



# UPS Healthcare

Quality Focused. Patient Driven.

## COVID-19 VACCINE

**UPS Healthcare Capabilities**  
to assist health systems in  
handling the pandemic

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# THE WORLD HAS ENDURED A CHALLENGING SITUATION SINCE THE OUTBREAK OF THE COVID-19 PANDEMIC, PUTTING ENORMOUS FINANCIAL AND LOGISTICAL PRESSURE ON HEALTHCARE SYSTEMS

UPS Healthcare is uniquely positioned to support governments and private organizations with efficient distribution of COVID-19 vaccines across Europe

# EUROPEAN UNION AND PARTNERS INOCULATION GOAL IS CHALLENGING.

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400M doses reserved <sup>1</sup>



+ 225M potential additional doses <sup>3</sup>

**UNCERTAIN  
COVID-19  
SCENARIO AND  
VACCINATION  
CAMPAIGN START**

**Europe GOAL**  
Inoculation at least  
**40%**  
of the population

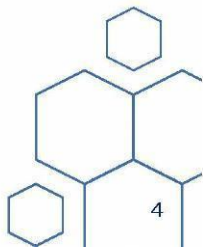
**178m** people that need more than one shot...every year!



# UNPRECEDENT NEED BRINGS IN HIGH LEVELS OF SUPPLY CHAIN COMPLEXITY 735731

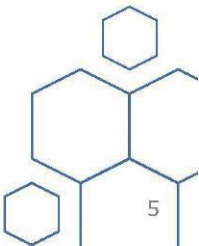


Source: CBS News, Vaccine tracker, 29<sup>th</sup> September 2020



# COVID-19 VACCINES TYPES IN DEVELOPMENT 735731

1. Whole Virus - Inactivated		  	 INSTITUTE OF MEDICAL BIOLOGY CHINESE ACADEMY OF MEDICAL SCIENCES
2. Whole Virus - Attenuated	<i>No one in clinical trials - yet</i>		
3. Protein Based - Subunit		 	  
4. Protein based - Virus Like	  		
5. Viral Vector - Non-Replicating	 	 	  
6. Viral Vector - Replicating		 	
7. Genetic Vaccines - mRNA		  	 
8. Genetic Vaccines - DNA			  
9. Re-purposed Vaccines			



# VACCINES NEEDS DEPENDENT ON STORAGE AND TEMPERATURE REQUIREMENTS 735731

## KEY FACTORS

- ✓ Temperature
- ✓ Barometric pressure
- ✓ Exposure to radiation/light
- ✓ Damage



## CHALLENGES

- ✓ Dry Ice Air Cargo allowances
- ✓ Passive Packaging
- ✓ Dry Ice production & Distribution
- ✓ Cold supply chain



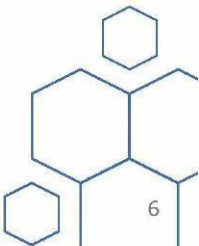
**Extreme temperature as low as -80 °C** needed to ensure stability of the vaccines

- Initial distribution due to lack of data about stability of the vaccine.
- Vaccine Type: RNA need extreme low temperatures



**Conventional temperatures 2°C and 8°C**

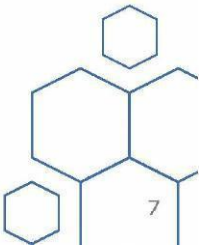
- After proven stability of the vaccine along the supply chain at prevalent temperatures in the industry
- Vaccine Type: Protein subunit, VLPs, Inactivated virus, DNA, Viral vectors may only need 2-8°C controlled temperature



**UPS HEALTHCARE IS  
UNIQUELY POSITIONED  
TO TRANSPORT AND  
DELIVER 2 BILLION  
VACCINE DOSES IN  
12 MONTHS**

**AS INDUSTRY EXPERTS,**  
we understand the different  
EU healthcare systems and  
**vaccine requirements,** and  
can build **customized and  
flexible solutions**

**BEST POSITIONED TO MEET  
THE COMPLEX SUPPLY  
CHAIN CHALLENGE**



# THE RIGHT COMBINATION OF EXPERTISE AND INFRASTRUCTURE 735731



REACH IN  
**48h**  
majority of EU  
population



## A DEDICATED HEALTHCARE DIVISION

A cross-functional team of experts with local and global knowledge



## TEMPERATURE CONTROLLED CAPABILITIES

UPS has a wide range of active and passive solutions to handle sensitive shipments (-80° to 8°C)

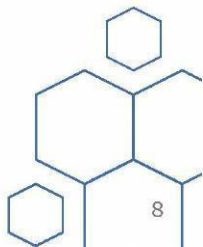


## VACCINE EXPERTISE

UPS has extensive expertise working with top specialty pharma companies in both the clinical and commercial space

## STRONG EUROPEAN NETWORK

Extensive coverage  
38 HLD facilities in Europe  
1.8m square feet of healthcare - licensed space



# WE MANAGE THE ENTIRE PHARMA SUPPLY CHAIN 735731

## CLINICAL



## COMMERCIAL



**Real time**  
tracking and  
monitoring



**Time and  
Temperature  
sensitive** drug  
shipments



Extensive global  
network of **GMP  
compliant  
depots**



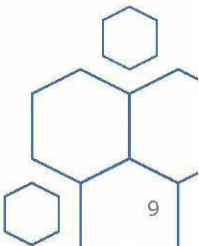
**22,000**  
Square meters  
of cold storage



**220**  
Countries  
served globally



**119,000+**  
Delivery vehicles



# NETHERLANDS

Roermond II Healthcare Campus  
Amsterdam, Antwerp, Brussels and Cologne in less than 2h



- Gross floor area: 27.910m<sup>2</sup>
- Mezzanine 3.200m<sup>2</sup>
- GDP Licensed
- GMP Licensed (section 2.3.1)
- ISO 13485 certified
- Fully air-conditioned and humidity-monitored
- 26 insulated dock levelers
- Available storage conditions:
  - Ambient (+15C - +25C)
  - Cool (+2C - +8C)
  - Frozen (-20C)
  - Cryo (-70C)
- 24/7 monitoring and alarm systems, smoke and heat barriers, sprinkler systems

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# STRATEGICALLY LOCATED FREEZER FARMS

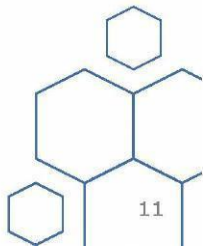
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**UPS Freezer Farm** (Roermond/ Venlo NL)

## Key Benefits:

- Strategically located: **Roermond/ Venlo, NL**
- Supported by robust quality systems
- GMP compliant storage space
- Flexible and scalable freezer footprint
- Inventory visibility
- Robust business continuity planning





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