

## Air Liquide deploys digital transformation and revolutionizes bulk gases supply chain worldwide

Air Liquide is deploying at a global scale its bulk gases supply chain digitalization program, IBO (Integrated Bulk Operations). Digital technology and the associated massive collection of data from production plants to the clients' sites enable the improvement of operational performance and in particular a reduction in the carbon footprint, in line with the Group's Climate Objectives. The deployment of IBO in its Industrial Merchant business line will further accelerate Air Liquide's digital transformation for an always better customer experience.

Delivering gases in liquid form by truck is at the core of Air Liquide's integrated model. The IBO (Integrated Bulk Operations) program was created in 2017 with the objective of **optimizing the bulk supply chain** from end to end. Five key pilot projects were launched in several geographies: Canada, U.S., France, Germany and China. They were supported by Air Liquide R&D, Digital and IT teams, which worked in collaboration to develop and industrialize tailor made digital solutions.

By digitally **connecting assets** throughout the supply chain, from production plants and trucks to tanks at customer sites, Air Liquide **collects and analyses data** to deliver always **better customer experience, higher operational performance and lower carbon footprint through:**

- **Predictive analysis** of the customer demand based on his consumption pattern and product inventory
- **Product sourcing optimization** based on production costs and plant location
- **Truck trip optimization** to minimize transport costs and carbon footprint
- **Real time customer information of the delivery**

Air Liquide's bulk activity represents 27% of the Industrial Merchant (IM) revenues<sup>1</sup>. It serves customers for example in Food & Beverage, Electronics or Glass & Metals markets with liquid gases from the Group production sites. It also supplies internally the filling centers which will then serve customers with gases in cylinders.

**Matthieu Giard**, Vice President and Executive Committee Member of Air Liquide Group, supervising the Industrial Merchant business line, said: **"Industrial Merchant is at the same time, the Air Liquide historical core business and a business that changes fast leveraging data and digital. The deployment of our bulk gases supply chain digitalization program IBO, on a global scale, is a new and significant step in the Air Liquide customer-centric transformation. Customers will now benefit from a service that guarantees greater safety and reliability, in the context of an approach that also helps to reduce the overall carbon footprint."**

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<sup>1</sup> As a percentage of the Industrial Merchant sales in 2019

A world leader in gases, technologies and services for Industry and Health, Air Liquide is present in 80 countries with approximately 67,000 employees and serves more than 3.7 million customers and patients. Oxygen, nitrogen and hydrogen are essential small molecules for life, matter and energy. They embody Air Liquide's scientific territory and have been at the core of the company's activities since its creation in 1902.

Air Liquide's ambition is to be a leader in its industry, deliver long term performance and contribute to sustainability. The company's customer-centric transformation strategy aims at profitable, regular and responsible growth over the long term. It relies on operational excellence, selective investments, open innovation and a network organization implemented by the Group worldwide. Through the commitment and inventiveness of its people, Air Liquide leverages energy and environment transition, changes in healthcare and digitization, and delivers greater value to all its stakeholders.

Air Liquide's revenue amounted to 22 billion euros in 2019 and its solutions that protect life and the environment represented more than 40% of sales. Air Liquide is listed on the Euronext Paris stock exchange (compartment A) and belongs to the CAC 40, EURO STOXX 50 and FTSE4Good indexes.