DRACULA
TECHNOLOGIES

Smarter Buildings start with Light:

How Orioma and Dracula Technologies Are Revolutionising Smart Building Energy Management.

Success Story

June 2025

ORIOMA

Success Story

ORIOMA

Customer Overview

Orioma is a French innovator specializing in the design and manufacture of ultra-low power IoT sensors, with a strong focus on sustainability and smart-building applications. Their flagship product, LOBX, is a cutting-edge solution that enhances building energy efficiency, safety, and comfort.

Designed to be installed effortlessly and operate maintenance-free for at least 15 years, LOBX helps reduce building energy consumption by up to 30%. Orioma primarily targets the tertiary sector—including corporate offices, government buildings, and research centers—representing a combined addressable market of over 2.5 billion square meters across Europe. Interest in LOBX from oversees is growing, as illustrated by a recent contract in the United States

The Challenge

Orioma's mission to improve building energy efficiency and safety was met with a common industry-wide challenge: the high complexity and cost of deploying IoT devices at scale. Their clients, particularly in the tertiary sector, were often deterred by the extensive wiring needed to install traditional sensors, including the additional requirements for voltage transformers and circuit breakers in electrical cabinets.

Even wireless solutions presented issues. Disposable batteries—often marketed as long-lasting—would routinely underperform in real-world conditions. This created recurring maintenance burdens, requiring technicians to climb ladders and access sensors mounted high on ceilings, exposing them to safety risks and disrupting operations. Moreover, the need to set up environmentally responsible recycling processes for used batteries added another layer of complexity and cost.

Orioma needed to deliver a truly autonomous, wire-free IoT solution that could eliminate maintenance, reduce environmental impact, and still meet the stringent energy monitoring and safety expectations of their customers.

The Solution

To solve this challenge, Orioma turned to a next-generation energy source: ambient indoor light. Their vision was to create a smart sensor powered entirely by light, capable of operating maintenance-free for a minimum of 15 years. After researching cutting-edge energy harvesting technologies, they found that only a few companies worldwide could deliver the kind of flexible, efficient, and compact solar solution they required.

Dracula Technologies quickly emerged as the ideal partner. The company specialises in organic photovoltaic (OPV) technology under the brand name LAYER®—a solution capable of harvesting even very low levels of indoor light with impressive efficiency. The collaboration began in 2021 with the development of a custom panel for Orioma's square prototype, which later earned prestigious recognition including the I-Lab Grand Prize and a spot among the top 20 most innovative products at CES 2022.

Building on this success, Dracula Technologies developed a bespoke conical-shaped OPV panel for the LOBX1 prototype—an unprecedented shape that matched the unique demands of ceiling installation and ambient light optimization. In 2023, Orioma, Dracula Technologies, and E-peas joined forces in a European project (SEPOC), successfully integrating the flexible OPV panel and a power management IC into a fully functional, autonomous LOBX prototype.

Beyond the technical innovation, the local proximity of the teams enabled fast iterations and agile development cycles, strengthening both the product and the partnership. Dracula's ability to adapt panel shape, size, and efficiency to Orioma's exact needs allowed LOBX to go from a concept to a viable, high-impact solution in just a few short years.

Results

The LOBX device, powered by Dracula Technologies' LAYER®, now delivers a reliable, wire-free, battery-free experience with:

- **At least 15 years of autonomous operation**
- **Real-time monitoring** of 5 parameters (expanding to 21), including temperature, presence, occupancy, ambient light, and heat anomalies
- **Seamless data integration** with building management systems via LoRaWAN® connectivity

Success Story

Benefits

Energy savings
Up to 30% reduction in building energy use

Zero maintenance
No wiring, no batteries, no interventions for 15+ years

Efficient energy harvesting
Optimized for low-light indoor environments

Customizable design
OPV panels shaped to maximize ceiling light capture

Sustainability
Disposable battery-free, reducing environmental footprint

Fast ROI
Return on investment in just 18–24 months

Smart features
5 parameters monitored (temperature, presence, occupancy, ambient light, and heat anomalies), scalable to up to 21

Enhanced safety
Includes abnormal heat detection, and detection of unusual human behavior is scheduled for 2025

Easy installation
Ready-to-use with OrioConnect for instant LoRaWAN setup

Local innovation
Agile collaboration between two French tech leaders

DRACULA TECHNOLOGIES

About **Dracula Technologies**

Dracula Technologies, a leader in energy harvesting for low-power microelectronics, offers LAYER® and LAYER®Vault, highly sustainable inkjet-printed solutions replacing traditional batteries. Our Green Micropower Factory produces 150 million cm^2 of eco-friendly OPV modules annually.

ORIOMA

About **Orioma**

Orioma is a pioneer in ultra-low-power sensors for IoT, smart-building and surveillance. Orioma designs LOBX, a unique IoT that optimizes building energy management while enhancing the comfort and safety of occupants. LOBX reduces building energy consumption by up to 30% and operates 15 years with no wires, no disposable battery, and no maintenance.

Beyond Batteries, Beyond Imagination:

LAYER® Lights Up Innovation.

DRACULA TECHNOLOGIES

OPV LAYER®

Our technology harnesses the photovoltaic effect, featuring an organic active layer rich in carbon and hydrogen and utilizing environmentally friendly solvents.

It represents a significant advancement in renewable energies as part of the third generation of photovoltaic technologies.

Applications across various industries

Smart Home & Smart Building

- Monitoring
- Energy Management
- Home Control
- Lighting

Smart Asset Tracking

- Cold Chain Monitoring
- Geotagging

LAYER®Vault

Energy Harvesting & Storage in 1

Low-light OPV energy harvesting and electrical storage printed on both sides of one flexible thin film.

- Stores surplus energy for later use, ensuring uninterrupted functionality.
- Seamlessly integrates into diverse applications for ultra low-power devices.
- Eliminates the need for a bulky supercapacitor, hence reducing the device's form factor.

With a production capacity of 150 million cm^2 printed OPV surface, Dracula Technologies is the largest manufacturer of organic photovoltaic in Europe.

Contact us to discuss your needs!

dracula-technologies.com
2 Place Edmond Regnault
26000 Valence, France
sales@dracula-technologies.com