esa
space solutions

→ Food and Beverage Fraud webinar

03rd November 2020

Beatrice Barresi — European Space Agency

Gianluca Sabatino — Europol

Pierre Viaud — SICPA

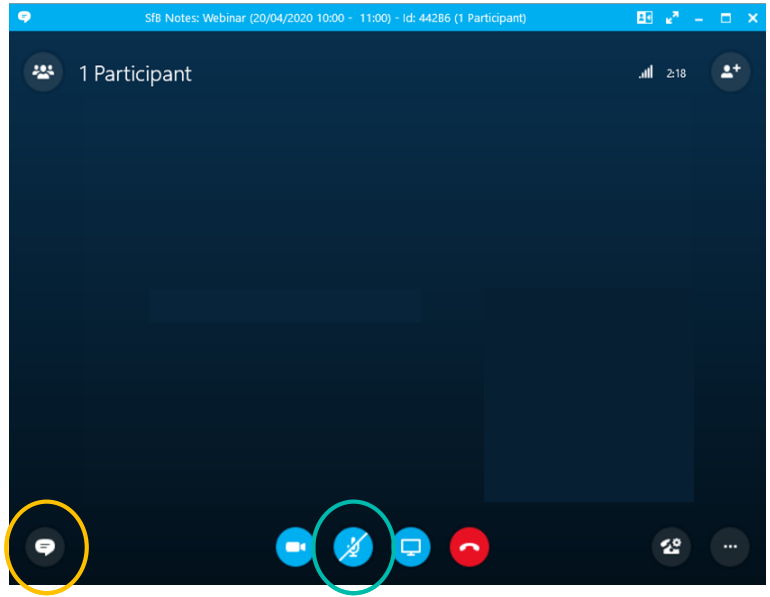
Business Applications | Business Incubation | Technology Transfer

WELCOME TO THE WEBINAR!

Before we start...

- Due to the number of attendees, please **keep your microphones muted** at all times and switch off the webcam function

- You can use the **conversation function** anytime to submit your questions. They will be addressed during the Q&A at the end of the webinar



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AGENDA

- ESA introduction
- “Prevent and Detect Food and Beverage Fraud ” Invitation To Tender
  - Objectives
  - Areas of interest
  - Value of Space
- Guest speaker
  - Gianluca Sabatino- Europol
  - Pierre Viaud-SECPA
- How to apply: funding and tender information
- Open Questions & Answers session

ESA introduction

THE EUROPEAN SPACE AGENCY

Purpose of ESA

To provide for and promote, for exclusively peaceful purposes, cooperation among European states in space research and technology and their space applications.

Facts and figures

- Over 50 years of experience
- 22 Member States
- 8 sites across Europe and a spaceport in French Guiana
- Over 80 satellites designed, tested and operated in flight

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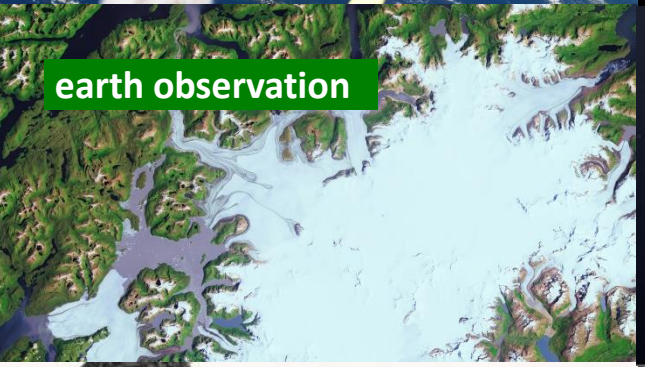
space transportation

science

human spaceflight


earth observation

telecommunications
and applications

navigation

exploration

operations

technology

→ ESA SPACE SOLUTIONS

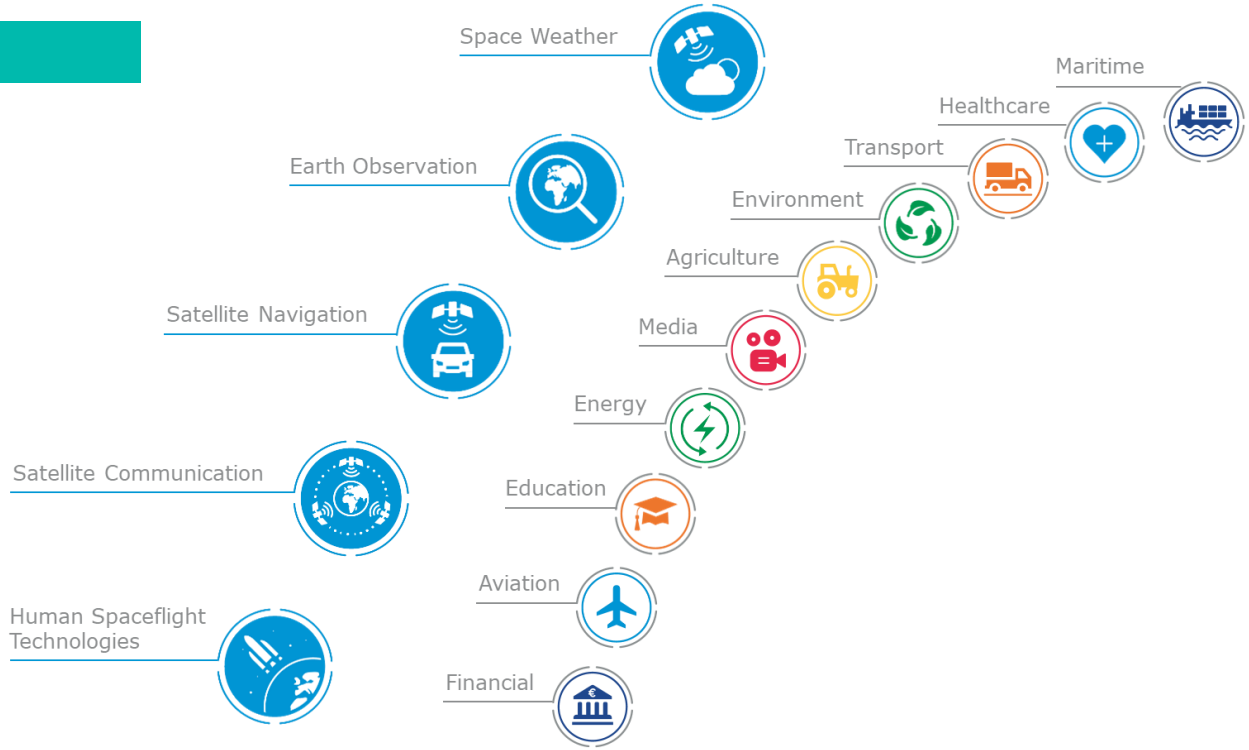
esa space solutions

The largest space innovation network in the world

- The go-to place for great business involving space to improve everyday life.
- Supporting European start-ups and SMEs to develop businesses using space technology and data.
- Offering funding, business and technical support to help to generate successful business and create jobs.

ESA SPACE SOLUTIONS

Could you be leveraging Space technology and data for the benefit of life on Earth?



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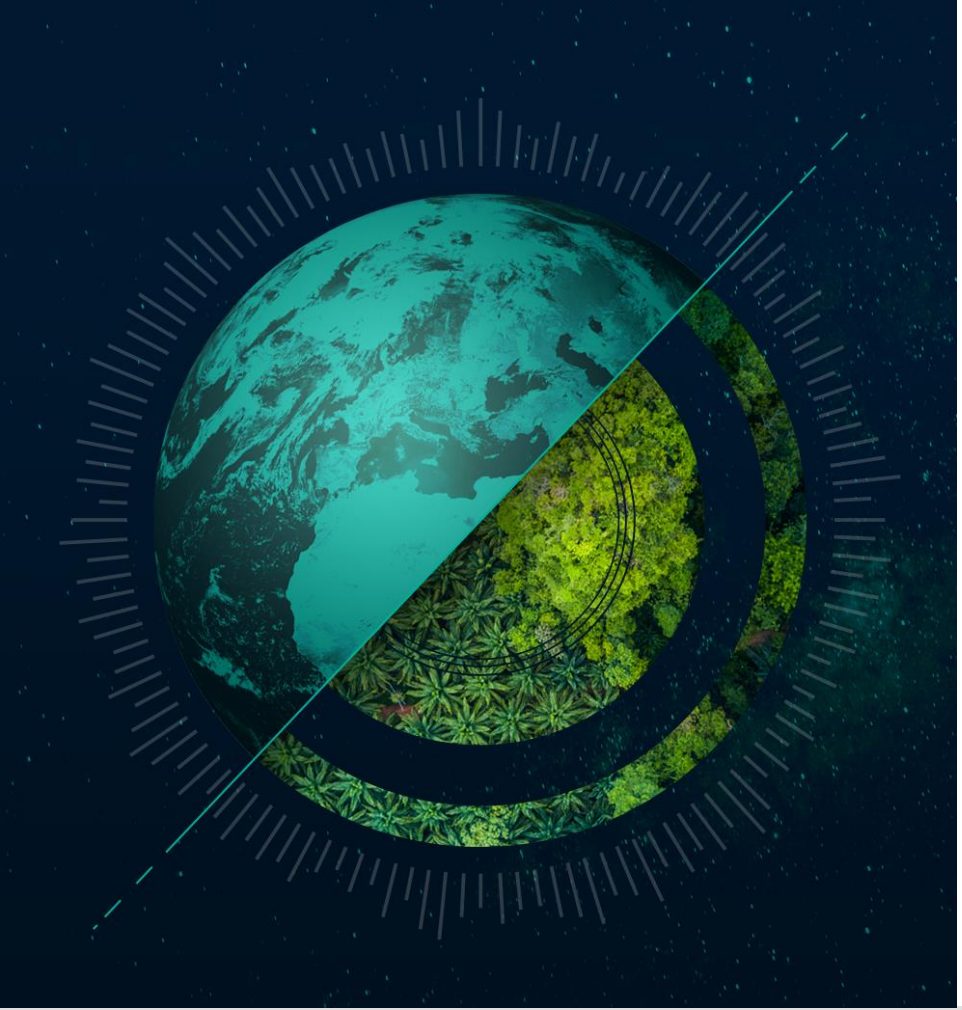

→ ESA SPACE SOLUTIONS OFFERS

- Zero-equity funding (from €50k to €2M+ per activity)
- A personalised ESA consultant
- Technical support and commercial guidance
- Tailored project management support
- Access to our international network of ESA and partners
- Access to our network of investors
- Credibility of the ESA brand

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Prevent and Detect Food and Beverage Fraud

Food and Beverage Fraud

- According to the EU, **Food Fraud** is about "*any suspected intentional action by businesses or individuals for the purpose of deceiving purchasers and gaining undue advantage therefrom, in violation of the rules …"*

- Prevent and detect food fraud is not only an important ethical matter, it is an issue which impacts the global economy as well. Trade in counterfeit and pirated goods has risen steadily in the last few years and now stands at 3.3% of global trade.
- The costs related to food fraud for the global food industry have been estimated at around EUR 30 billion every year.
- Food fraud is also about food safety as it potentially harm the health of the citizens.

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ESA-funded invitation to tender on Prevention and Detection of Food and Beverage Fraud

ESA Space Solutions is issuing an open competitive tender for a feasibility study to investigate the technical feasibility and economic viability of space based applications for the prevention and detection of Food and Beverage Fraud, and define a roadmap for services implementation and demonstration.

Invitation To Tender is **open from today 03rd November 2020 (1 pm CET)**

until 19 January 2021

Funding up to € 200K per activity (100% ESA funded)

Duration 12 months

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AREAS OF INTEREST

- Increase supply chain transparency
- Improve Certification procedures
- Detection of counterfeit food products
- Enhance Food Safety
- Prediction of illegal behaviours

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VALUE OF SPACE

Satellite Navigation

- Transport is a key element of the food supply chain several steps are included moving from upstream (production) to downstream (trade, storage. processing), before reaching the end consumer (distribution). GNSS is the key enabler for tracking food and beverages along the entire supply chain.
- Positioning information will be able to provide geo-tagging services for data collection.

Satellite Communications

- It enables communication when no terrestrial network is available e.g. in remote areas and at sea.
- It can also enhance communication network robustness and communication resilience by acting as a back-up when on-ground systems are down.
- It can enable data from offshore sensors (such as in container in vessels) and crowdsourced data to be transmitted.

Earth Observation

- Provide diverse environmental data, mapping and change detection images.
- It can support the operation of law enforcement agencies; for instance, to identify food stockpiles or to detect suspicious movements of cranes and other vehicles around port or airports where there should not be.

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Gianluca Sabatino- Europol

ESA

Prevent and Detect Food and Beverage Fraud

3 November 2020

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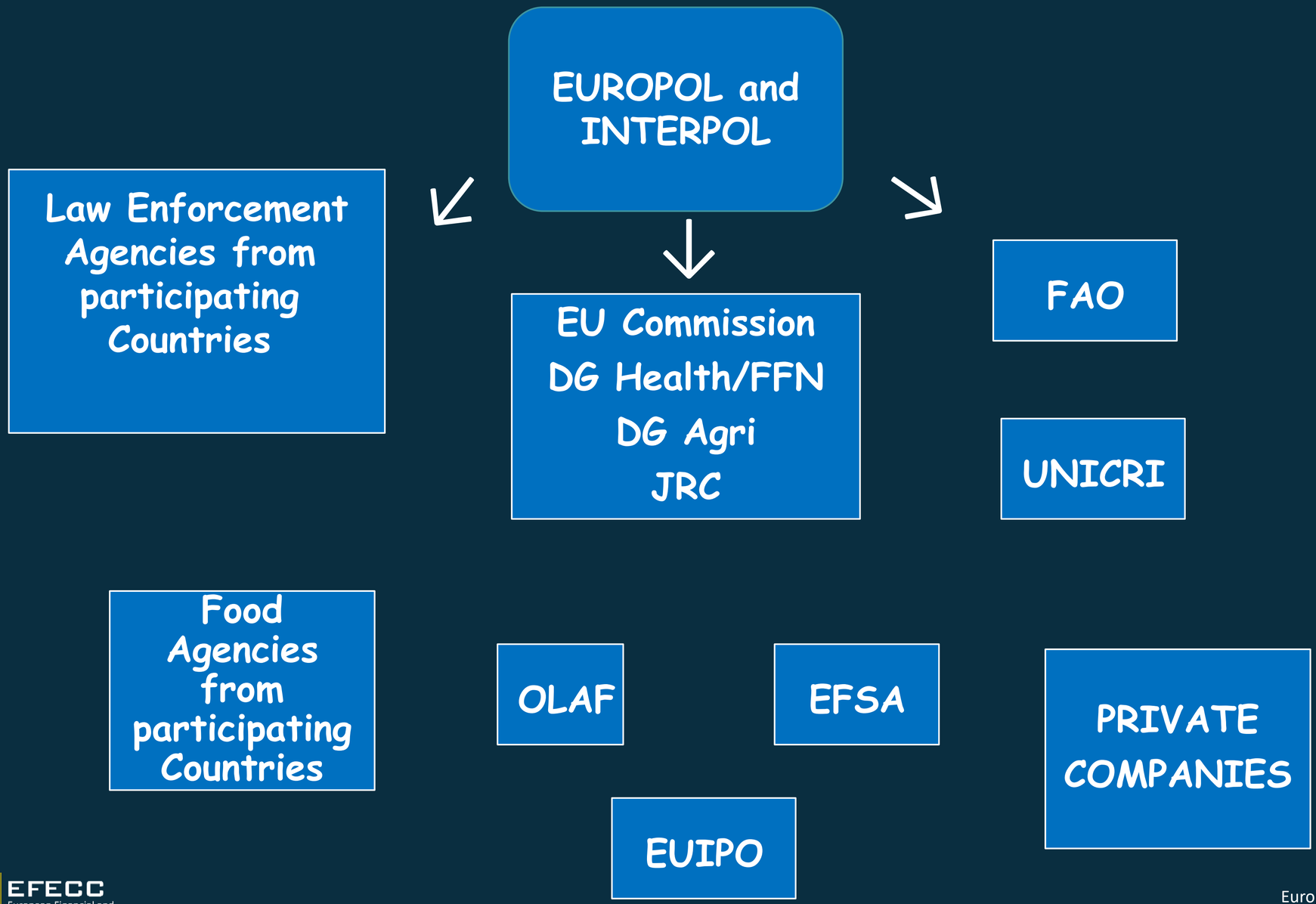
Op. OPSON – an opportunity to test the food system

The OPSON network allow us to liaise with different LEAs and Authorities, to better coordinate investigative activities.

Operation OPSON network



Europol Unclassified - Basic Protection Level

COVID 19 emergency – not just a threat to public health

The current breakdown is the product of multiple disruptions that the food system is ill-equipped to handle: lockdowns, closed borders, trade restrictions and the virus itself. Any one of these would have caused problems in the world's complex and specialized food supply chains. All of them happening at the same time is wreaking havoc.

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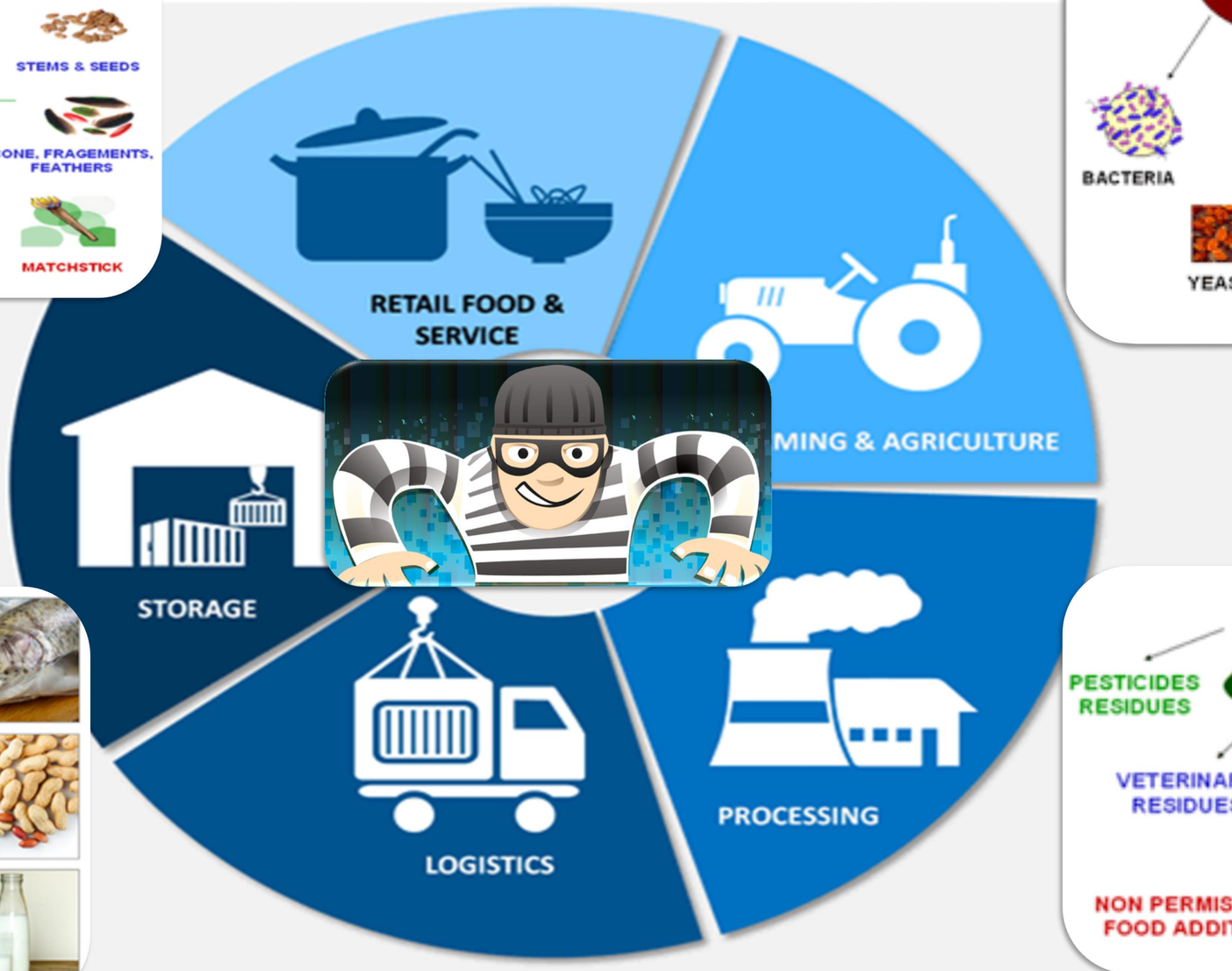
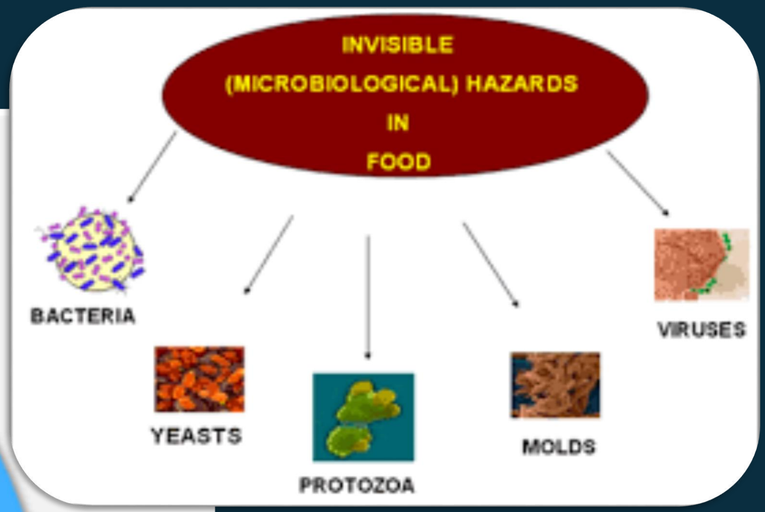
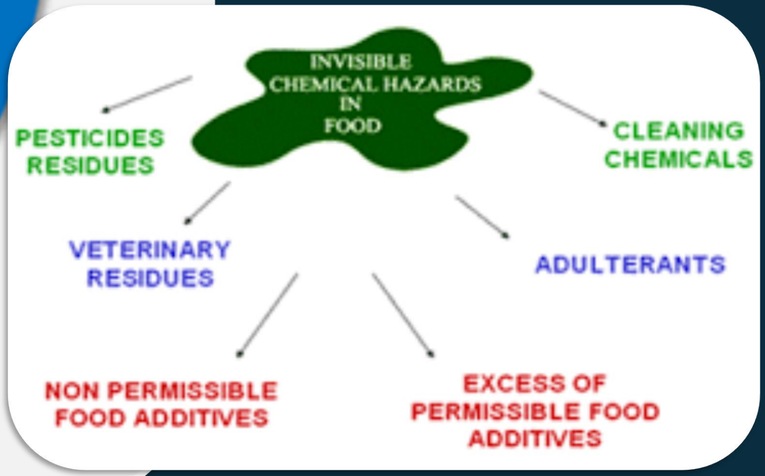
Food supply chain







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OPSON IX : “Horse action”

In EU countries, every week, we place under seizure horses or carcasses of horses accompanied by forged passports or presenting a false identity.

Until 2015, a very large percentage of horses arriving to the slaughterhouse were accompanied by falsified passports, or arrived under false identities. Then, some operational activities inflicted serious wounds

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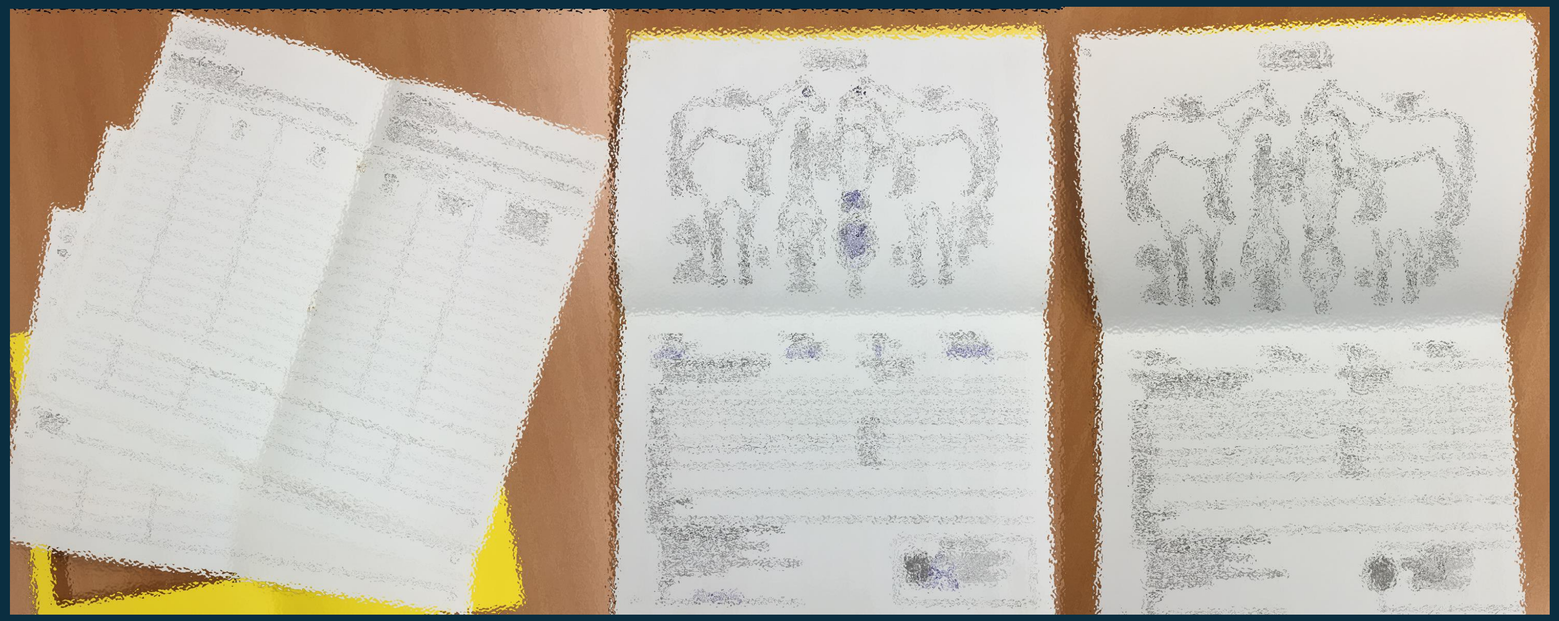
OPSON IX : “Horse action”

The recurring method of the horse dealers :

Send the horses with falsified passports or under cover of a false identity in a slaughterhouse located in a different country than the country issuing the passport.



OPSON IX : “Horse action”

Why?

Because there are a wide variety of different passports, and the authorities in each country know national passports better than the passports of other countries.

Some passports are more easily forged than others.

OPSON IX : “Vuoti a rendere”

- Italian investigation started by NAS Carabinieri of Florence
- Food fraud on counterfeiting of prestigious international wines
- Reuse of original primary packaging (empty wine bottles) and secondary packaging (wooden boxes)

OPSON IX : “Vuoti a rendere”

- Empty authentic bottles gathered from restaurants
- Refilled with poor products from different origins, purchased online or at hard discount stores
- Sealed with corks and counterfeit capsules
- Sold on e-commerce platforms

Europol Unclassified - Basic Protection Level

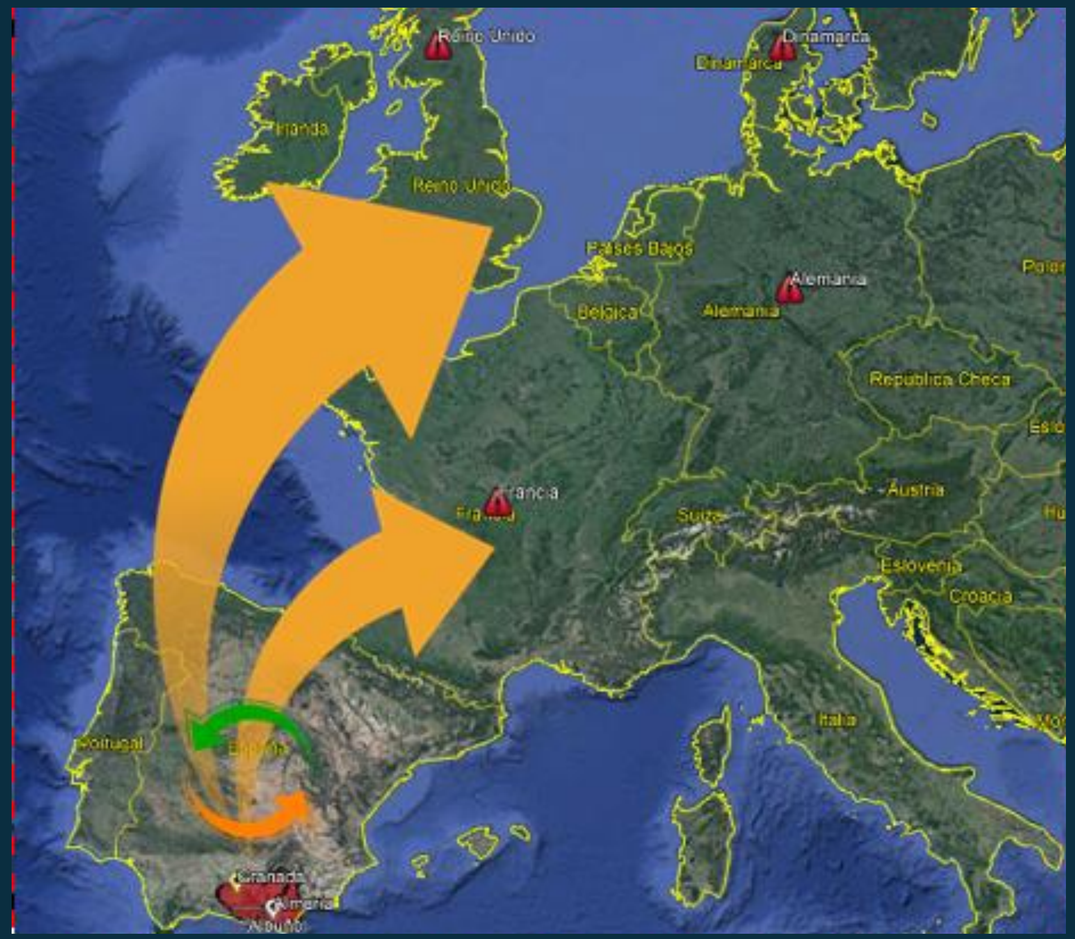
OPSON VIII : Gurke

- Spanish investigation started by Guardia Civil-Seprona
- Food fraud on organic food market
- Fraudulent company marketing high amount of organic vegetables, significantly over the local organic capacity of production

Europol Unclassified - Basic Protection Level

OPSON VIII : Gurke

- False organic foodstuffs sold to European market (mostly DE, UK, FR and DK) coming from conventional crops
- 472 tons of vegetables sold under the appearance of organic
- Mass balance performance to detect the fraud



OPSON VIII : Oro giallo

- Italian investigation on an OCG involved in an illegal commerce of counterfeit olive oil
- Extremely poor quality of the “so called” extra virgin olive oil, actually soy or sunflower oil
- Food additives chlorophyll and beta-carotene used for the sophistication of seed oil. Inside the oil mill, the activities of illegal mixing took place through the manual labour of workers

Europol Unclassified - Basic Protection Level

OPSON VIII : Oro giallo

- Fortnightly transports in Germany through loads of entire articulated lorries (23,000 litres for each shipment)
- Packaging activities in warehouses or makeshift warehouses, without any guarantee of hygiene, placed in strategic positions and difficult to access

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Thank you for your attention

Any questions?

Pierre Viaud-SECPA

Prevent and Detect Food and Beverage Fraud

Webinar on Intended Tender
11:00 CET, 03/11/2020

ESA Food Fraud User Collection
by SICPA

SUPPLY CHAIN SECURITY – KEY ISSUES

Import and / or distribution of unauthorized products

Fraudulent declarations

Fictitious exports

Counterfeiting

Consumer fraud

Health & safety risks

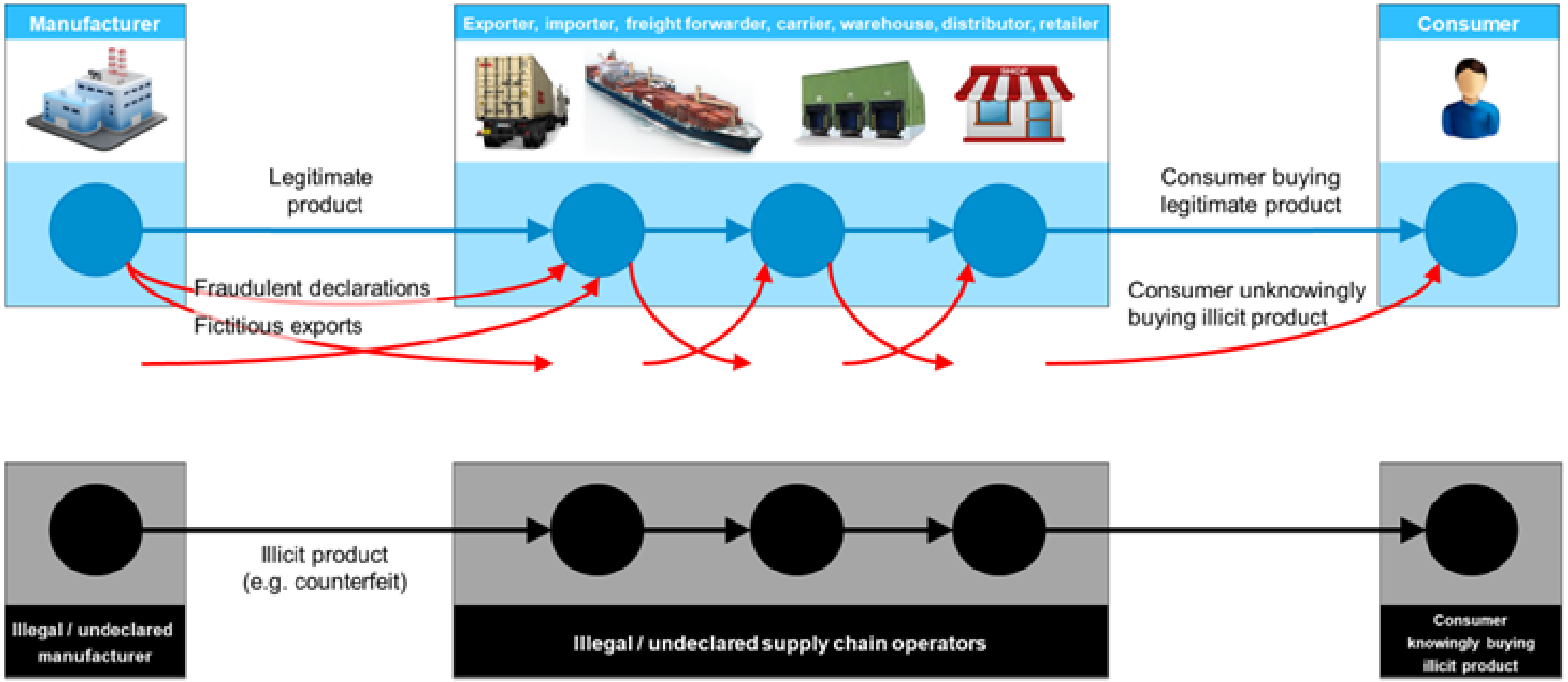
Financing of organized crime

Tax evasion

Intellectual property infringement

Unfair market conditions

INFILTRATIONS INTO THE LEGITIMATE SUPPLY CHAIN



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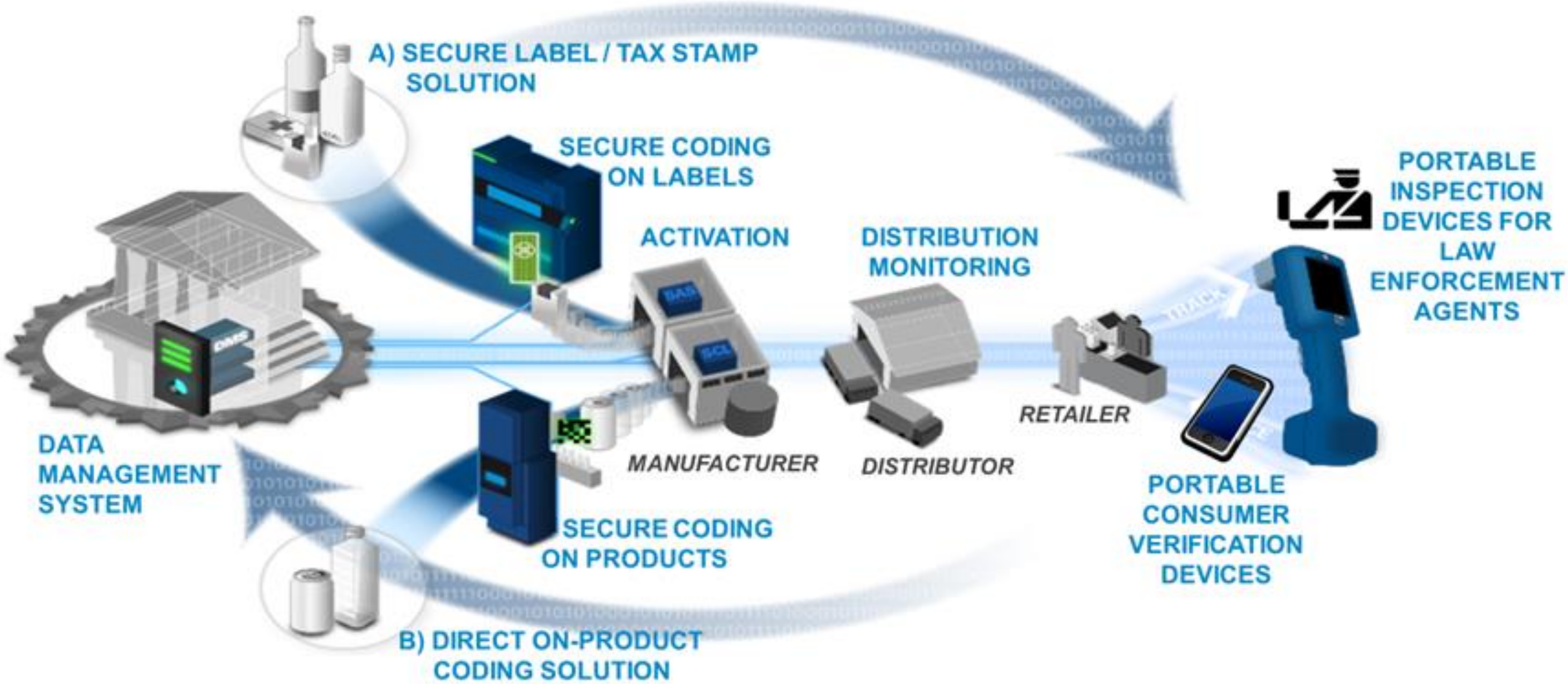
SICPATRACE® – ARCHITECTURE



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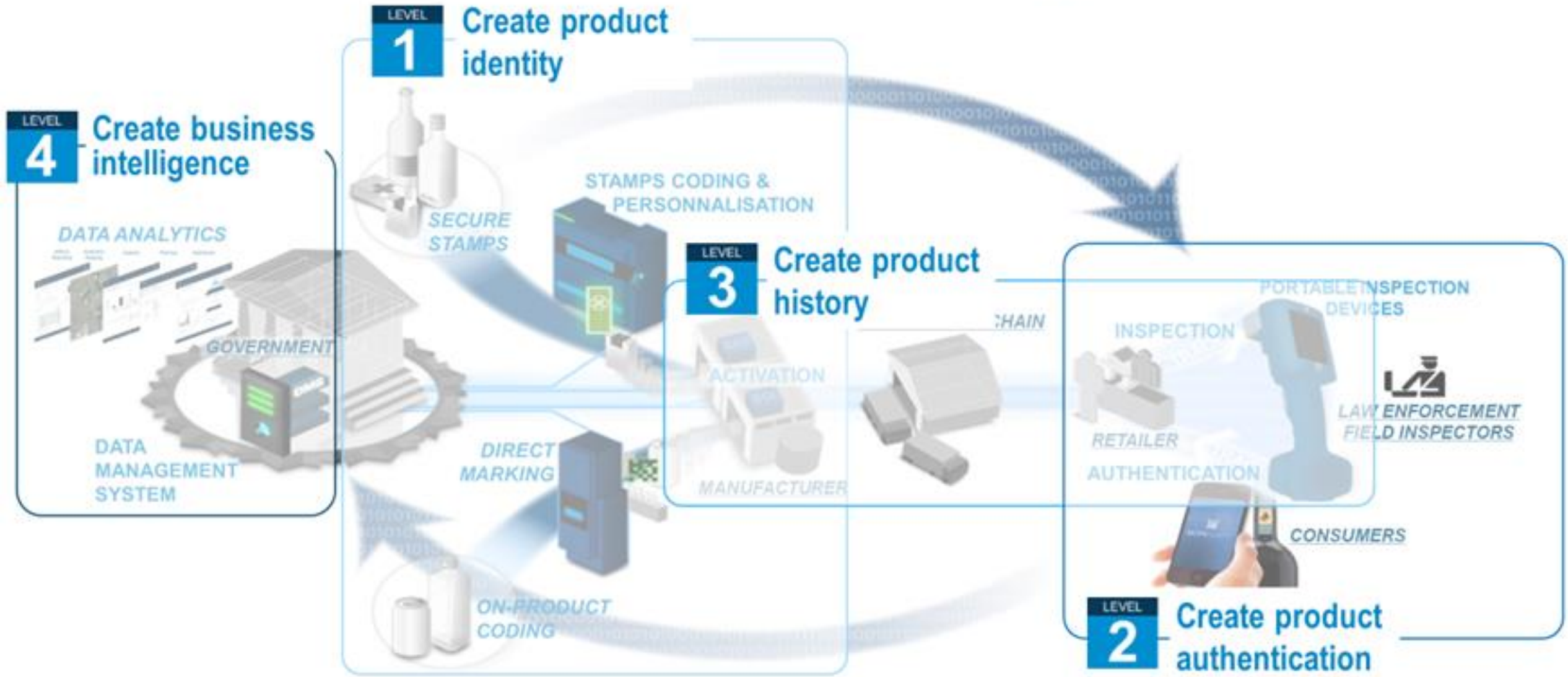
SICPATRACE® PLATFORM OVERVIEW (2)



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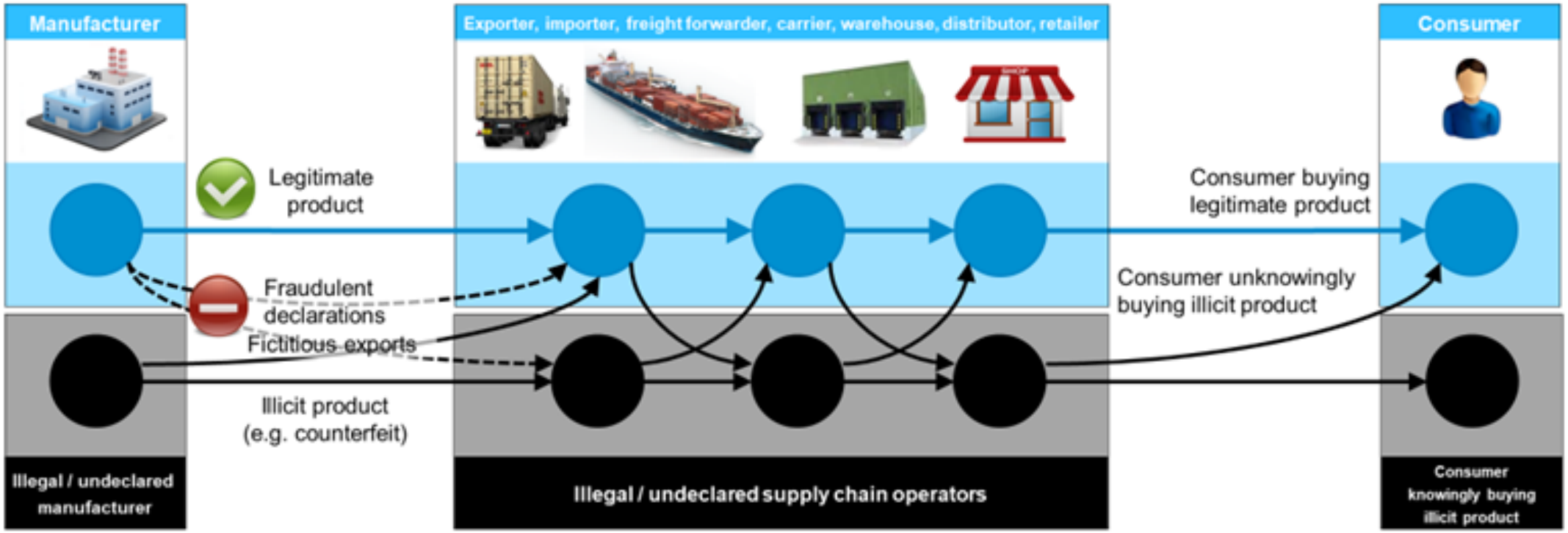
SUPPLY CHAIN SECURITY – REQUIRED CAPABILITIES



LEVEL 1

PRODUCTION MONITORING: ensuring that <u>each</u> product has been uniquely and securely marked, and properly declared

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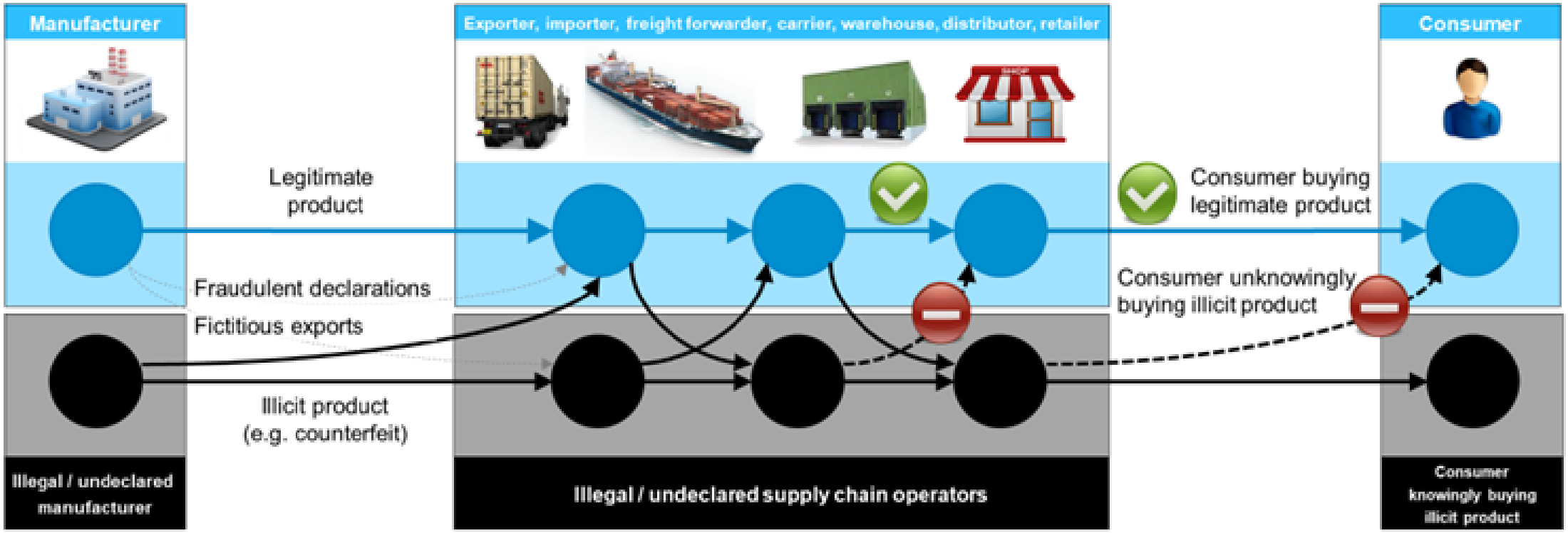
SUPPLY CHAIN SECURITY – REQUIRED CAPABILITIES



LEVEL 2

- Product **AUTHENTICATION** (distinguishing original vs. fake)
- **TRACEABILITY** through serialized codes
- **TAMPER**-evident features

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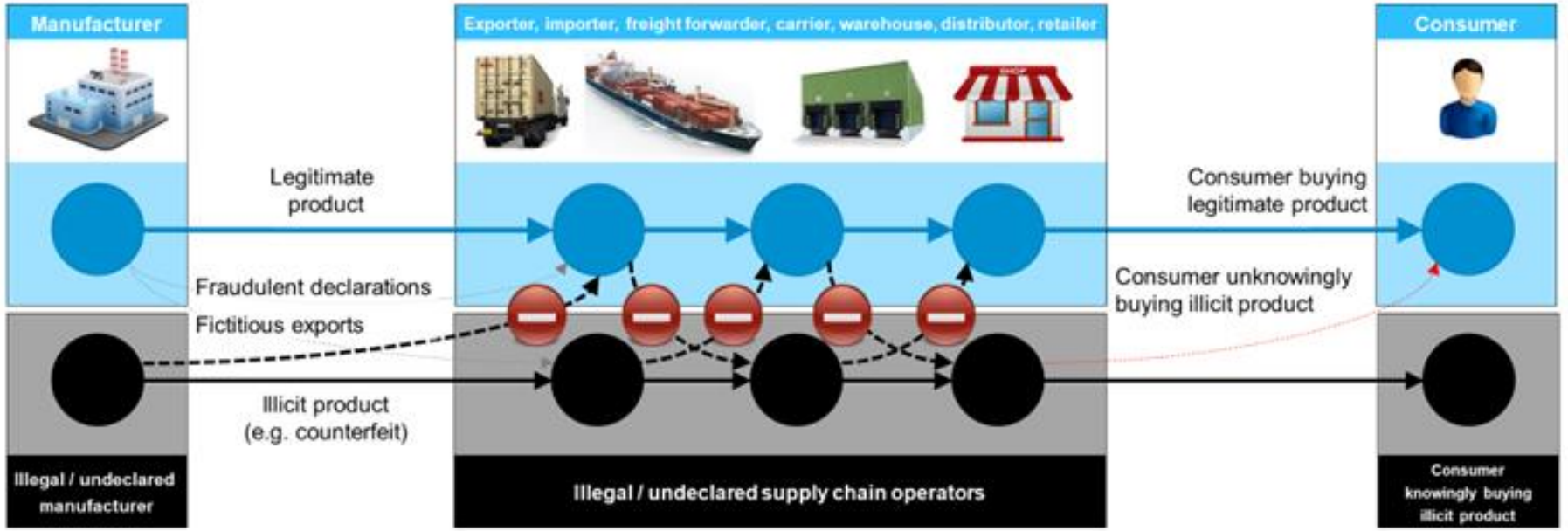
SUPPLY CHAIN SECURITY – REQUIRED CAPABILITIES



LEVEL 3

- Track product flow through **DISTRIBUTION CHAIN**
- **AGGREGATION** and disaggregation at unit / case / pallet / container level
- **BUSINESS INTELLIGENCE & ANALYTICS,** cross-checks on data consistency

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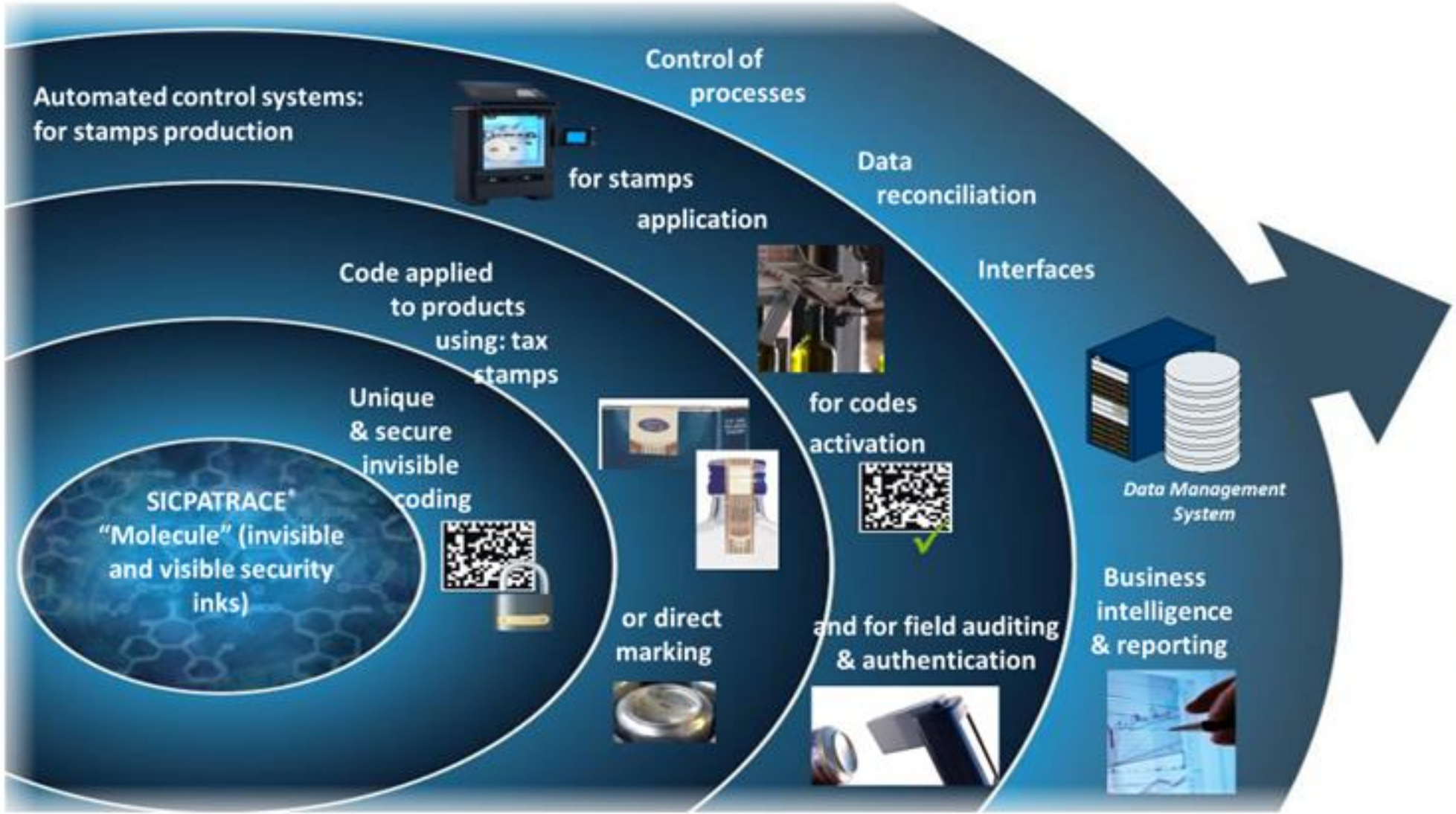
SICPATRACE® - SYSTEM COMPONENTS



Adapted to each country

Integrated with existing systems

Controlled access

Inter-operable

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Role of space technologies in current activities and prospective activities of SICPA in IUU Fishing Control

The technology solution use one or more space assets: Earth Observation and satellite Communications.

Fish restricted areas monitoring: Active monitor fish activity and access to areas that are declared free from fish activity

Aquaculture monitoring

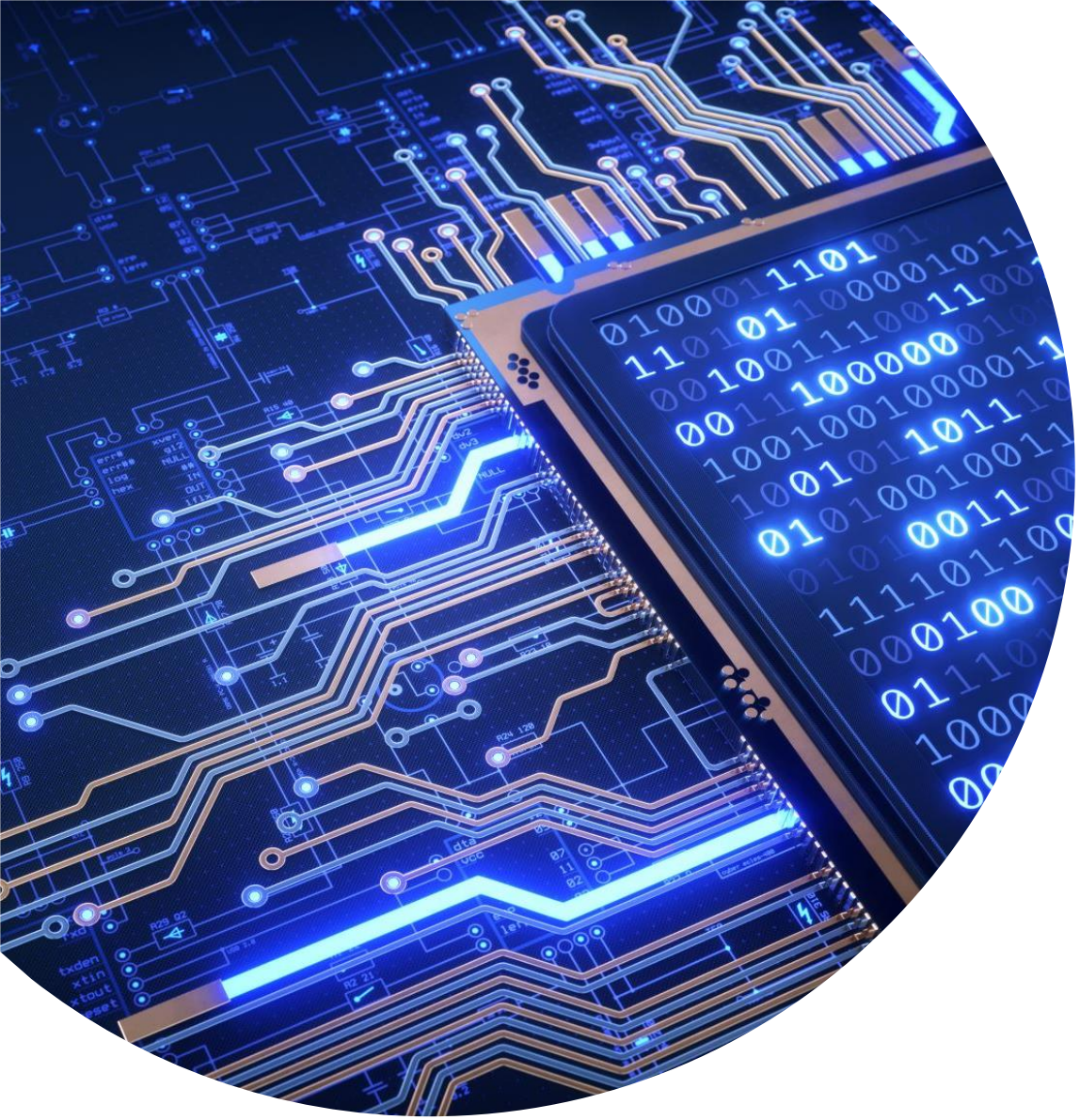
Proof of origin: Images from drones and satellites can be used to link products to their place of origin. They make it possible to calculate production volumes, to anticipate and facilitate reconciliation, that is, check whether the quantity of products in circulation is bigger/smaller than the effective and verified original quantity.

Quality: Products' quality (GMO-free, pesticides and fertilisers content, ore minerals…) can be assessed using specific imaging technologies including hyperspectral cameras.

Monitoring and communication: Spatial monitoring of land areas or vessels at sea has been used for a while, in some cases to detect criminal operations. Together with proof of origin, it provides additional data to check mass balance along the supply chain.

Secure communication and data exchanges between drones, satellites, and ground IoTs are key for supply chain auditability. Therefore, it is imperative now to secure images, transmissions, and positioning of devices (IoTs and software).

As data is used for continuous and ulterior controls along the supply chain, data and processes must be certified and timestamped in a blockchain to avoid falsification. Compressed spatial images with their embedded unforgeable signatures and localisations through quantum-derived technologies represent the next generation of solutions to be used.



Role of Space Technologies

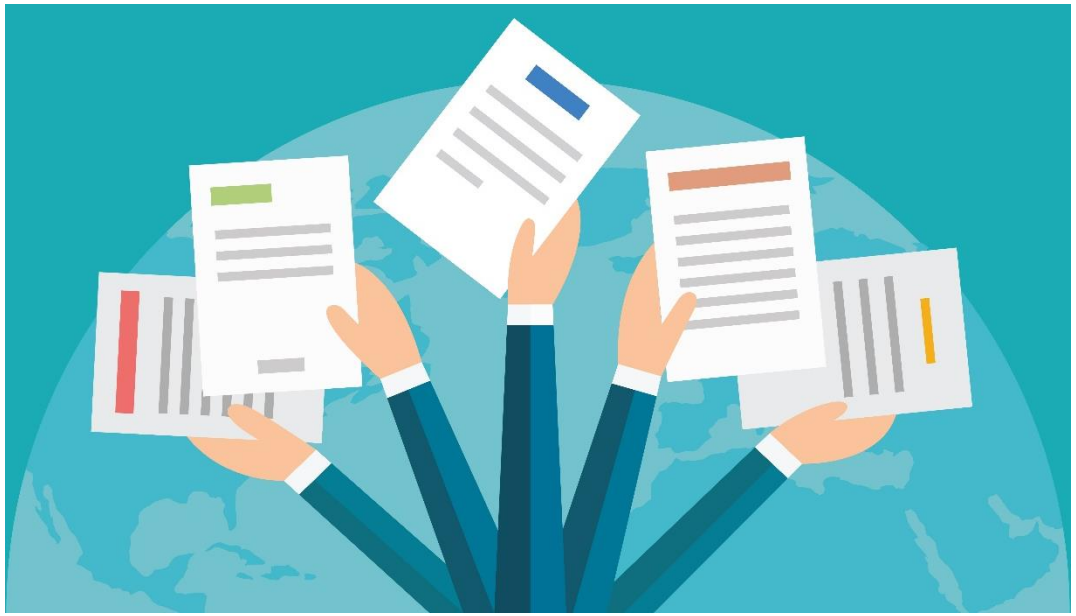
SICPA would be enthusiastic to receive advise on how spatial technology solutions could enhance these current and prospective activities.

How to apply

ESA TENDER INFORMATION

Funded participation to ESA Space Solutions is open to any company and/or organisation, be it as group of users, public body or non-governmental organisation, residing in the following Member States:

Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland and the United Kingdom



HOW TO APPLY

1. **Register** (minimum 'light registration') by completing online questionnaire on ESA-STAR Registration (esastar-emr.sso.esa.int)
2. **Download** the official tender **documentation** (Invitation to Tender), which will be available as soon as the ITT is open via EMITS (emits.esa.int). ITT number is **AO 10553**
3. Create 'Bidder Restricted Area' in ESA-STAR
4. **Write your Proposal** using the template provided in the Tender documentation and obtain **Letter of Authorization** from your National Delegation (business.esa.int/national-delegations)
5. **Attach** Letter of Support of relevant users/customers.
6. **Submit** your proposal via 'Bidder Restricted Area' in ESA-STAR Tendering (esastar.sso.esa.int)

More info can be found here:
esa.int/About_Us/Business_with_ESA/How_to_do/esa-star_Registration_Process

BASIC PRINCIPLES - ESA-STAR

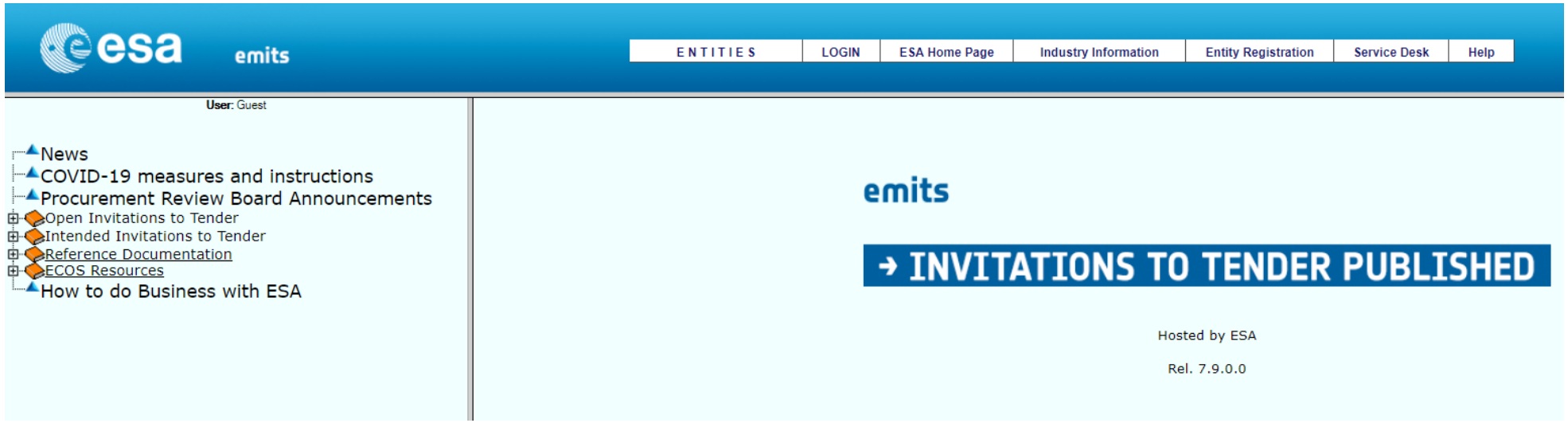
Registration (minimum 'light registration') on ESA-STAR Registration (https://esastar-emr.sso.esa.int)

Please note that esa-star allows two levels of entity registration: "Light" and "Full". This allows new users wishing to do business with ESA to carry out their registration in two steps. A "Light" registration will grant access to all esa-star services up to and including proposal submission. The award of ESA contracts requires "Full" registration.

BASIC PRINCIPLES - EMITS

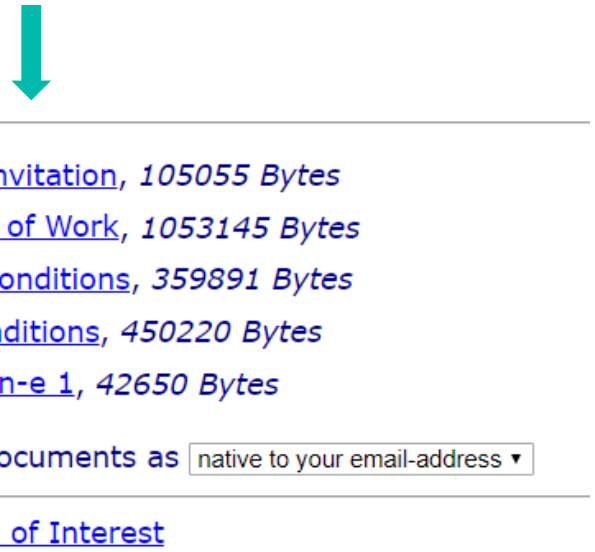
Tender documentation: on emits.esa.int

- Published under “Open Invitations
- Look for ITT number **AO 10553**

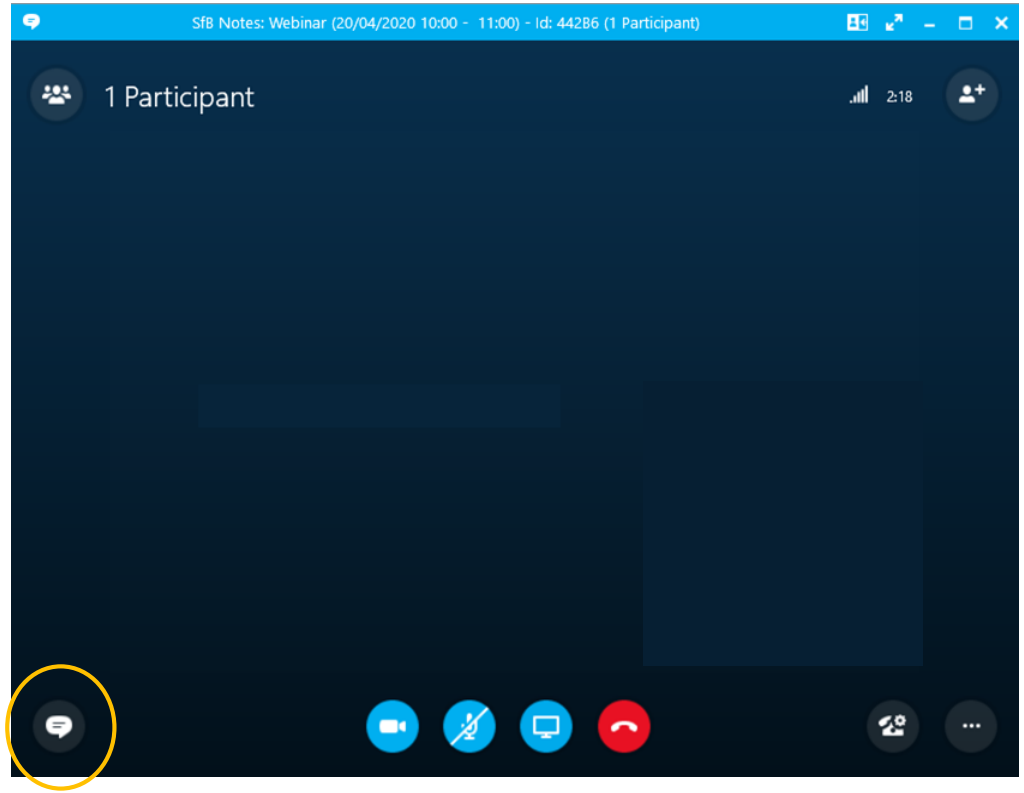


BASIC PRINCIPLES - EMITS

Registration on esa-star is required to access tender documents in Emits



OPEN QUESTIONS & ANSWERS SESSION



→ THANK YOU!

business.esa.int

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