



3D-printed luminaires

Circular Economy

Case Study:
El Dorado
International Airport
Bogota, Colombia

El Dorado

A sustainable airport

“Our goal is to become a reference in energy efficiency and sustainable operations in Colombia and the whole of Latin America. Because of that, we have decided to use the latest innovation in lighting: 3D printing – which allows us to be pioneers in how we manage all airports in the region.” **Mauricio Vélez, OPAIN Infrastructure Manager.**

Energy efficiency and sustainable operations

The airport with the highest cargo volume in Latin America is using 3D-printed lighting, the latest innovation in the sector, as well as remote lighting management to become a pioneer in sustainability and infrastructure management. Located in the city of Bogotá, Luis Carlos Galán Sarmiento International Airport, better known as El Dorado, is the main air terminal in Colombia.

El Dorado is the number one airport in Latin America in terms of cargo volume and the third in number of passengers, following Mexico City International Airport and Guarulhos International Airport. Its privileged and strategic position in the middle of the continent makes it one of the most important air hubs in South America, which helps connect the region with the rest of the world.

Looking to integrate both innovation and regulatory compliance helps the airport create a much needed balance between environmental, social and economic issues. Therefore, it has implemented the latest innovation in lighting with [3D printing luminaires](#) used inside its terminals and remote light management for exterior lighting.



We are a 100% carbon neutral company. We are committed to the responsible consumption and production through products that can be reprinted, renewed, reused, and recycled. It is a great honor to be able to contribute to such a relevant airport infrastructure and help them achieve their sustainability goals.”

Felipe Uribe
Cluster Leader North LatAm Signify

Customer Challenge

As part of their strategy against climate change, the International Airport Operator (OPAIN) was looking for a solution to mitigate the impact of their activities and reduce their carbon footprint. Their maintenance department, together with other areas of the airport, constantly adopt measures aimed at increasing the efficiency of the airport’s infrastructure, which covers an area of approximately 6.9 km².

The main aim of their initiative was to retrofit interior luminaires whilst making sure lighting has the least possible negative impact. Given that terminals are 24/7 transit points, the priority was to offer greater visual comfort for passengers and better workspaces for the entire airport workforce.

For outdoor lighting, the challenge was to implement the latest LED technology with a cloud-based system that allowed them to manage operations and maintenance remotely with maximum reliability and safeguards.

El Dorado is the first project of its kind in Latin America to implement the latest innovation in lighting both by using [3D printed luminaires](#) and [Interact City systems](#) to remotely manage exterior lights. Thus becoming a benchmark for sustainable operation and maintenance at the highest level of an infrastructure as complex and large as an airport of these characteristics.

Solution

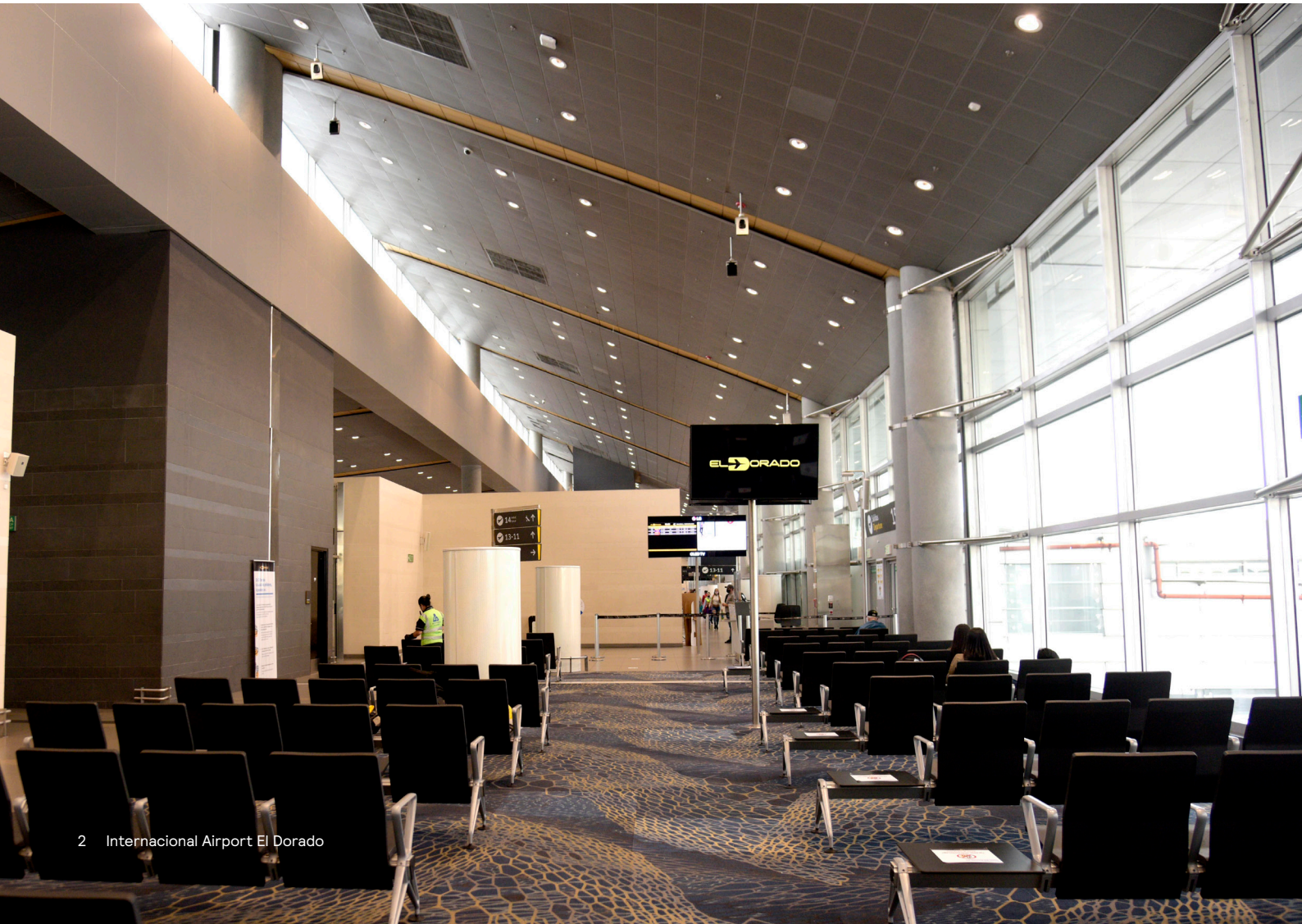
A sustainable operation with 3D printing lighting. Signify’s 3D-printed luminaires have been implemented throughout terminals 1 and 2, providing light for more than 173,000 m2. In total, 8,942 [downlights](#) have been installed and integrated with the control and monitoring system of all airport areas.

The advantages of 3D technology whilst completing this project been many:

- Each luminaire was printed on-demand within the specifications of the original lights, making installation seamless.
- Production registers 75% less carbon footprint when compared to a traditional manufacturing process and there is no waste in materials
- Products are 100% recyclable

DigiStreet luminaires with Interact City system have been chosen for the lighting of outdoor areas and streets – the first remote lighting management project within an airport in Latin America. DigiStreet has two sockets that allow each luminaire to be connected directly to the Philips CityTouch system and future IoT innovations.

It is possible to monitor each point of light remotely, making management of lighting and the anticipation of possible failures much easier. With the migration in the first phase of 14,237 luminaires to LED technology, the airport is already saving more than 65% in electrical power.



Maximum sustainability with circular economy

Relevant data from the first phase
First project using 3D-printed luminaires in Latin America



8.942

3D-Printed downlight installed



14.237

Luminaires retrofitted using LED technology



66%

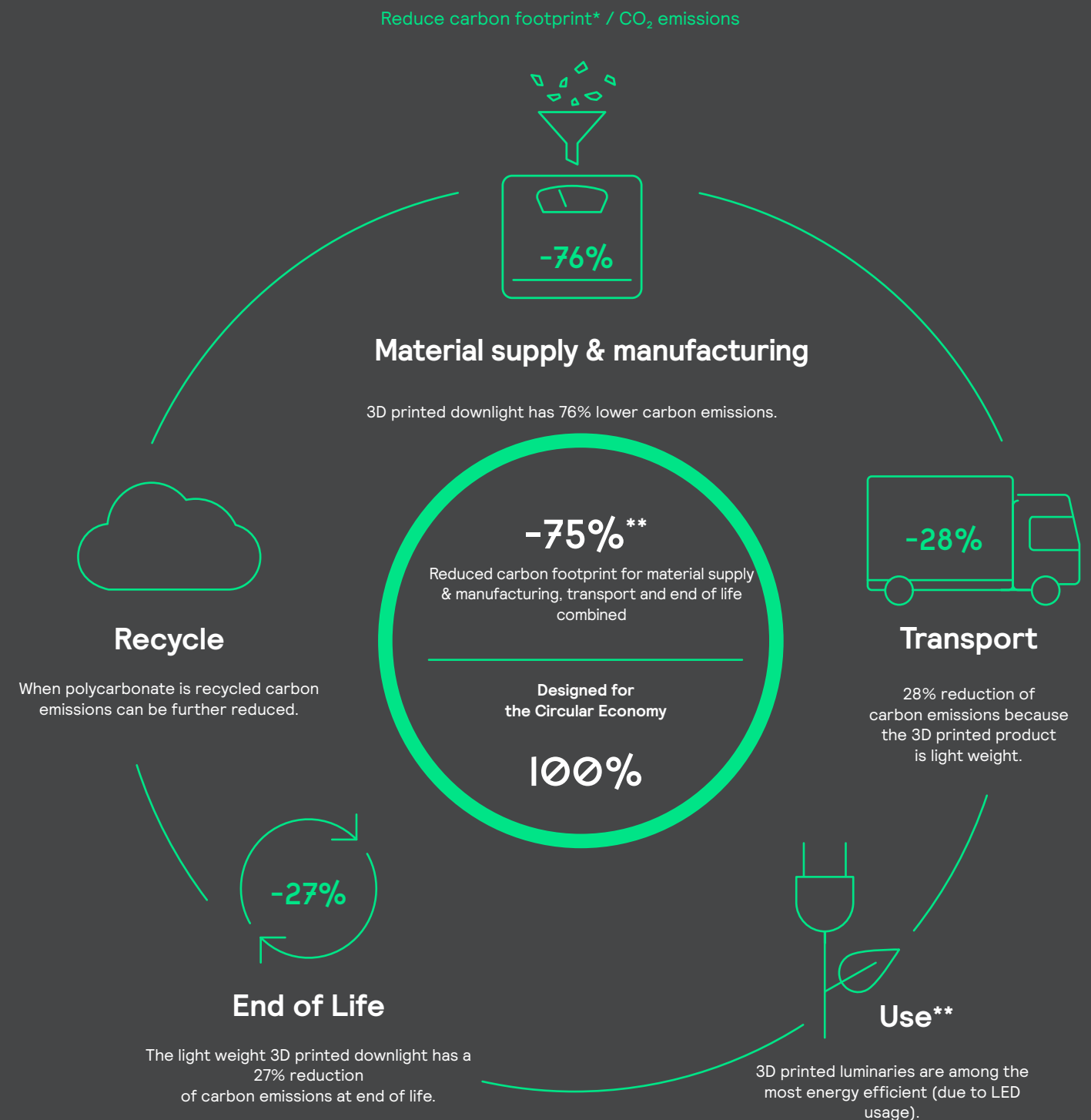
Savings in electrical power



40

Interact City nodes

Contribution of our 3D printed luminaires to your sustainability goals



* Impact Assessment Carbon footprint IPCC 2013 GWP 100.

** The use phase, though having the highest impact during the life cycle, is excluded as it is the same between the 2 compared products.

Data based on comparison of a traditionally manufactured downlight using a die casted housing with a 3D printed downlight in polycarbonate. Data for other products will vary.



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