



**Elixir Aircraft**



**I always dreamed to design an aircraft. But I needed a market!**

# The issues

# The issues



**2014**

**450,000**

**2024**

**600,000**

Airline pilots needed for the next 20 years.

Average age of airline pilots: 50

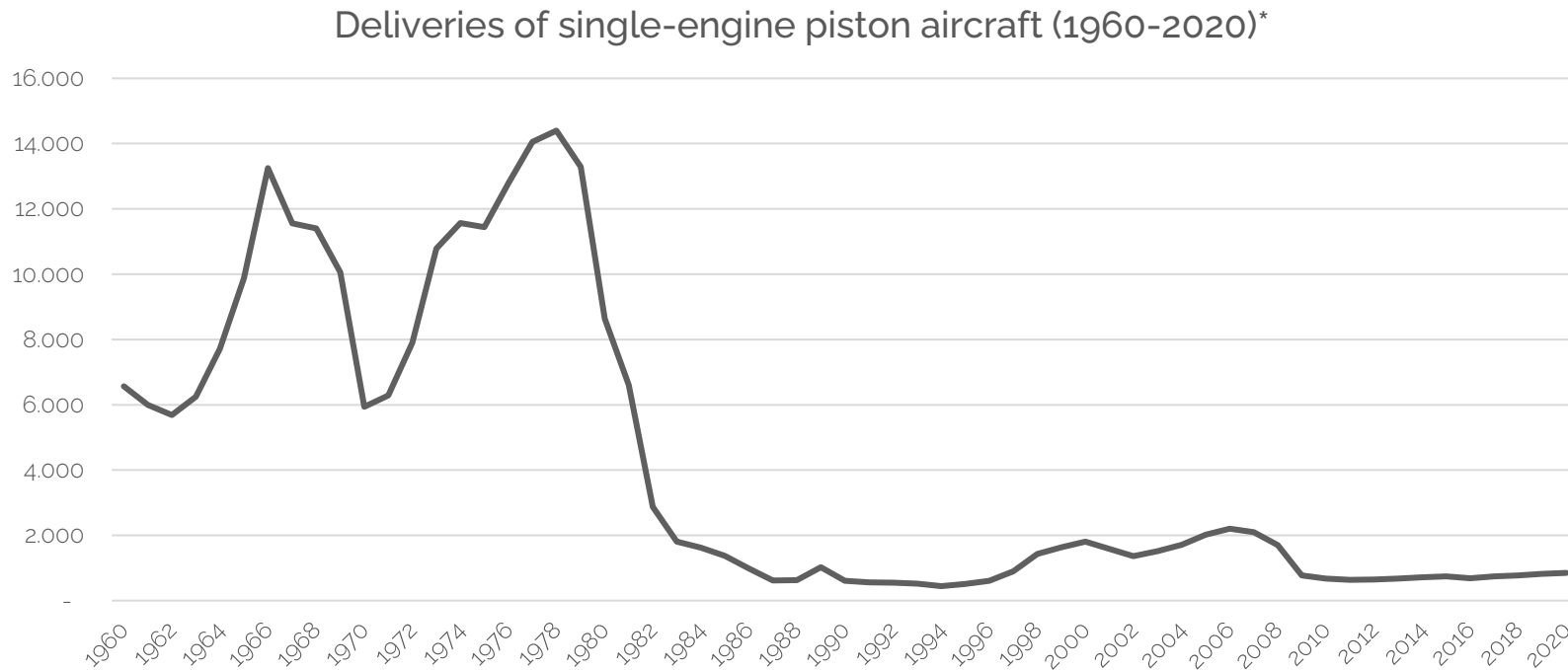
4% retire each year

A need for 40,000 new pilots per year (currently 8,200 trained per year)

Sources: Boeing's 2021 Pilot and Technician Outlook - 2018, CAE Airline and Business Jet Pilot Demand Outlook.

# The issues

**An obsolete fleet:** the world flies 200,000 single-engine piston aircraft, **160,000 of which were produced in the 60s and 70s.**



# The issues



**47** years

Average age of the 2-4  
seater fleet

## First flights:

- Cessna 172 : 1955
- Piper Pa28 : 1960

# The issues

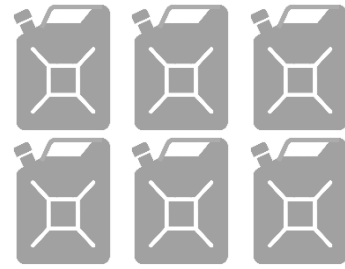


## Training aircraft shortage

Only one in three training aircraft is replaced when scrapped. Incumbent manufacturers are holding the market hostage and are either uninterested or unable to innovate.

Sources: Cirrus Aviation

# The issues



35 <sub>l/h</sub>

10 <sub>gal/h</sub>

Average consumption of **leaded gasoline** by the world's fleet of piston aircraft

# The issues

**Too much noise**

# The issues

## High operation costs

Around 170\$/hour for 500h/year

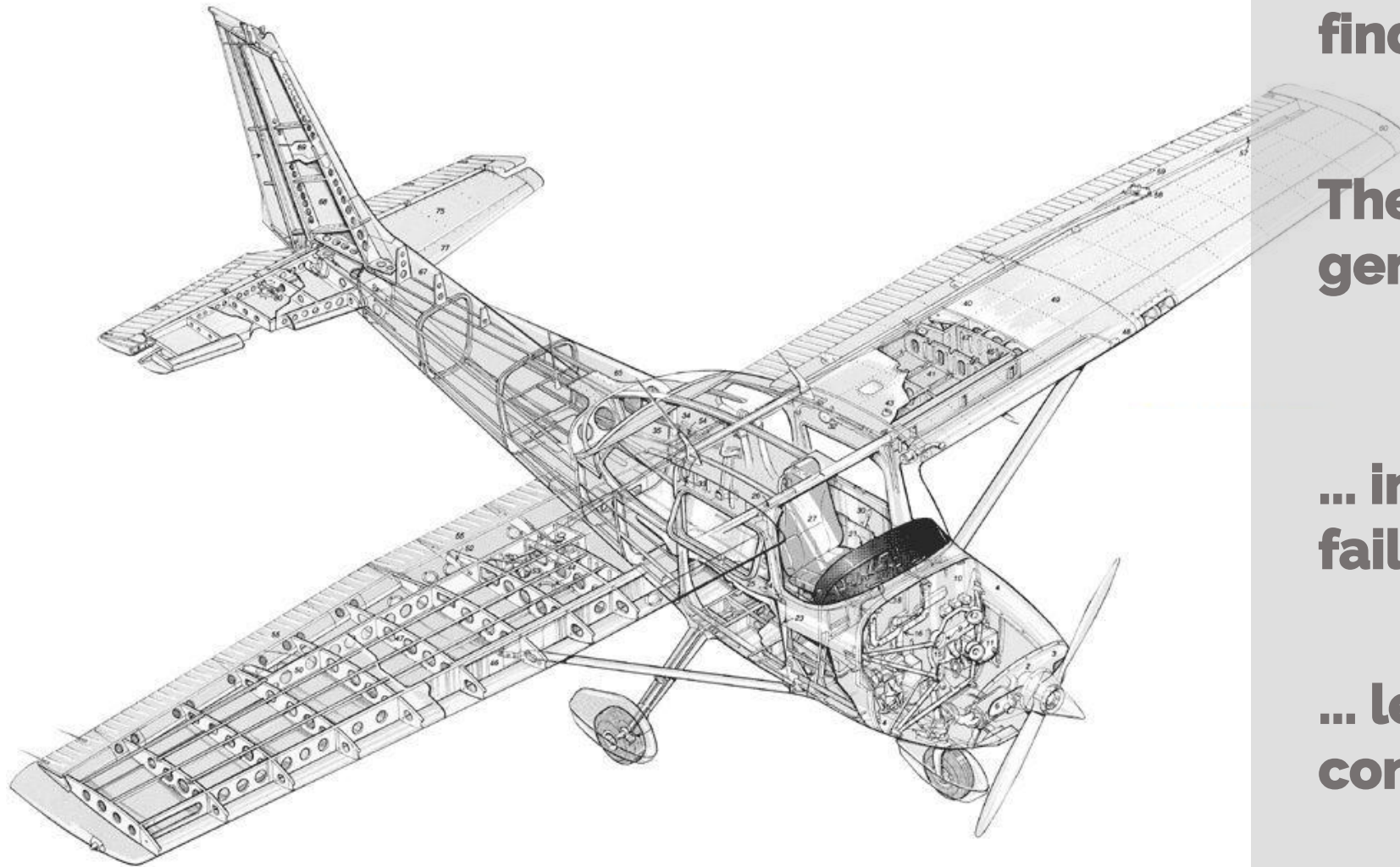
# The issues

## Low level of safety

**Every year, the top 10 accidents remain the same: unknown, loss of control, fire, abnormal contact with the ground...**

**Old generations of aircraft following old design rules and not dealing in depth with the causes of problems (human factor...)**

**Remnants of a time when the pilot "just had to be better".**



**What are the causes of these findings?**

**The complexity of older-generation aircraft...**

**... increases the probability of failure, ...**

**... leads to excessive consumption...**

**... and drives up operating costs!**

# Founding team

2014, 3 friends in a garage.



# Proposed solution

A dark blue aircraft is shown in flight over a body of water. The aircraft has a high-wing configuration and a T-tail. A small green light is visible on the tip of the left wing. The background is a gradient of dark blue and grey, suggesting a sunset or sunrise over the water.

## Today, the first 4th generation aircraft

Cleaner, lighter, more aerodynamic, easier to maintain, safer, more comfortable.

Ready for 5th-generation propulsion.



# OneShot

**Simpler, Stronger, Lighter, More economical, More ecological**

**World premiere:** The ideal aerostructure technology, large one-piece carbon parts with no mechanical assembly (no rivets, no screws, no gluing... no problem).



An initiative supported by

**The DGAC, DAHER and AIRBUS in the framework of a 1.5M€ CORAC program**

**The EUROPEAN COMMISSION in the framework of a 3.5M€ H2020 program**

**The FRENCH STATE as part of a 13M€ and a 3.75M€ stimulus plans**

# Competitiveness



**40 \$/h**

Operating costs of the Elixir  
for 500h/year (fuel and  
maintenance)

VS

**170\$/h**

Operating costs of a Cessna 172  
for 500h/year (fuel and  
maintenance)

# Environmental impact



An average consumption of 12.5 L/h (3.3gal/h), which represents 67% savings

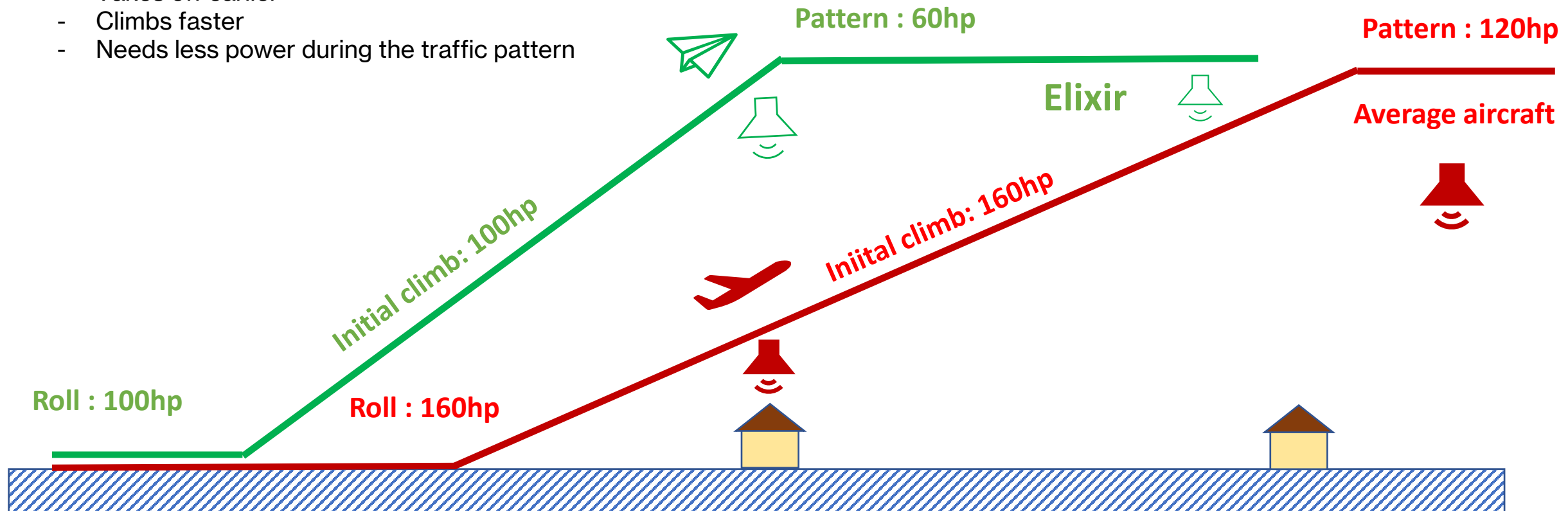
**70 million saved each year ... The equivalent of  
162 million kg of CO<sub>2</sub> emissions**

# Noise reduction

**Loudest nuisances are during the initial climb and traffic pattern.**

A light and efficient aircraft

- Takes off earlier
- Climbs faster
- Needs less power during the traffic pattern



# Commercial success



**55 aircraft or 18 months of production booked for European customers (EASA)**

**300+ pre-orders for north american customers waiting for the EASA validation by FAA**

# Industrial success

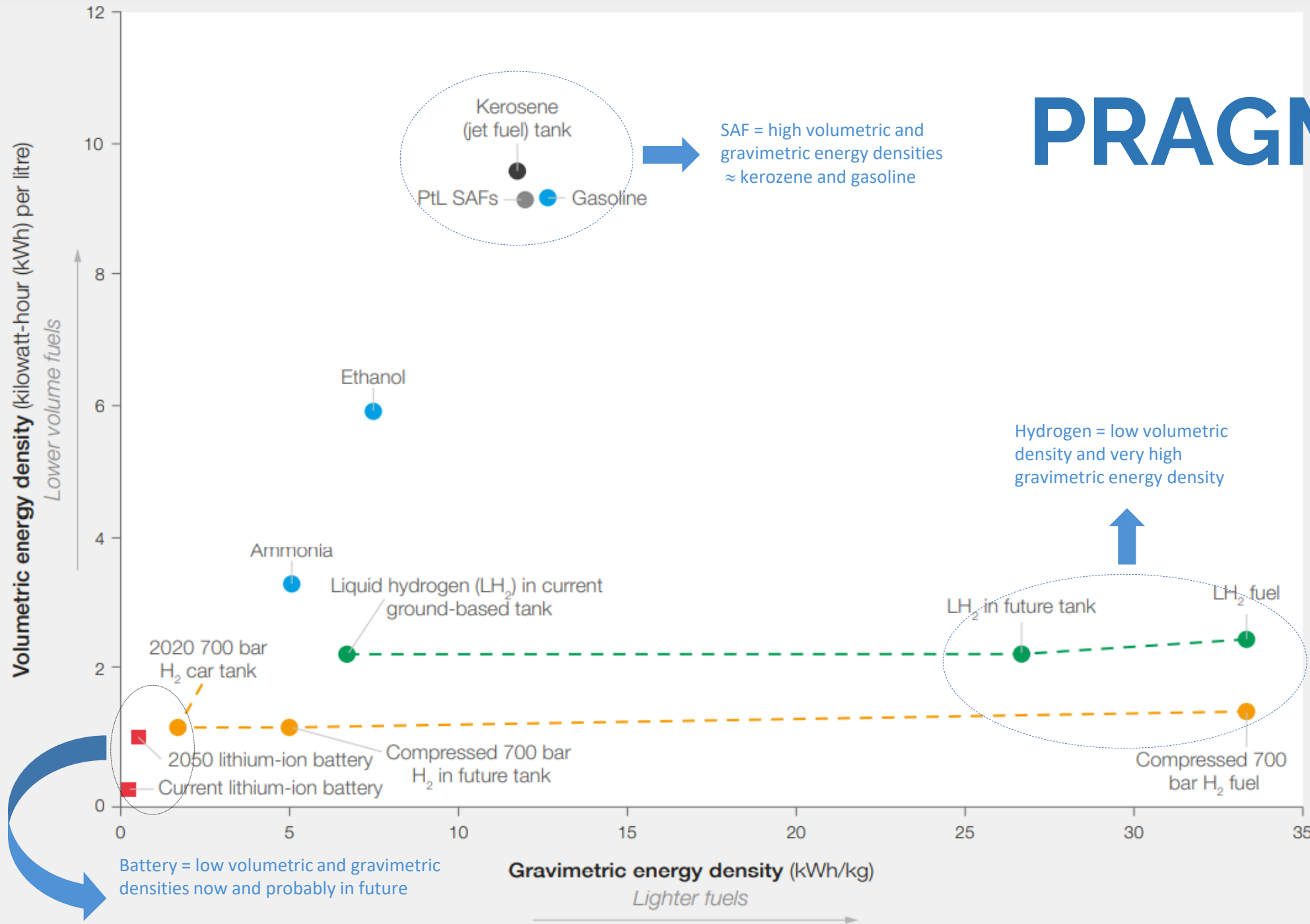


**Already 2,5 aircraft a month thanks to  
174 talented colleagues!**



**What now?**

# PRAGMATISM



SAF = high volumetric and gravimetric energy densities ≈ kerosene and gasoline

Hydrogen = low volumetric density and very high gravimetric energy density

Battery = low volumetric and gravimetric densities now and probably in future

Source: "Target True zero: unlocking sustainable Battery and hydrogen-powered Flight" by Impact Aviation Accelerator – University of Cambridge – World Economic Forum – July 2022 – page 17

# Act now: Keep improving

	CO2 emission reduction compared to the average light aircraft	Endurance
Elixir MOGAS	-70%	6 hours
Elixir SAF	-89%	5 hours 30min
Elixir H2	-86%	3 hours
If H2 is produced in France, based on the mostly nuclear electricity source		



# **Act now: Industrialization**

**By 2030,  
produce more to emit less:**

**A team of 800,  
Producing 30 Elixir,  
On 2 continents : Europe and America.**



**Elixir Aircraft**

**Elixir Aircraft**

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