SeaLight

resources and prevention
from sea clean-up

for a bluer future

IRIS
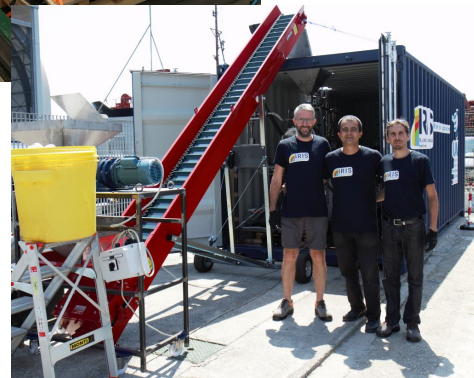PLAYGROUND FOR NEW IDEAS

SeaLight turnkey service

An affordable turnkey service offered to companies, authorities, associations committed to mitigate and prevent the dispersion and accumulation of PLASTIC DEBRIS in the MARINE ecosystem.

- **MITIGATION**, thanks to the integration into one service of advanced technologies, exploited from successful R&D projects, to collect, convert marine litter into recyclable materials and extract energy from the residual fraction.

No emissions thanks to carbon capture and catalytic filtering / adsorption.
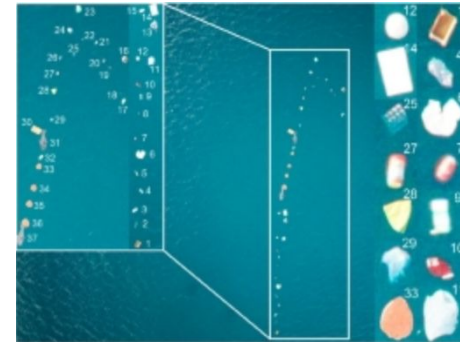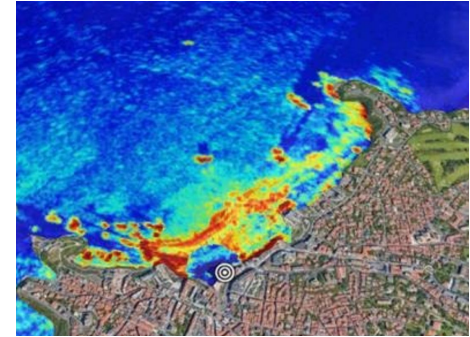
No solid residues to dispose of.

- **PREVENTION**, thanks to a new plastic credit scheme to actively engage responsible actors (companies, citizens) upstream of the marine litter problem, committing them to a rapid transition. The credit scheme is supported by RFID traceability and blockchain technology.

- **AFFORDABLE COST**, thanks to very low investment ("pay per use"), unprecedented efficiency, and no need for additional equipment and infrastructure.

IRIS
PLAYGROUND FOR NEW IDEAS

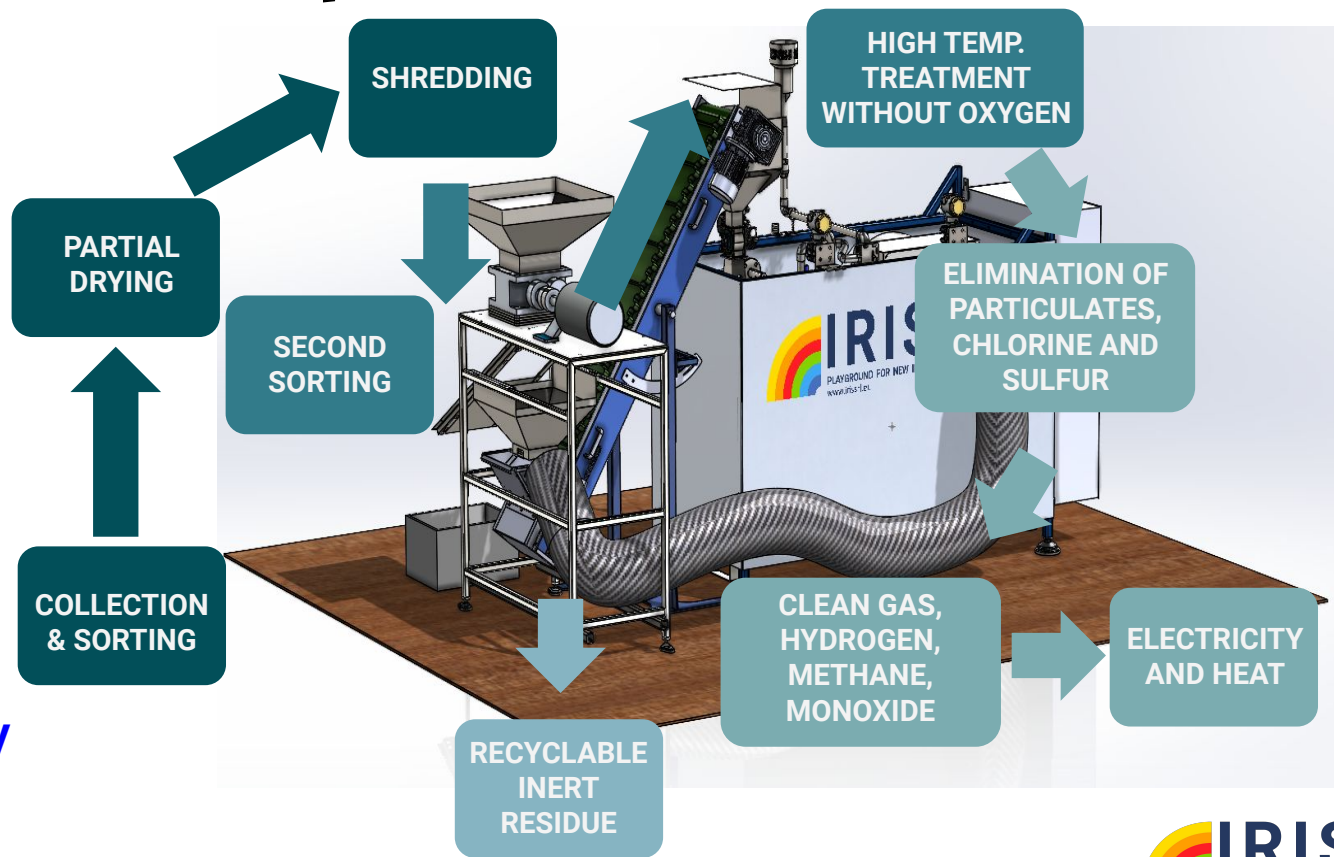# SeaLight innovations: Deep Learning-driven litter collection

- **Drone-based** aerial mapping
- **Deep Learning** algorithms to analyze data (MARLIT)
- **Tailored route planning** to minimize collection cost and time
- Collection of precious environmental data for further research and services
- **-50%** potential impact on current collection cost

SeaLight innovations: **Greenplasma**

- Grounded in 3 H2020 projects
- 4 patents
- **Extraction of recyclables**, idrogen, secondary raw materials and electric energy (1kwh/1kgdebris)
- **No residual waste**
- **No emissions**
- **Increase efficiency (inserire percentuali)**

SHREDDING

HIGH TEMP. TREATMENT WITHOUT OXYGEN

PARTIAL DRYING

SECOND SORTING

ELIMINATION OF PARTICULATES, CHLORINE AND SULFUR

COLLECTION & SORTING

RECYCLABLE INERT RESIDUE

CLEAN GAS, HYDROGEN, METHANE, MONOXIDE

ELECTRICITY AND HEAT

SeaLight innovations: Plastic Credits: "SeaLightCoin"

Preventing is better than cleaning up

PREVENTION

Awareness raising activities among distributors/retailers and consumers can help avoid the generation of marine litter

Research to improve product design and efficiency of processes can prevent waste, and improve recycling and resource efficiency

Research to improve knowledge on sources, pathways and fate to improve existing measures and regulations and enable awareness and attitude change.

Better implementation of existing legislation on the release of litter, on land and at sea, helps to reduce marine litter at source

Behavioural and system changes leading towards more sustainable production and consumption patterns

The application of **extended producer responsibility (EPR)** can help to avoid certain types of marine litter

Economic incentives, such as deposit refund schemes and plastic bag charges, can influence consumer choice and/or encourage different habits

Bans (e.g. on plastic bags, smoking on beaches, plastic blasting in shipyards or plastic microbeads in cosmetics) can provide a cost-effective solution to avoiding marine litter

Investment in waste management infrastructure and wastewater treatment facilities can avoid dispersion of litter in the marine environment

Marine litter clean-ups are costly but necessary downstream actions

CLEAN-UP

Fishing for litter can be a useful final option, but can only address certain types of marine litter

- **Full traceability** of collected waste quantities (by RFID and cloud storage)
- **"Open innovation" R&D program** including projects to improve product and packaging design, to be funded with revenues of credits
- **Certification of data and transactions** based on blockchain technology
- **1 "SeaLightCoin"** = 0.5 kg recovered marine litter + 0.5€ in "Open innovation" funding
- Credits to be sold to plastic industry, packaging industry and any entity willing to fund both mitigation and prevention

IRIS
PLAYGROUND FOR NEW IDEAS

SeaLight innovations: **In situ use of resources**

Sorted materials to increase recycling activities (PET, PE, PP)

Hydrogen and electricity recovered from marine litter (1 kWh/kg plastic debris, residual after sorting)

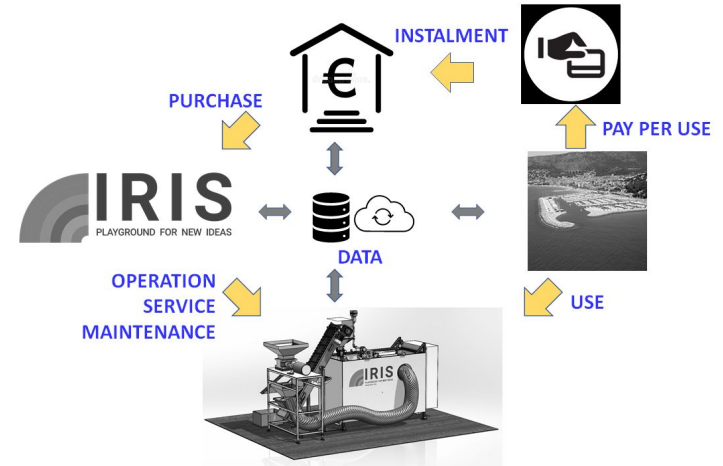**In situ secondary recycling** (e.g. raw materials for cycle paths)

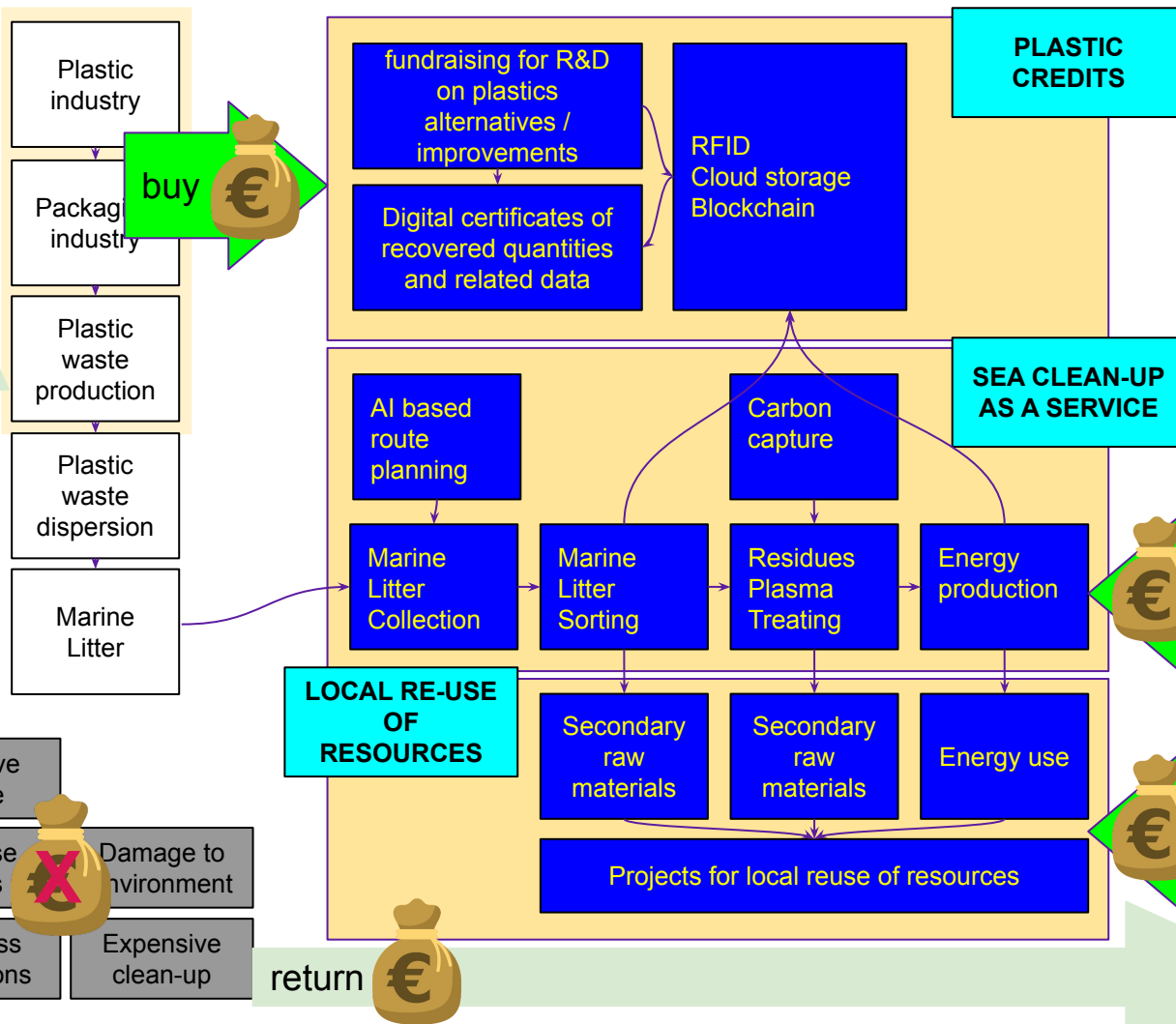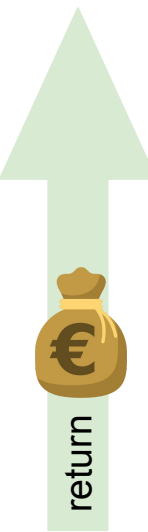**In situ electricity exploitation** (e.g. green mobility)

SeaLight innovations: "pay per use" Business Model

- the whole service is based on **"pay per use"** principle
- multiannual, annual, seasonal and even single-campaign contracts are possible
- Iris will be supported by credit institutes as partners to **lease new equipment** basing on the actual signed contracts and on the financial reliability of customers

SeaLight
scheme and business model

IRIS, who we are

IRIS is an Italian SME, based in Torino, founded in 2012 to develop solutions based on innovative applications of **laser** and **plasma** technology. The company is specialised in supporting rural development with small scale solutions for waste management. 1.1 M€ turnover, a passionate multidisciplinary team of 11 employees and 800 m2 of R&D and industrial labs. www.irissrl.eu

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