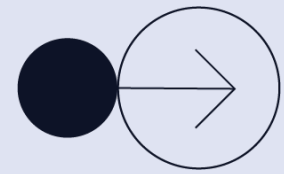


# Leveraging Circularity with UX

Creating a highly efficient, more sustainable and safer  
industrial gas business







Innovation Consulting, Industrial Design, Full Service Product Development

# Value Driven Circularity

Linde AG is one of the largest industrial gas manufactures in the world. All industries that need technical gases know the brand and use their product. In the business case of the industrial gas cylinder Linde already created a closed circle with strongly standardized and fixed processes.

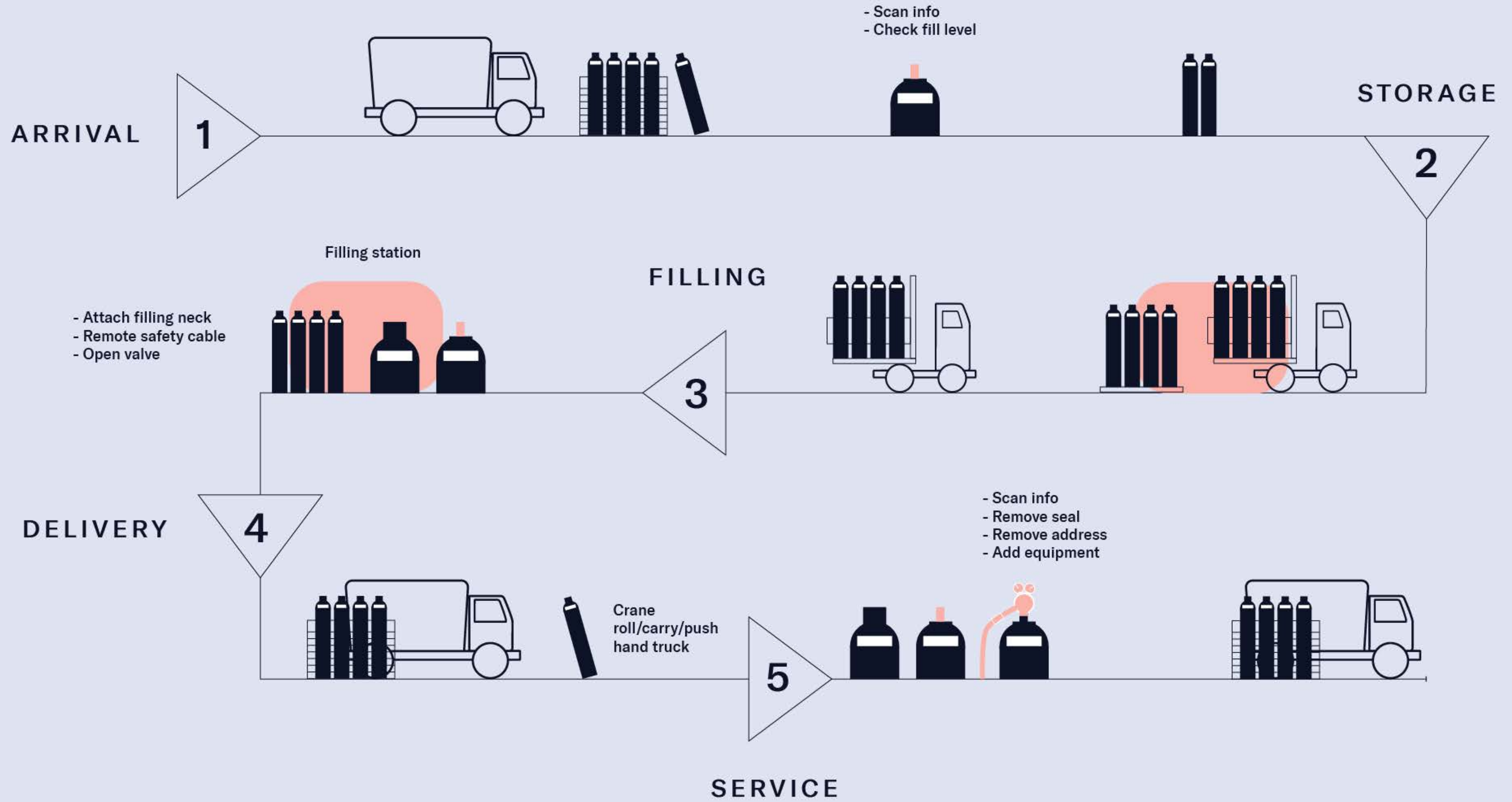
Our approach made this cycle more sustainable, more efficient, and safer by enhancing the industrial gas cylinder and making it smart. Moreover, an economic impact on the brand and the profit could be achieved.





# Standardization enables circuits

Linde has created a global cycle in which all Linde customers participate. From arrival and storage to filling, delivery, and service – the standardization of industrial gases and not only the products themselves, but also the containers and bottles, enables closed circuits.

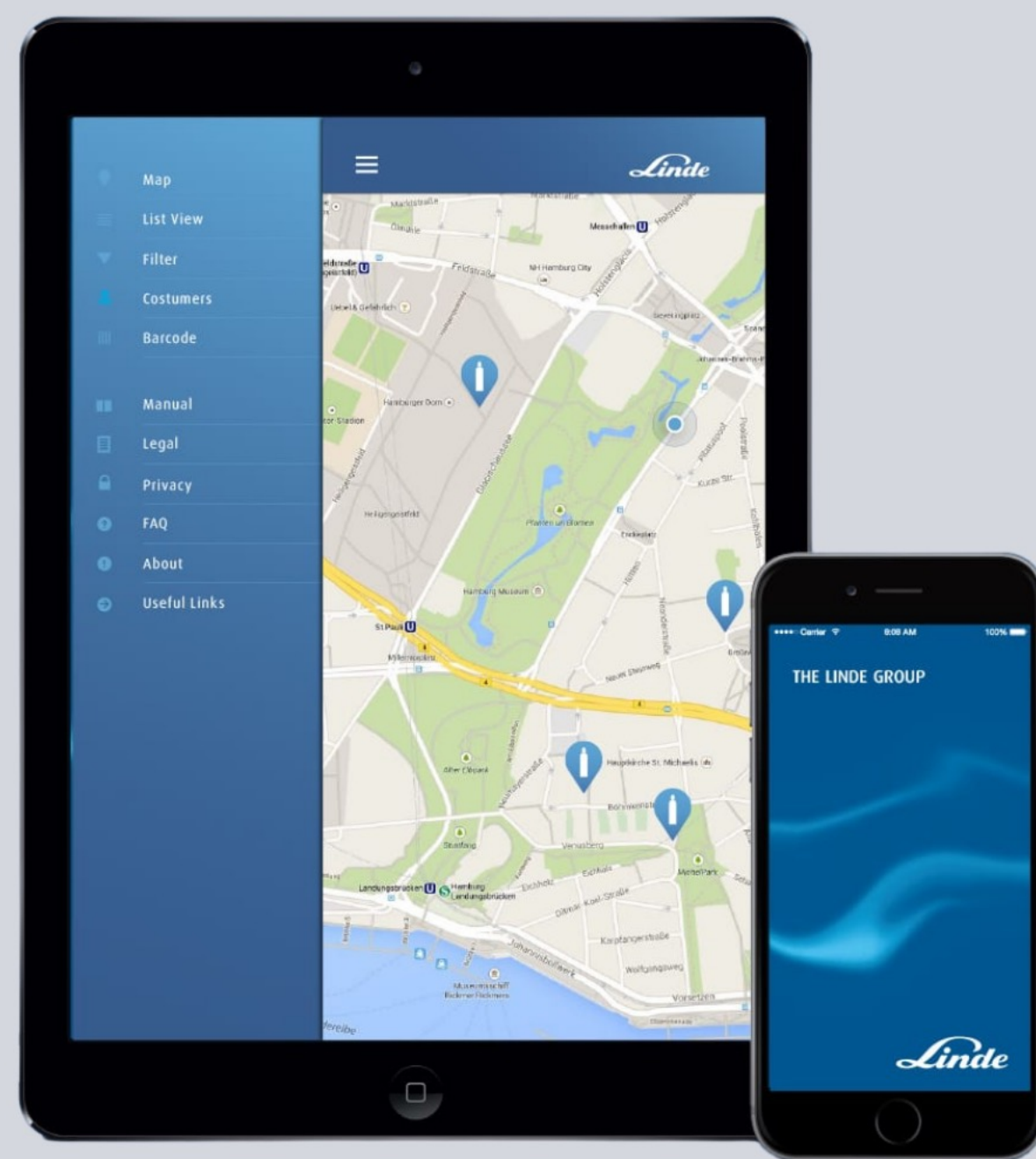


We carried out a global circular value chain assessment and found crucial innovation potential across the entire value chain. This includes economic and ecological factors as well as occupational safety. All potentials condensed at one point: the gas cylinders with their valves.



# Smarter Circularity

For the EVOSTM product family we developed in a first step the EVOS Ci, that sets new standards in terms of ergonomics, safety, and productivity in the gas cylinder valve segment. Then we took the next step and made the existing gas bottle smart to improve the refill ability and recyclability.







The EVOSTM DCi is an application for all valves across the entire product range which uses sensors to transmit live cylinder position data and gas information including gas type, gas volume, gas flow rate and even cylinder temperature. Using data transmission and storage in the cloud, customers have instant, device-independent access to current and historical gas information.

Personnel-intensive and time-consuming inventory inquiries can be avoided, as well as unnecessary delays or work stoppages caused by missing gases. Track-and-trace technology also ensures full compliance throughout the lifecycle. This allows gas customers to optimize their inventory and supply chain management. In addition, it enables Linde to offer its customers predictive maintenance as well as an improvement in their ecological footprint. A win-win for Linde and the end customer.



Cloud System



Connectivity



Safety system



Innovative Protective guard

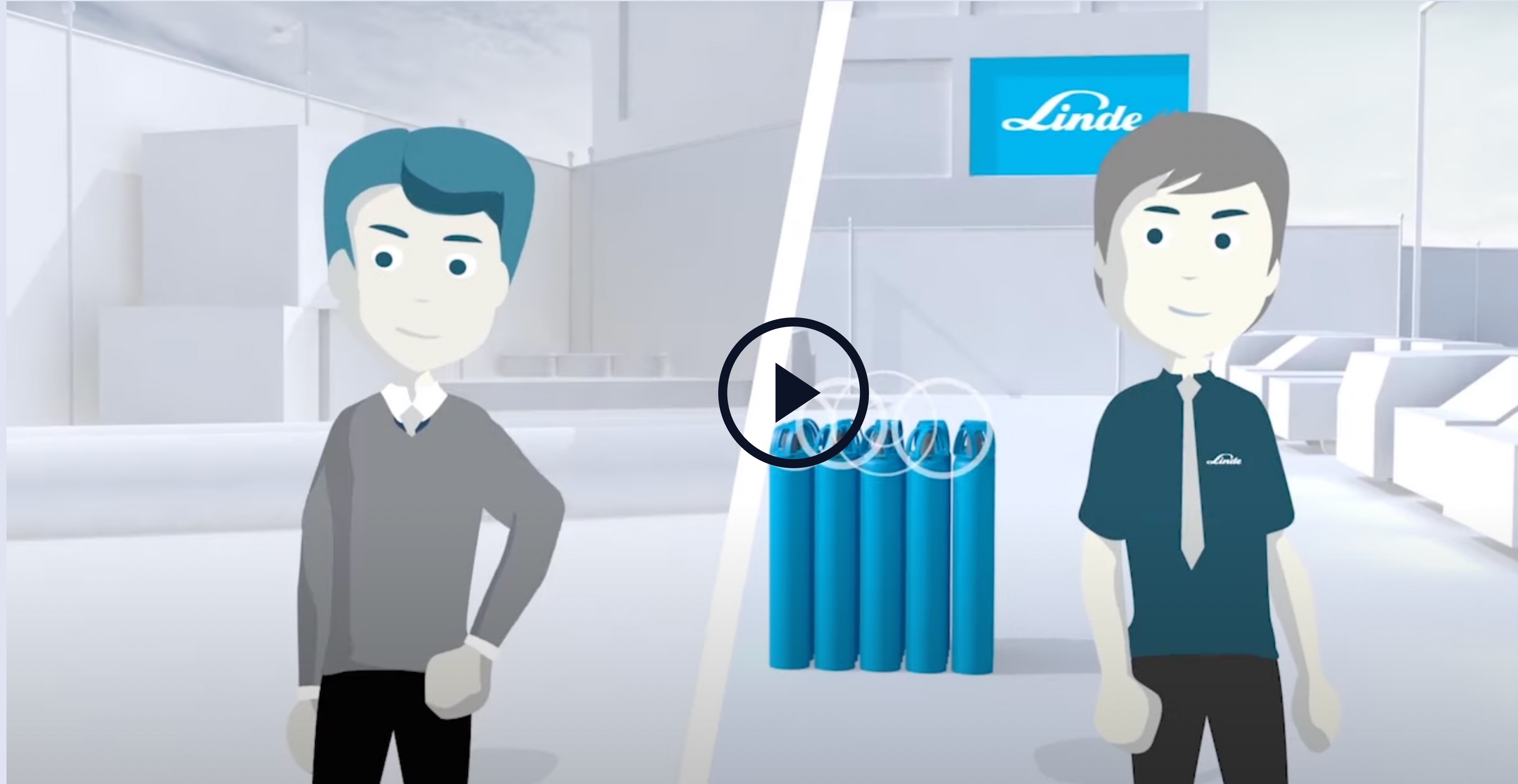


Quick action lever



Live content indication





**PLANET**

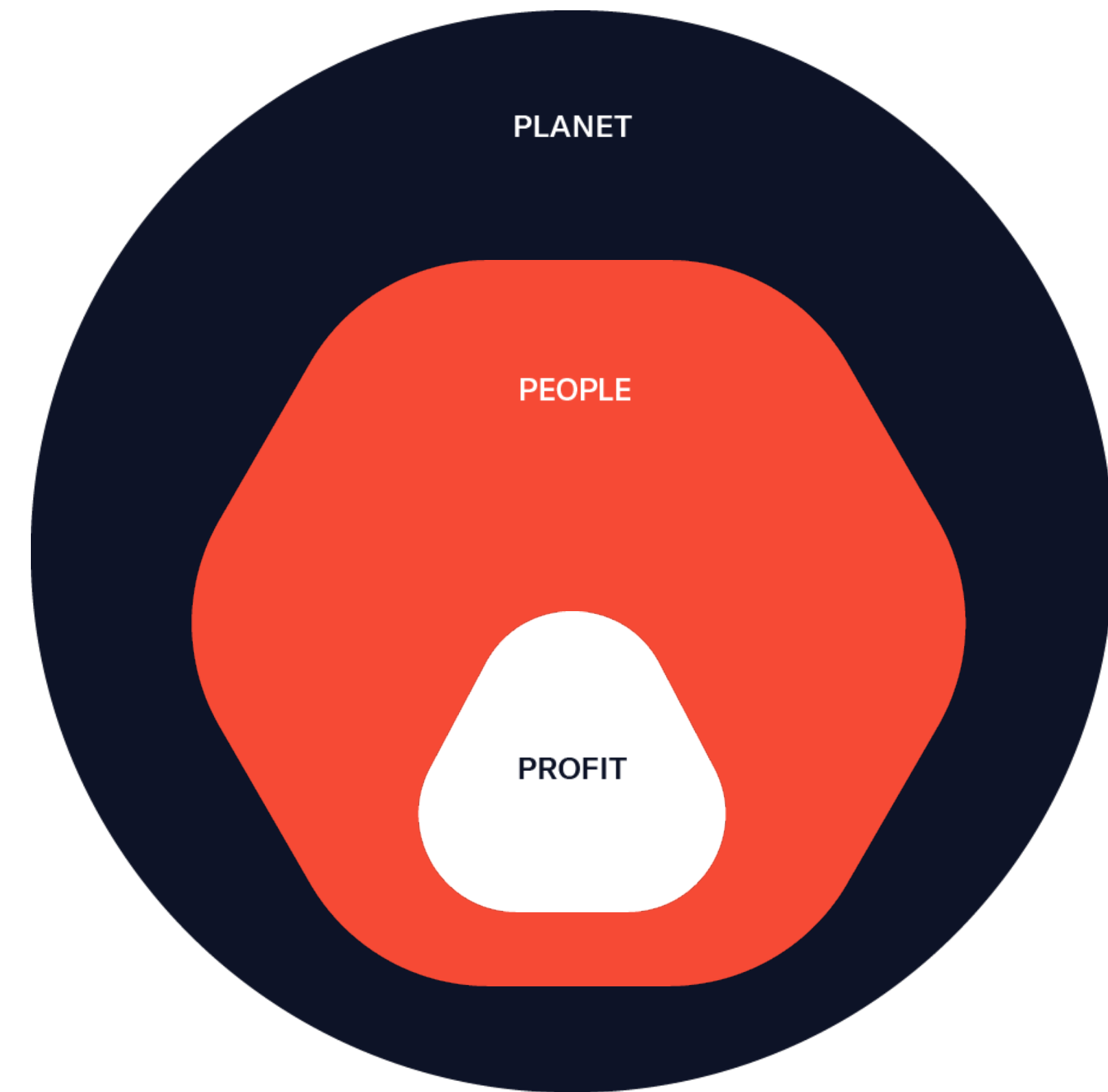
- Optimization of the logistics results in Greenhouse gas savings
- Optimization of resource usage through more efficient utilization
- Extension of the service life through modularity and reparability

**PEOPLE**

- Improvement of occupational safety, including handling safety and ergonomic improvements
- Improvement of UX / CX that lead to increased brand value
- Implementation of more transparency to trigger behavioral change

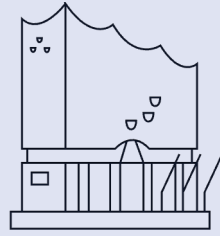
**PROFIT**

- Improvement of the end customer’s supply chain by efficient use of gases through optimized use of residual quantities
- Improvement of the filling by creating faster and safer fillings
- Savings of working time by knowing precise locations and quantification of the containers
- Enabling modularity and reparability including predictive maintenance of the bottles and valves
- Ensuring compliance with all industrial standards and legal regulations
- Improvement of Linde’s ability to innovate by generating data



# INDEED

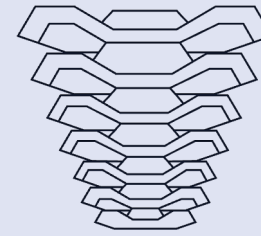
WWW.INDEED-INNOVATION.COM



## HAMBURG

Schopenstehl 15  
20095 Hamburg  
Germany

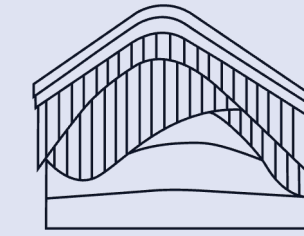
**+49 (40) 2846740-0**



## NEW YORK

275 Water st  
New York, NY 10038  
USA

**+1 (212) 203 4777**



## SHANGHAI

Cheng Du Bei Road 333, 4th Floor  
Jing'an District, 200041 Shanghai  
China

**+86 18202123068**

INFO@INDEED-INNOVATION.COM

