IEAISA
INGENIERÍA
submer
Datacenters that make sense
submer

European Commission | Horizon 2020 European Union funding for Research & Innovation

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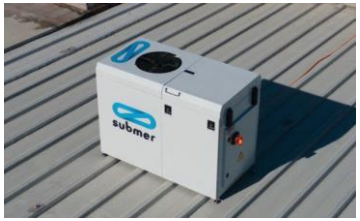


**2015** — **Founded by Daniel Pope & Pol Valls in Barcelona**

R&D Liquids and Form Factors

**2017** — **European Funding to Accelerate the Technology**

POCs with Local Data Centers

**2018** — **First Commercial Deployments**

Released SmartPod 22U & 45U (50kW) and SmartCoolant

**2019** — **OCP, BCN and US HQ Expansion**

Released SmartPodX, XL, SmartPodXL+ (100kW+)
OCP 21" and Standard 19".
Released new SmartCoolant version

**2020** — **Closure of a $12M Series A**

Released MicroPod
Released OCP Network Backplane (Autonomous DC)

# Different types of liquid cooling

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## Direct-to-Chip Cold-Plate cooling

- Can lead to vendor lock-in
- Requires both **air** and **water** cooling
- High-Complexity

## Submer's Single-phase Immersion Cooling

- Simple and safe to handle
- Lower TCO
- Low Complexity

## Two-phase Immersion Cooling

- Expensive (~$90/kg)
- Not Environmentally Friendly
- Medium Complexity

# Submer: from the DC to the Edge

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## SmartPod XL

- 44U
- 50kW

## MicroPod

- 6U
- 5.5 - 7kW

## SmartPod X

- 21U
- 50kW

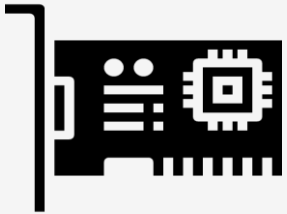
## SmartPod XL+

- 41U
- 100kW
- OR Redundant 50kW

# Offering Turnkey Solutions with Partners

Immersion Cooling (rack and primary cooling)

Secondary Cooling

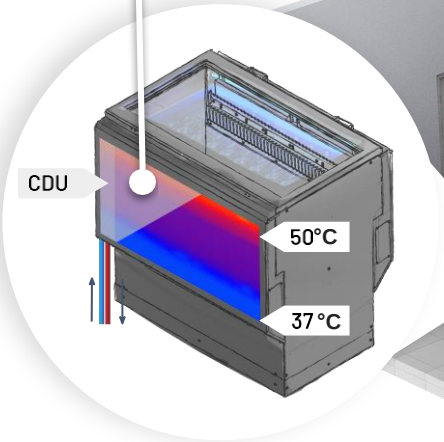


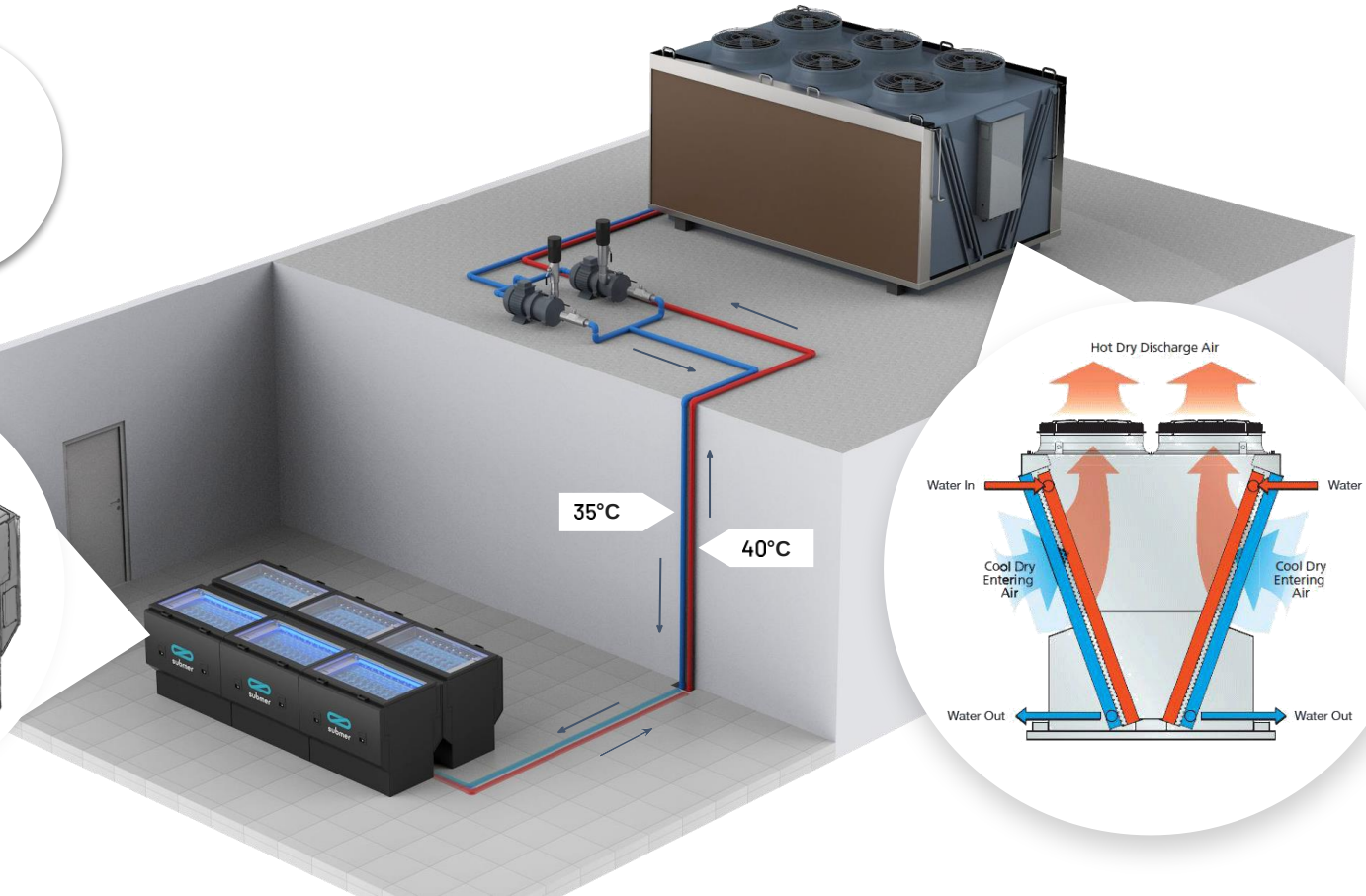
Immersion Cooling Ready IT-Hardware: Servers, Switches, Powershelves, Backup-Batteries

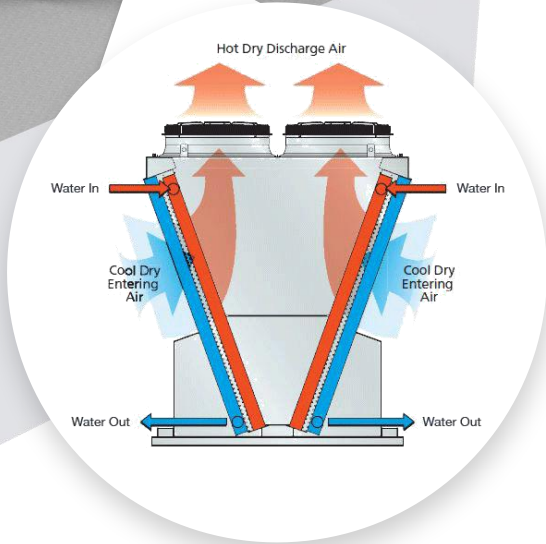
Services
Installation
Maintenance
Support

# But where does the heat go?

**CDU**
(embedded heat exchanger)



# Benefits

**Highly Efficient**
**Ultra Dense**
**Rapid Deployment**
**Sustainable**

## Verticals

- HPC / Research
- Hyper-scalers
- Cloud Gaming
- Fintech
- Telcos

## New Technologies

AI / Machine learning

Blockchain

IoT, M2M

Edge, 5G

# Highly-Efficient

**PUE <1.03**

Even in the world's hottest regions...

up to

**95%**

Reduction in cooling OPEX

... or right at the Edge - Build **Smarter Cities** !

# Ultra Dense

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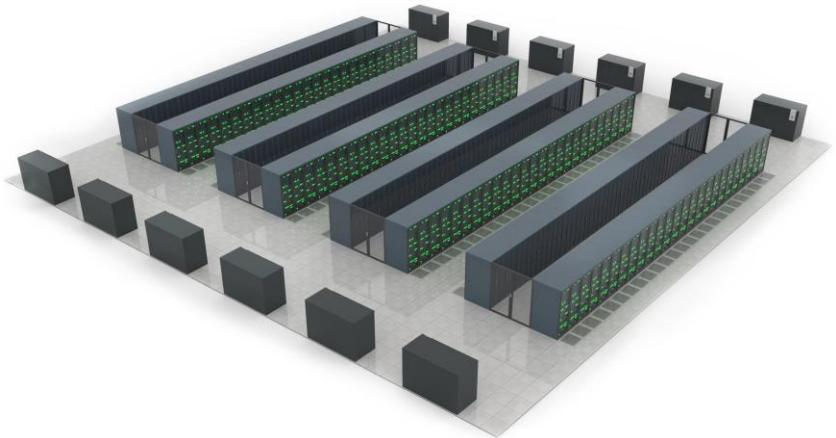
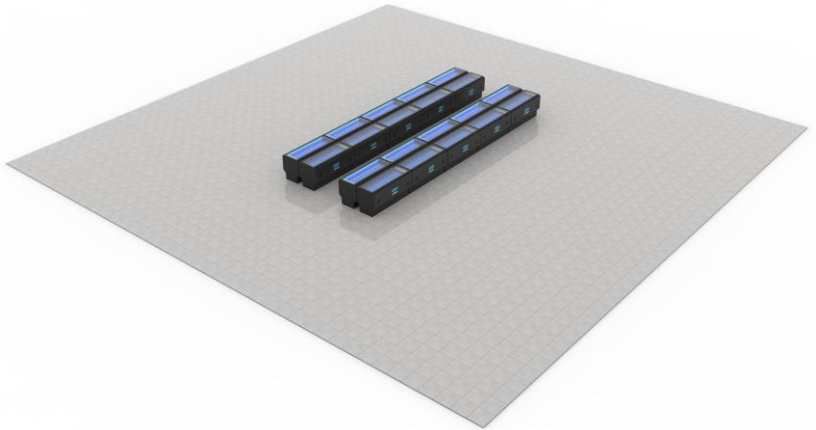
## 85 - 97% Less Space

**Density:** 50 or 100 kW / SmartPod
**Design:** Compact & Modular
**Minimum Footprint:** embedded CDU



200 regular air-cooled racks
Space > 1,000 sqm



20 Submer SmartPods
Space < 30 sqm

# Rapid Deployment

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# Sustainable

**45%**

Reduction in Carbon Emissions

## Carbon Emissions from Computing

**6%**

Current Electricity Consumption

**4%**

CO2 Emissions

**20%**

Electricity Consumption by 2025

## 1MW Datacenter with Air

**66,000 KGt of CO2**

## 1MW Datacenter with Immersion

**36,000 KGt of CO2**

# Benefits Summary & Submer's Added Value

## Unrivalled TCO

- 95% Reduction in Cooling OPEX
- 85% Reduction in Space
- 50% Reduction in new-built CAPEX
- 45% Reduction in Carbon Emissions
- 10x Increase in Computing Density

## Our Added Value

- **In-House Developed Fluid**
- **Modular Footprint**
  CDU in SmartPod
- DataCenter **Experience**
  **Innovation** Leadership
  **Sustainability** Focus

# Our Main Added Value

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## SmartCoolant

Submer's In-House Developed Synthetic Fluid

### Highest Quality & Economic

- **Fully Compatible** with IT components
- **Non-Corrosive**
- **Non-Oxidative**
- Lifespan: **15 years**

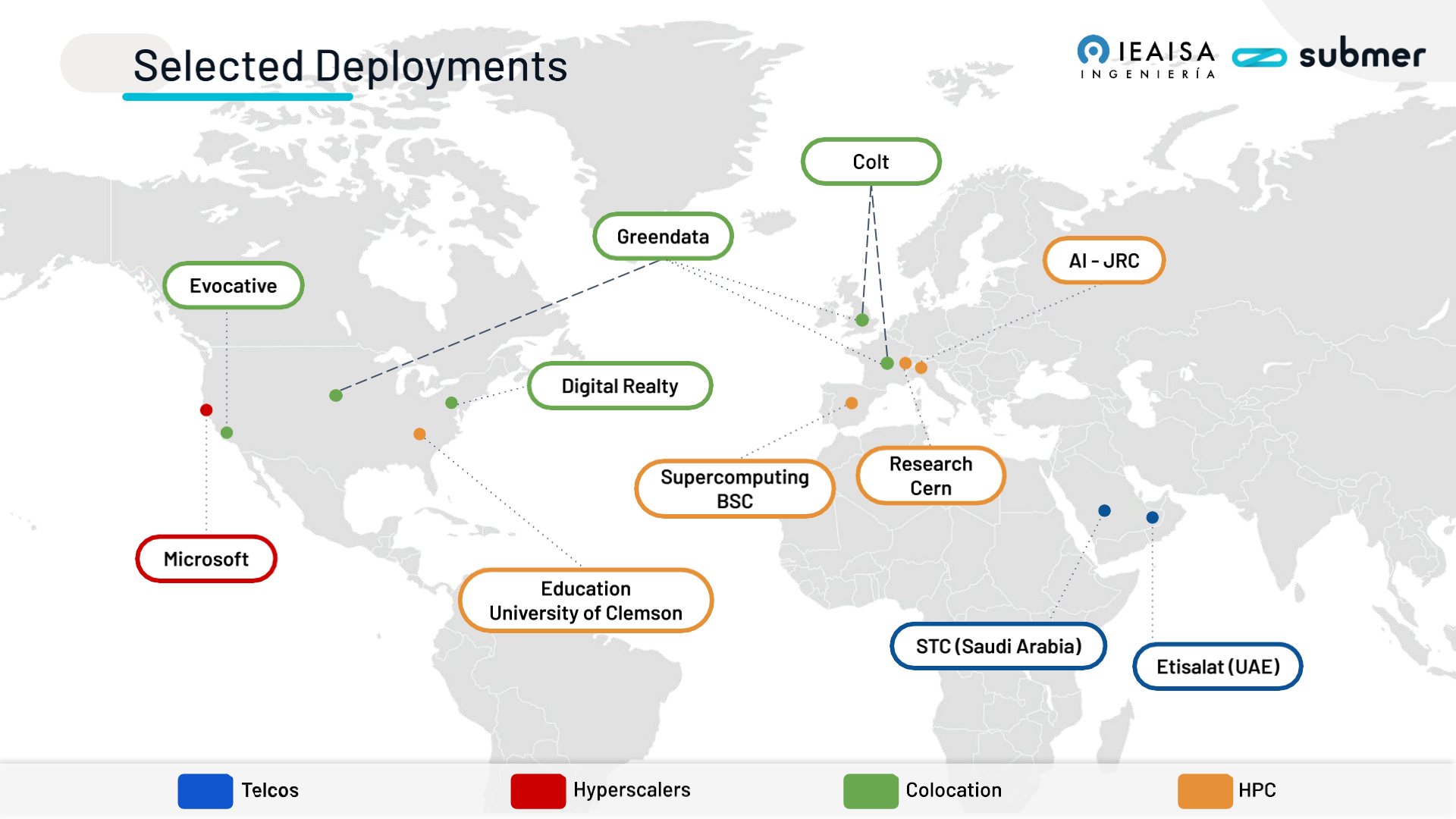
### Protect your IT investment

- Barrier **against dust & moisture**
- **Thermal uniformity**
- **Sealed** environment
- No moving parts

### Safe for humans & the environment

- **Non-toxic**
- Certified **Biodegradable**

# Selected Deployments



We believe that our digital world can be more efficient, cost-effective, environmentally friendly and safer.

We live to innovate !

Request more info at info@ieaisa.com