



Press release

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Air Liquide, Bouygues Construction, CEA and SUEZ develop the first online equipment to improve the safety of their operatives

Air Liquide, Bouygues Construction, CEA and SUEZ, partners in Ideas Laboratory[®], a shared innovation laboratory based in Grenoble, France, have designed a collection of online equipment designed to improve the safety of operatives in the field and the ergonomics of their working environment.

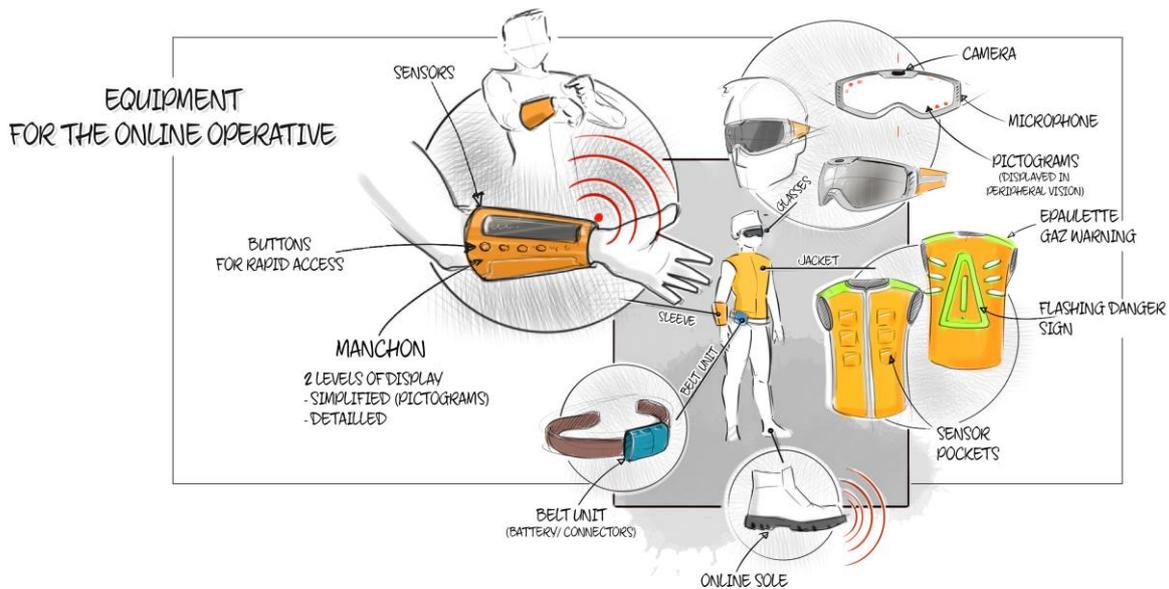
After two years of joint studies, the “online operative” project has come to fruition with the launch of the first online sleeve. This is a portable terminal worn on the forearm and compatible with wearing gloves. It complements the range of personal protective equipment (PPE) used by operatives, adding the dimension of new online uses. It is interactive, and will allow employees to be guided, informed and given help in real time when they are working in the field. They also benefit from an innovative system for communicating, collaborating and optimising their efficiency while keeping their hands free, no matter what the weather conditions.

The sleeve will improve the working conditions for operatives in the field working in each partner’s specific line of business: on building sites for Bouygues Construction, at gas production and processing sites for Air Liquide, and collecting, sorting and recovering waste for SUEZ. It has already enjoyed a successful pilot phase, and it will be progressively rolled out in several French regions for use by each partner’s employees.

Other modular digital tools have also been designed by the project partners to further equip the “online operative”. They can be adapted according to the requirements of each partner’s business:

- a high-vis jacket equipped with sensors able to analyse the air,
- glasses with an integrated camera,
- safety boots allowing geolocation.

To design all this new equipment, the partners have worked collaboratively and capitalized on their knowledge and expertise in their sectors of industry. They have also taken advantage of recent advances in connected objects and in cobotic technologies. The project forms a direct part of initiatives to promote safety and to modernise career profiles carried out by the various partners.



A modular range of equipment allowing communication, analysis of the environment and transmission of relevant production information.

About Air Liquide

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

Air Liquide's revenue amounted to €18.1 billion in 2016 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.

About Bouygues Construction

Bouygues Construction is a global player in construction, with operations in more than 80 countries. It designs, builds and operates projects in the sectors of building, infrastructure and industry. As a responsible and committed leader in sustainable construction, Bouygues Construction sees innovation as its primary source of added value: this is "shared innovation" that benefits its customers at the same time as improving its productivity and the working conditions of its 50,100 employees. In 2016, Bouygues Construction generated sales of €11.8 billion.

About CEA DRT (Technological Research Department)

Located at the heart of a rich environment of scientists, industrialists and academics, CEA DRT focuses most of its research activities on the development of new technologies in the areas of energy, health, information and communication. CEA DRT is behind the creation of Ideas Laboratory®, which it hosts. CEA DRT is a key player in its work and is involved in all the topics pursued by this Open Lab.

About SUEZ

We are at the dawn of the resource revolution. In a world facing high demographic growth, runaway urbanisation and the shortage of natural resources, securing, optimising and renewing resources is essential to our future. SUEZ (Paris: SEV, Brussels: SEVB) supplies drinking water to 92 million people, delivers wastewater treatment services to 65 million, recovers 16 million tons of waste each year and produces 7 TWh of local and renewable energy. With 82,536 employees, SUEZ, which

is present on all five continents, is a key player in the sustainable management of resources. SUEZ generated total revenues of €15.3 billion in 2016.

About Ideas Laboratory

Created by the CEA in 2001, Ideas Laboratory® pioneered the French Open Lab ecosystem. Since it was founded, this platform for open and shared innovation has gathered together approximately thirty partners, who have helped to enrich this cross-vision of innovation where uses and human experience are central to the design of future products and services. They include: CEA, Hewlett Packard, ST Microelectronics, Orange, Mendes France University, Stendhal University, Essilor, Rossignol, EDF, Bouygues, Renault, GDF SUEZ, ADEO Leroy Merlin, Air Liquide, Teamlog, Ixiade, ENSCI-Les Ateliers, Grenoble School of Management, the Isère Department, Grenoble Institute of Technology, Brunet Group, BNF and La MAIF. These partners are joined by many SMEs, start-ups and project partners, outside specialists and students. Its role consists in carrying out collaborative innovation projects for which participants define the aims together and pool human and financial resources. A wide variety of disciplines are involved, including design, engineering, human and social sciences, applied sciences, marketing, etc. Capitalising on all these resources and shared expertise, Ideas Laboratory promotes disruptive innovation. The aim is to respond to future challenges of society and to carry out innovative projects that will be meaningful for users.

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