

# Smart and Innovative Operations

27<sup>th</sup> Sept. 2018 - Federchimica

“Chemistry 4.0: how to enhance R&D activities and innovate the operations”



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Milan • 27 September 2018

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# 1

## The Air Liquide Group

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AIR LIQUIDE, THE WORLD LEADER IN GASES, TECHNOLOGIES AND SERVICES FOR INDUSTRY AND HEALTH

Smart and Innovative Operation

## Our profile - The world leader in gases, technologies and services for Industry and Health

Present in **80 countries** with approximately **65,000 employees** and serves more than **3.5 million customers and patients**.

Oxygen, nitrogen, argon 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.

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 organization implemented by the Group worldwide.



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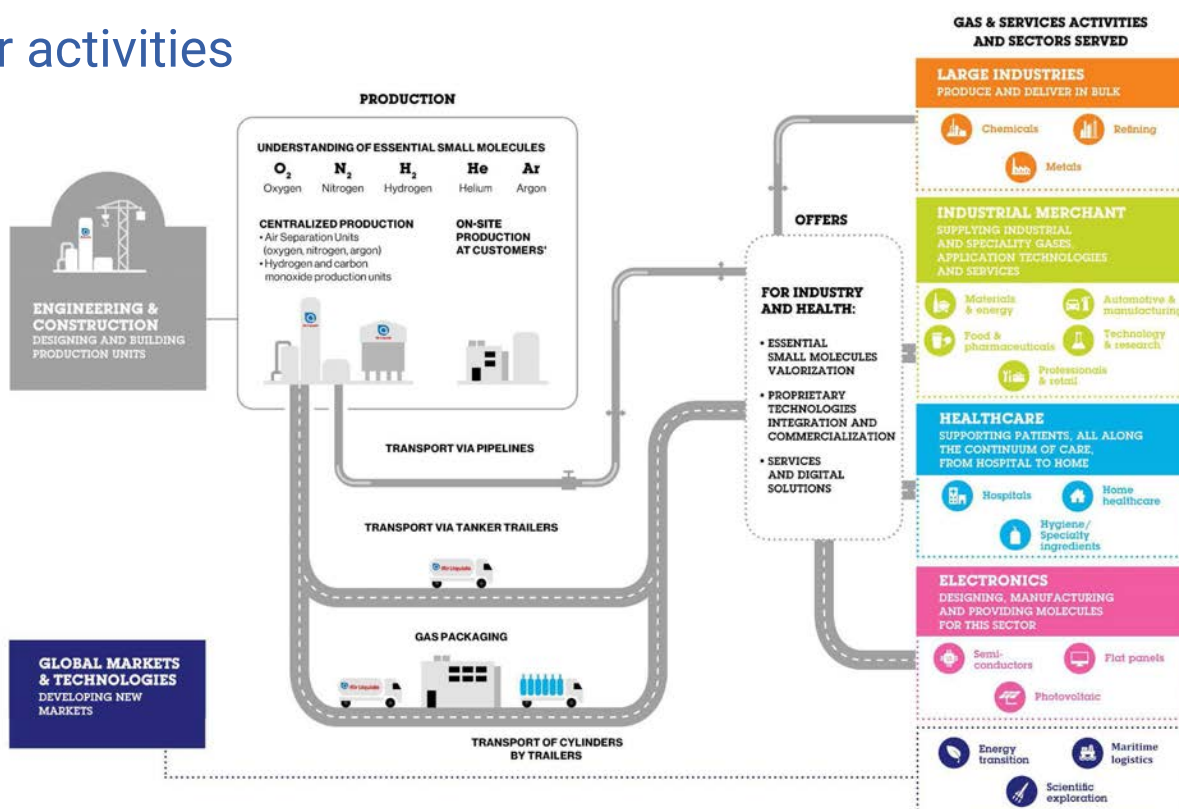
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## Our activities



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# South West Europe **CLUSTER**

≈ 4,400  
employees



≈ 300,000  
Customers

+150  
sites

Italy is an integral part of the SOUTH WEST EUROPE Cluster together with France and Iberia (Spain and Portugal).



FRANCE



ITALY



IBERIA



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### Industry 4.0 and Air Liquide

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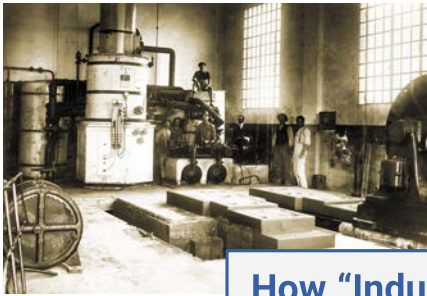
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# Innovation @ Air Liquide



More than 100 years ago..

How “Industry 4.0” can change our activities, again?

..today ..same molecules



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## Industry 4.0



- ✓ Big Data
- ✓ Process Automation
- ✓ Cloud Computing
- ✓ Augmented Reality
- ✓ Predictive Maintenance
- ✓ Cyber Physical Systems
- ✓ Collaborative Robotics
- ✓ Digital Technologies

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# Digital Transformation

## Safety activities

- ❖ Important
- ❖ Man-dependeng
- ❖ Time consuming

## Digital technologies help

- data sharing
- archive
- Mailing
- data analysis
- reporting

### e-tools enable to:

- *reduce the number of low value tasks*
- *save time, allowing operators to focalise on high value activities*
- *improve competencies and skills of operators*



# Smart and Innovative Operations Program

## Target

- Deliver the next step improvements in Operational Excellence by
- capturing the opportunities coming with the integration of digital technologies
  - drastically improving decision making process

by

### Leading Approach

- proactive handling of operational drifts

### Connecting

- industrial expertise socialization
- fleet and data socialization

### Digitalization

- digitalization is key to enable all initiatives



# Digital Transformation for Safety

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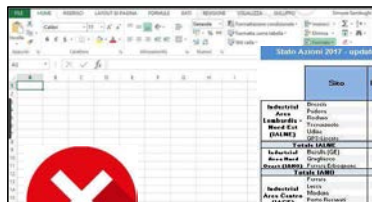
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## Smart and Innovative Operation

## ALrep

## Reporting Tools

- ✓ Simplify, through digitization, the application of the main HSE processes
- ✓ Obtain data integration and reporting automatically
- ✓ Ability to make recordings by PC, smartphone and tablet
- ✓ Simplification of QHSE processes
- ✓ Production of automatic reports
- ✓ Possibility of data analysis

[illegible]

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## Smart and Innovative Operation

# ALlrep

## New document

- ✓ Smart interface
- ✓ Simplified forms containing only the essential fields

## Automatic notifications via e-mail

- ✓ The system generates automatically e-mail at each change of status of the module to the interested persons

## Attaching photos and documents

- ✓ Following the completion of the required fields, you can attach photos and documents to obtain a registration as complete as possible

# PdLweb

## Work Permit WebApp

- ✓ Work Permit issuing
- ✓ Web App available also for mobile device
- ✓ Management of interference
- ✓ Clear and easy risk identification
- ✓ Link to other web-tools (Maintenance, Operations)

**Work permit issuing**

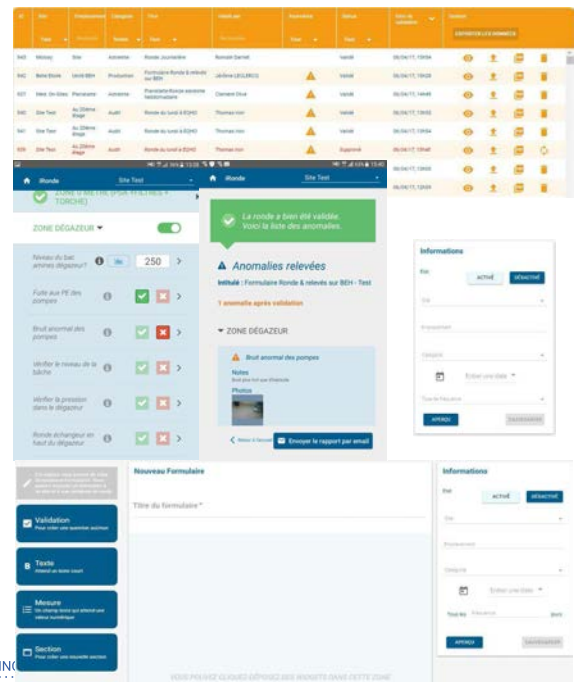
**Management interference**

**Process interference**

# iRound

## Digital Check-list

- ✓ Design and execute checklists, for audits, inspections, site rounds or procedures
- ✓ App available for mobile device
- ✓ Detect weak signals, collect massive data for further analysis, improve day to day reliability
- ✓ Link with Computerized Maintenance Management System (CMMS)



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Thank for you attention!

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