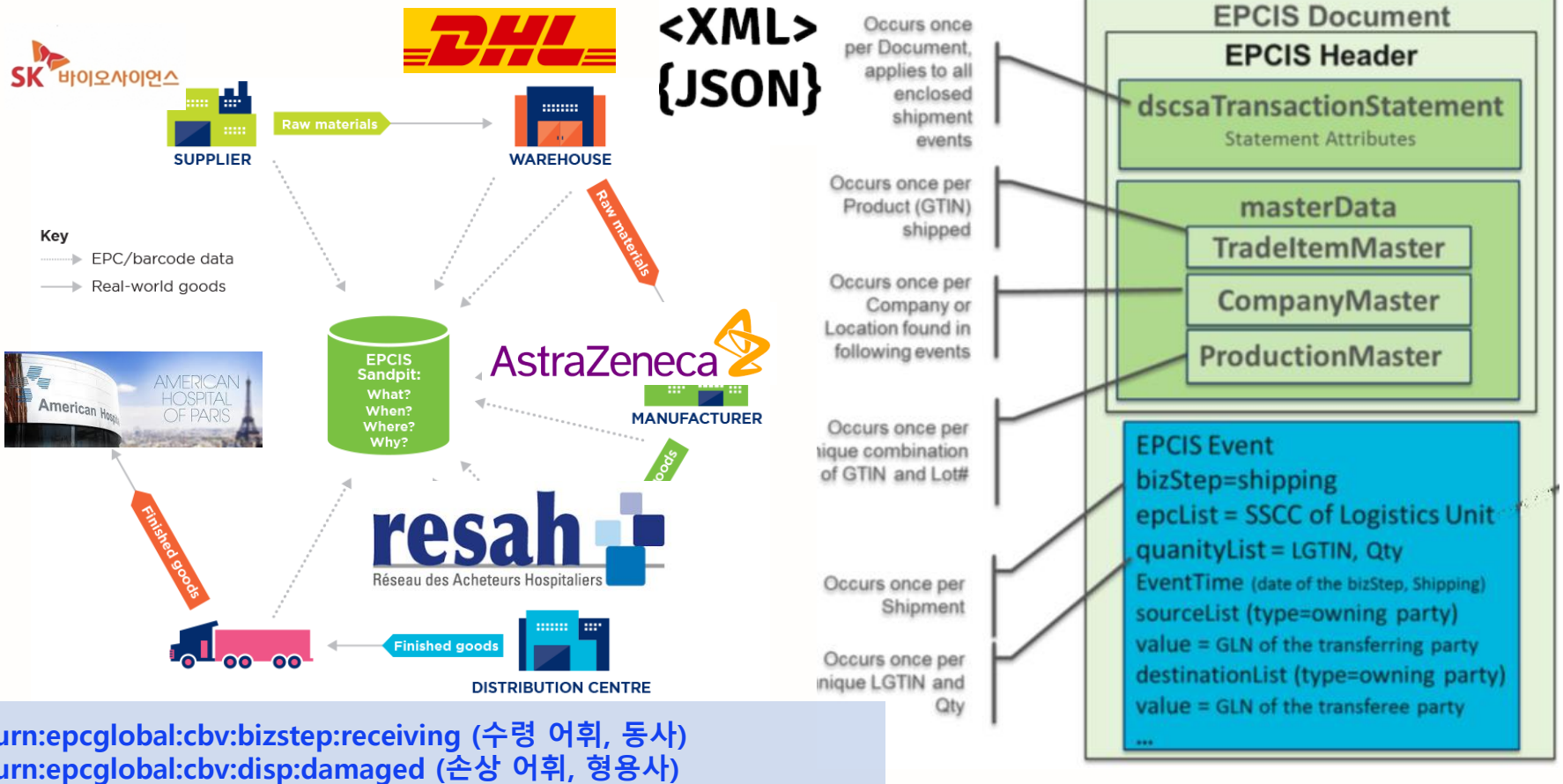
GS1 (ISO/IEC JTC1 SC31) - 식별체계



urn:epc:id:sgtin:8806489.00253.100006374184 (백신식별자)



GS1 어휘 체계 / 데이터 모델 및 공유체계



GS1 데이터 (기록 및 검색 대상) 예제

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- Example scenario: Manufacturer produces and commissions serialized items -->
<epcis:EPCISDocument xmlns:epcis="urn:epcglobal:epcis:xsd:1"
xmlns:sbdh="http://www.unece.org/cefact/namespaces/StandardBusinessDocumentHeader"
xmlns:epcismd="urn:epcglobal:epcis-masterdata:xsd:1" xmlns:gs1brhc="http://epcis.gs1br.org/hc/ns"
schemaVersion="1.1" creationDate="2015-06-29T15:14:27.574-04:00"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:epcglobal:epcis:xsd:1
https://www.gs1br.org/healthcare/epcisschemas/GS1-BR-EPCglobal-epcis-1_1.xsd">
  <EPCISBody>
    <EventList>
      <ObjectEvent>
        <eventTime>2015-06-29T15:12:16Z</eventTime>
        <recordTime>2015-06-29T15:12:16Z</recordTime>
        <eventTimeZoneOffset>-05:00</eventTimeZoneOffset>
        <epcList>
          <epc>urn:epc:id:sgtin:789123.0012345.10000000000003</epc>
        </epcList>
        <action>ADD</action>
        <bizStep>urn:epcglobal:cbv:bizstep:commissioning</bizStep>
        <disposition>urn:epcglobal:cbv:disp:active</disposition>
        <readPoint>
          <id>urn:epc:id:sgln:789123.111111.0</id>
        </readPoint>
        <bizLocation>
          <id>urn:epc:id:sgln:789123.111111.0</id>
          <!-- Example showing use of local identifier -->
          <!--when using CNPJ <id>http://epcis.gs1br.org/hc/cnpj/loc/12345678000276</id> -->
        </bizLocation>
      </ObjectEvent>
    </EventList>
  </EPCISBody>
</epcis:EPCISDocument>
```

When?

What

Why?

Where?

식별자

어휘



GS1 EPCIS 표준 데이터 예제 (백신의 일생)

GS1 Digital Link + ONS (Object Naming Service), GS1 사물인터넷 사물의 웹링크, 서비스 등록 및 검색 표준

Short URL GS1 Digital Link

wrxfq.tn.gg



URL

<https://wrxfq.tn.gg/01/5000157089908>

Download

PNG / PDF / Custom

Setup redirection

Setup image recognition

Object Name Service
(ONS)

서비스
리스트

GS1 식별자

manual
html
epcis
...

자동차 원격진단 서비스

Service
Access



자동차 수리 예약
서비스



Digital Link



GS1 비영리 국제표준기구 산업 적용 사례 (유통물류, 헬스케어)

TECHNOLOGY

Alibaba Group Holding Ltd (BABA) Takes on GS1 and GS1 China Standards



Alibaba's most recent initiative aims to make it the best for the customers and brand contributors

Published by: Ken Bock on October 6, 2016 10:41 am EST



The Global Language of Business

GS1 standards are helping the NHS to save thousands of lives and millions of pounds

In 2014 the UK Department of Health mandated the use of GS1 standards across the NHS

- All NHS Trusts must adopt GS1 standards
- Every supplier of every product and service into the NHS must also become GS1 compliant

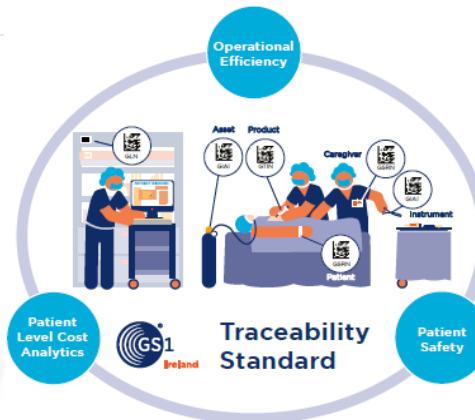
With an organisation the size of the NHS, the challenge is being faced head-on in a collaborative programme between GS1 UK, the Department of Health and NHS Trusts in a stepped approach.



Home | Headlines | Amazon mandate that sellers use GS1 barcodes



Amazon mandate that sellers use GS1 barcodes



EPCIS allows trading partners to exchange data in concert with products as they move through the supply chain. The industry pilot between JSC and ABC did just that, with actionable and repeatable results.

GS1 비영리 국제표준기구 산업 적용사례 (철도, 해양수산, 항공)

New GS1 application standard for visibility in rail

Provides roadmap for rail stakeholders to gain visibility of rolling stock and access to real-time information



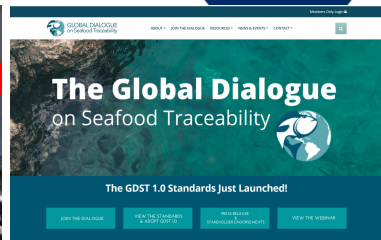
Maritime and Ports industry initiative overview

The required collaboration between the key actors in a port environment will only be facilitated through the use of **internationally agreed definitions, standards and timestamps**.

Capt. Andreas M. van der Wurff
Husbanding Manager, Maersk Line, Operations Execution, Rotterdam, the Netherlands
04 October, 2016



Making air cargo easier, smarter and faster





WHY IS ALL NECESSARY?





ABOUT

JOIN THE DIALOGUE

RESOURCES

NEWS & EVENTS

CONTACT



The Global Dialogue on Seafood Traceability



2013 – WEF Global Agenda Council on Oceans (세계경제포럼)

--> traceability identified as a key to sustainable management of oceans

2015 – Gordon & Betty Moore Foundation funds WWF & IFT-GFTC

--> start of work to launch the Global Dialogue on Seafood Traceability

The GDST 1.0 Standards Just Launched!

JOIN THE DIALOGUE

VIEW THE STANDARDS
& ADOPT GDST 1.0

PRESS RELEASE
&
STAKEHOLDER ENDORSEMENTS

VIEW THE WEBINAR

글로벌 수산물 이력추적 표준시스템이 필요한 이유 안전 / Safety [1] 규정 / Regulations [2]

US' FDA warns of listeria found in salmon, tuna in Texas, Louisiana

http://www.fsis.go.kr/front/api/totalView.do?cnts_id=24800&title=%EC%97%B0%EC%96%B4&select_list_no=3

By Undercurrent News July 19, 2019 13:26 GMT



FDA는 날것으로 먹는 참치와 연어를 비롯한 즉석 해산제품에 대한 회수에 전념했음에도 불구하고, 회수된 식품의 수탁자가 회사의 회수사실을 보고 받았는지, 그리고 재고품을 시장으로부터 회수하는 조치를 취할 수 있는지에 대한 확인을 할 수 없었다고 발표했다.



HOME



Tackling **illegal**, **unreported** and **unregulated** (IUU) fishing

Fishing is illegal if:

- no authorisation
- against conservation and management measures by Regional fisheries management organisations (RFMO)
- against national laws or international obligations.



Fishing is unreported if:

- not reported, or the reporting contravenes international, RFMO or national laws and regulations.

Fishing is unregulated if:

- the fishing vessel has no nationality
- fishing activities jeopardise fish stocks.

IUU fishing practices:



The EU's fisheries control system:



Aims to ensure that only fish caught in accordance with applicable conservation and management measures reaches the EU market. This applies to all, EU and third countries producers.

1. The "IUU regulation": establishing a Community system to prevent, deter and eliminate illegal, unreported and unregulated fishing - Regulation (EU) N°2017/2403
2. The regulation concerning sustainable management of external fishing fleets - Regulation (EU) N°2017/2403
3. The regulation establishing a Community control system for ensuring compliance with the rules of the common fisheries policy - Council Regulation (EC) N°1224/2009

글로벌 수산물 이력추적 표준시스템이 필요한 이유 해양생물보호/Protection [3] 인증 / Certifications [4]

The certifications require at least 50% mangrove cover per farm. Farmers can then sell certified shrimp to the Minh Phu Seafood Corporation at a premium price.

Full Solution
Shrimping Horizons: How Shrimp Farmers are Saving Thousands of Hectares of Mangroves in Vietnam



by Ann Mooney
International Union for Conservation of Nature (IUCN)



Shrimp Farming in Cà Mau
© MFF

Extraordinary tropical forests that grow at the edge of the land and sea, which are also rare and increasingly threatened.



IN DEPTH
SAVING MANGROVES
A NEW WORLDWIDE PARTNERSHIP AIMS TO PROTECT AND RESTORE A CRITICAL ECOSYSTEM

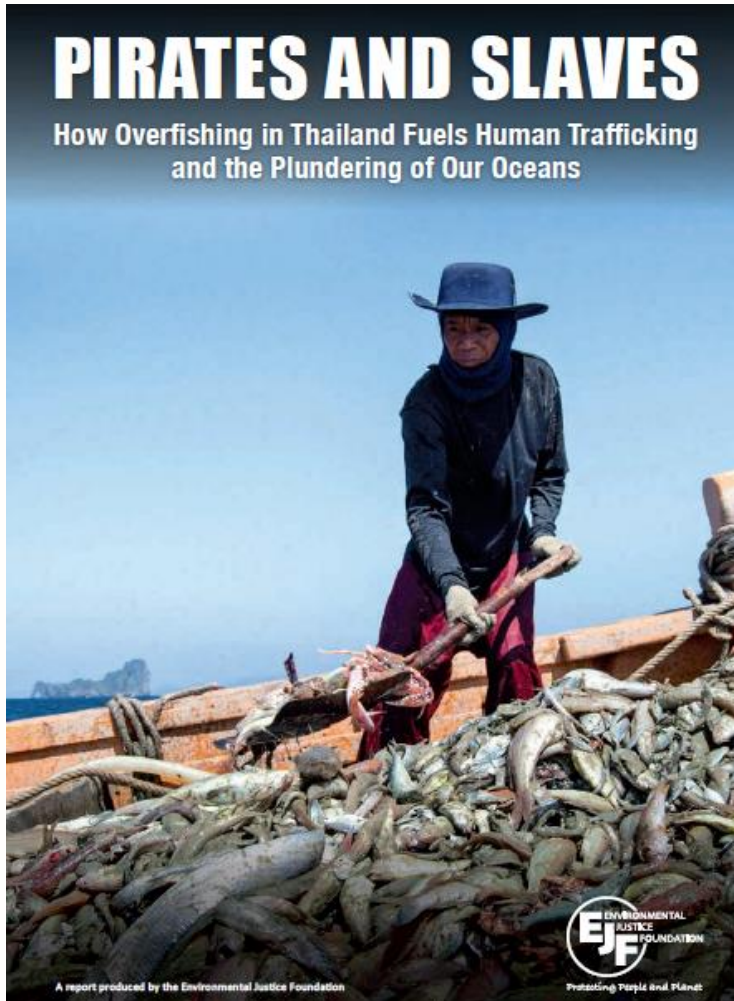


Marine Stewardship Council (MSC)
해양관리협의회

Aquaculture Stewardship Council (ASC)
수산양식관리협의회



글로벌 수산물 이력추적 표준시스템이 필요한 이유 해적어업/인신매매 [5] 브랜드가치/Brand Power [6]



Tracking & Tracing of products – Why?

Product recall,
Anti counterfeiting,
Shrinkage reduction



Consistent Solution



Increasing legal
requirements

Food scandals
&
Consumer trust



Global scalable and standardized Traceability System



Digitalisation and
increasing
consumer demand
for more
information

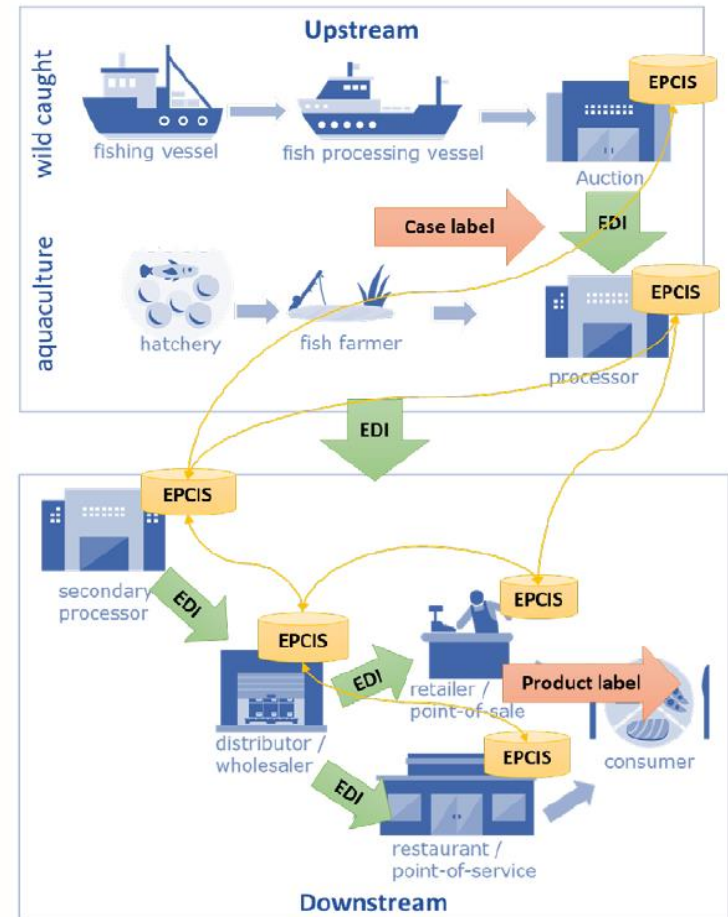
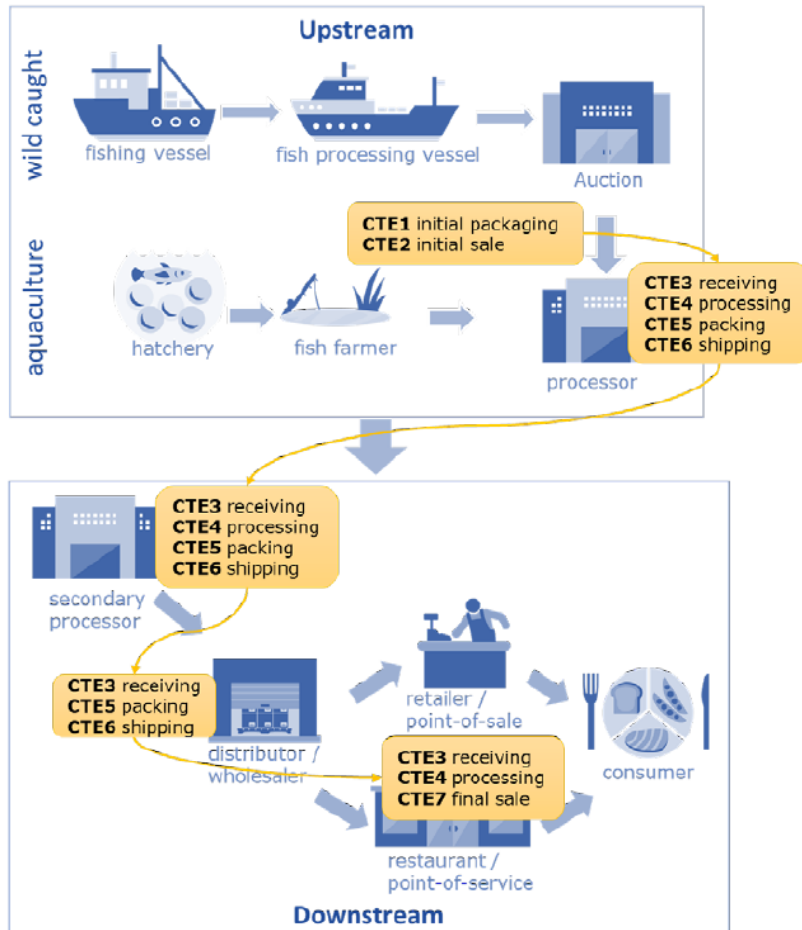


METRO GROUP's approach to marine conservation gave importance to "the protection of the marine environment" on the G7 agenda.



METRO GROUP
Visibility from Catch to Customer

Sharing Critical Tracking Events Data for Seafood Traceability (주요이력추적이벤트)



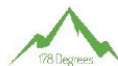
Global Dialogue on Seafood Traceability



A. Espersens A/S – Ahold Delhaize – Ajinomoto Co., Inc – Aquaco, LLC – 178 Degrees – Aldi Nord – Anova Food USA – AP2HI – Asian Alliance International Company – Charoen Pokphand Foods Public Company Limited (CPF) – Bolton Food – Bomar (PT. BOGATAMA MARINUSA) – Culinary Collaborations LLC – Bumble Bee – General Tuna Corporation (Century Pacific Tuna) – Intercity Packers Meat & Seafood – Japanese Consumers' Co-operative Union – China Aquatic Products Processing & Marketing Alliance (CAPPMA) – Citra Mina – Envisible – Fishin' Company – Hong Kong Exhibition Centre – Labeyrie Fine Foods – LDH (La Doria) Ltd. – Lidl Stiftung & Co, KG – Luen Thai Fishing Venture – Metro – Publix Super Markets, Inc. – Sainsbury's Supermarkets Ltd – Morrisons Supermarkets – Mt Cook Alpine Salmon – Seachill Part of the Hilton Food Group – Seacore – New England Seafood – Southeast Asian Packaging and Canning Ltd – Stavis Seafoods – Sysco Corp – Target – Nissui – Thai Union – Orca Bay – PT Segara Makmur Indonesia – PT Bumi Menara Internusa (BMI) – Wegmans – Santa Monica Seafood – Sea Delight – Socskarsgen Federation of Fishing and Allied Industries, Inc. – Taylor Shellfish – Woolworths Group – Co-op UK – Thai Tuna Industry Association – Tri Marine – Vietnam Association of Seafood Exporters and Producers – Vinatuna – Whole Foods – World Tuna Purse Seine Organization – Pacifical – Karoo Catch – Tesco – Silver Coast Foods LLP – Young's Seafood



*As of Sept 11, 2019



Auto-ID Labs, KAIST는 DAG(Dialogue Advisory Group) 멤버



Home

IFTGFTC edited this page on 21 Oct 2019 · 6 revisions

<https://github.com/IFTGFTC/GDST/wiki>

Welcome to The GDST wiki!

▶ Pages 22

[Canned Tuna Scenario 1950's: Chicken of the Sea Process](#)

[Tuna Fishing Technology Today](#)

[Chicken Of The Sea Traceability Web Site](#)

[Metro ProTrace](#)



KAIST



Oliot
Open Language for Internet of Things
2. Challen

The global seafood industry is seeking electronic, whole chain, interoperable traceability solutions to reduce or eliminate Illegal, unreported, and unregulated (IUU) fishing. IUU fishing generally refers to fishing conducted in violation of national laws or internationally agreed conservation and management measures in effect in oceans around the world.

IUU fishing can include fishing without a license or quota for certain species, unauthorized transshipments to cargo vessels, failing to report catches or making false reports, keeping undersized fish or fish that are otherwise protected by regulations, fishing in closed areas or during closed

- VeChain Resources
- JSON EPCIS Formatter
- Check Digit Calculator
- EPC Encoder/Decoder
- GS1 Company Database
- Build a Sample UPC Barcode
- Barcode Generator
- UUID Generator
- QR Code Generator
- Visibility Workbench
- Free EPCIS
- Oliot Project Overview
- Oliot Project Github
- Oliot Project Tutorial
- Open Ag Alliance Trellis
- FlureeDB Free Blockchain Database
- Global Fishing Watch Map & Data
- FAO Blue Bridge
- Marine Traffic
- Example Pedigree File, uid Request pw is baguette
- Scandit: Barcode Scanning Software and Technology Solutions

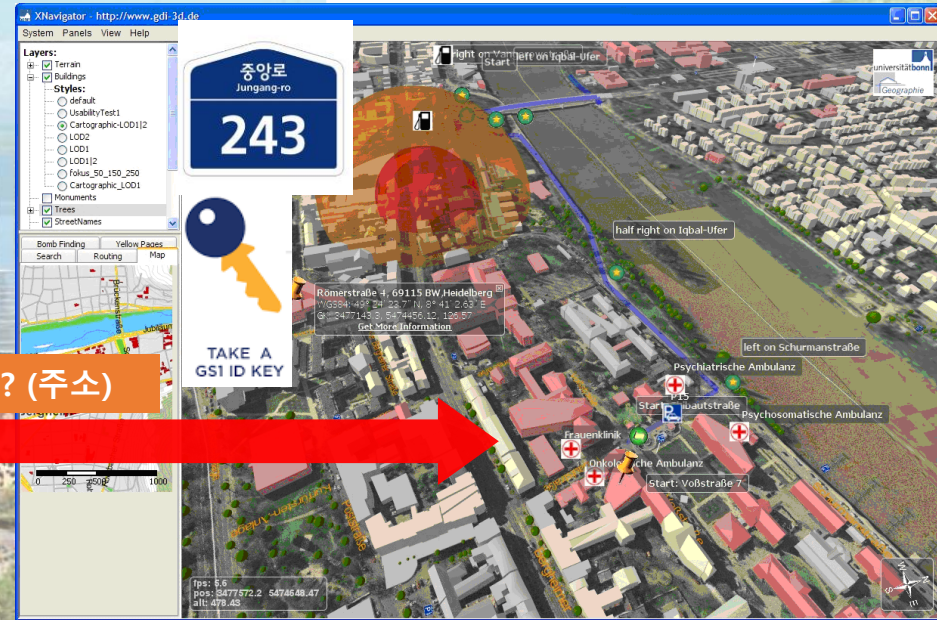
i. Ca
ii. Far
iii. Pr
iv. Fis
v. Int
vi. Ac
Sei
vii. Ext
Ma
viii. Hic

스마트시티의 쌍둥이 디지털트윈
에서 주소의 역할을 찾다 (행정안전부)

Digital Transformation

식별자? (주소)

식별자 (GTIN, 자재
GLN, 건축물[주소]
SSCC, 건축자재 배송물
GIAI, 자산)



시민/기업참여형 스마트시티 서비스 공유 플랫폼 서비스 - 서울 송파구 석촌호수 -

KAIST

<https://www.youtube.com/watch?v=S0ubIUQZm2I>



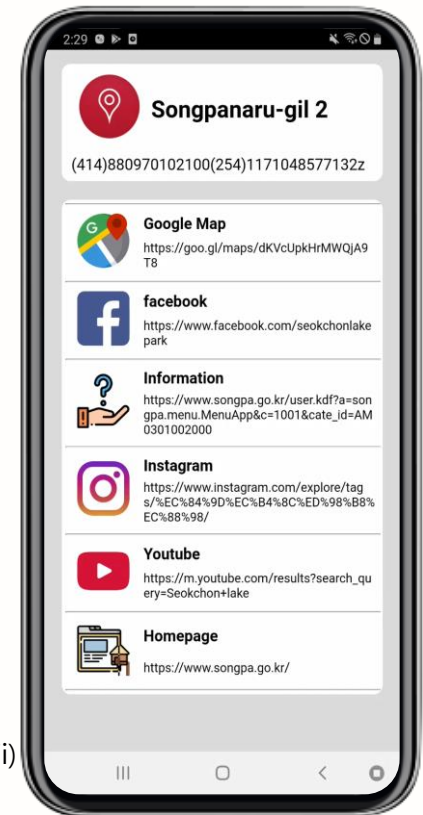
석촌호수에 도로명주소가... 달라지는 생활 밀착형 제도

- 송파구 석촌호수 산책길 2.5 km 구간에 120개 기초 주소판 설치
- 국제표준 주소 코드를 QR로 인코딩하여 부착
- 시민은 QR을 스캔하여, 해당 주소에 연결된 다양한 서비스 이용

2019년 12월 서울 송파구 구축완료



KAIST GS1 Genie App. (바코드, QR, 블루투스, WiFi) 카메라앱, 카카오톡등 QR 리더 앱(QR)



시민/기업참여형 스마트시티 데이터/서비스 공유 플랫폼 - 시흥시 스마트시티 실증 도시 -

시청로
Sicheong-ro

26

버스승강장
Bus Shelter

112,119 신고시 내 위치는
“시흥시 시청로 26번
버스승강장” 입니다.



KAIST

Enter text... 🔍 주차장 버스

5602 번 ✕

기점 / 종점 : 이마트 / 구로디지털단지역환승센터(1번승강장)

첫 차 / 막 차 : 05:30 / 22:40

배차 간격 : 8 분 / 15 분
(일반 / 바쁜)

이마트(경유)
시화정형외과.이철신경외과
군서중학교
정왕어린이도서관.정왕시장
시화공고사거리
시화공업고교
군서초등학교
삼육주유소
시흥푸르지오6차
시흥푸르지오6차1단지후문
정촌마을
거무개삼거리
거무동동보아파트
배우물
군자중.군자디지털과학고
아주아파트.군자도서관
군자우체국앞.군자파출소
녹원아파트
부대앞
대쟁이
진덕사입구
영각사입구
산뒤마을
신안인스빌
능곡초교
시흥시노인종합복지관
능곡도서관

기점



<https://www.fiware.org/news/interoperability-of-fiware-and-gs1-standards-boosts-innovation-in-the-iiot-space>

ILVO RESEARCH FARM

IoF2020
compartment

PUBLISHED IN OCT 1, 2020

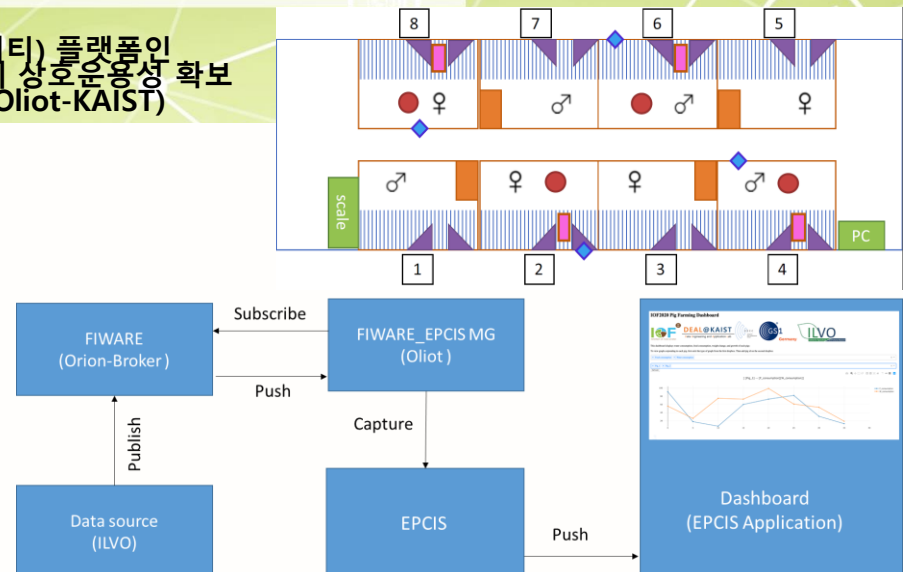
INTEROPERABILITY OF FIWARE AND GS1 STANDARDS BOOSTS INNOVATION IN THE IIOT SPACE

EU의 대표 IoT (스마트시티) 플랫폼인
FIWARE와 GS1 국제표준간의 상호운용성 확보
(FIWARE Foundation, OLIOT-KAIST)

KAIST

Berlin, October 1, 2020 —

- The OLIOT mediation gateway (OLIOT-MG), developed by the Korean research institute **KAIST** (Korea Advanced Institute of Technology), has become an integral part of the “**FIWARE Catalogue**“. This will enable smart solutions powered by FIWARE to offer and consume information about objects, using the GS1 EPCIS standard.
- The innovative IT solution enables the interoperability of standards for event-based data capture, transfer, and query. The transferability to other applications as well as its scalability beyond the research project “**Internet of Food & Farm 2020 (IoF2020)**”, where it was developed, shows great potential to impact future initiatives in the IIoT context.



Oliot Foundation (2021)

<https://autoidlab.kaist.ac.kr/>

PEOPLE RESEARCH ▾ PROJECTS PARTNERS

Auto-ID Laboratory at KAIST

The Leading Academic Research Network
on the Internet of Things

KAIST



Auto-ID Labs

The Auto-ID Labs are the leading global research network of academic laboratories in the field of Internet of Things.

[Learn More](#)

GS1 | The Global Language of Business

Business is easier when you speak the same language as your customers, suppliers and partners.

[Learn More](#)

Urban Technology Alliance

The Urban Technology Alliance (UTA) is a global non-profit organization providing city-scale testbeds from all around the world.

[Learn More](#)

NEW

상상할 수 있다면, 그건 이미 현실이다.

Everything you can imagine is real.

Identify,
Capture,
Share,
Use,
and **Imagine**

Picasso

