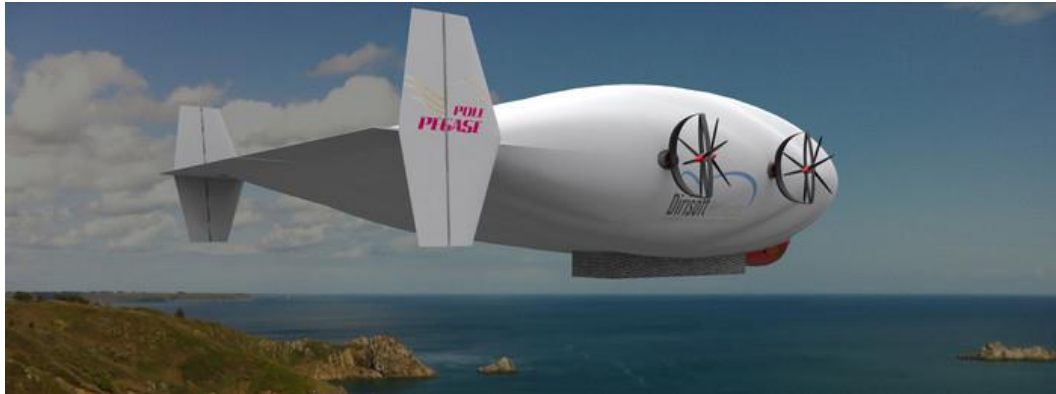


Paper for www airship plan SAFE cluster build up the industrial airship sector



The SAFE Cluster's (from Pegase cluster's) efforts in promoting and building the Airship sector are paying off: the French Government has named it Manager of the Airships plan – one of the 34 industrial priorities of the New Industrial France policy.

The French Government's industrial plan entitled "Airships ", led by Pegase cluster, is an integral part of the "Transport of tomorrow" strategic solution under the "Industry of the Future" project. The challenge of this program is to launch a new industrial sector in France aimed at developing, building and operating airship solutions, particularly for transporting heavy loads and for high-altitude platform solutions.

The President of the French Republic launched the programs of the New Industrial France policy back in September 2013. The roadmap for this plan was approved by the Government in July 2014 and confirmed in April 2015.

The reindustrialisation of France, based on nine strategic solutions including "Transport of tomorrow", is the overarching objective of the New Industrial France policy and its roadmap. The scheme's strength lies very much in its coordination of the networking of industrial and academic stakeholders with public authority drivers: research agencies, standardisation committees, public commissions, future investments and so on.

The airship sector has high ambitions, the main aims being to:

- Create the conditions of success for developing a transport sector and other missions that are firmly focused on sustainable development
- Support the main projects enabling an industrial construction turnover of more than EUR 1 billion to be achieved at national level in ten years' time

- By 2019/2020:

- Commission a certified airship dedicated to the point-to-point transport of heavy loads
- and a high-altitude airship, the "Stratobus", dedicated to observation and telecommunication missions
- Put on market an aerostatic cable guided load handler



- Develop new applications for airships.

An industrial plan based on a strong roadmap

There are three sections to the "Airships" industrial plan:

1- Securing the plan:

- **Setting up a process for selecting and accrediting projects:** The Call for Interest (AMI) process has been set up and three such calls have already been launched, focusing particularly on the sound structure of the economic models proposed. They have led to four projects being selected and accredited: the DCL 60T large payload capacity airship, the Stratobus, the Aerolifter and the AN 20 000 multi-mission Airship.
- **Confirm the market potential:** The market study already performed confirms a market potential of EUR 1 to 2 billion/year that can be accessed by the French airship industry.

LCA 60T will enable the point-to-point transport of heavy loads, particularly in areas that are hard to get to, and will offer in aerostatic crane applications. They will particularly make it possible to transport bulky parts (wind turbine blades, reactor cores, offshore platform components, etc.), industrial parts or prefabricated residential modules. We could also mention the transportation of raw materials directly from their extraction site or forest industry.

Aerolifter, wire-guided airship, will pave the way to new conveyance operations in steeply sloping areas that are difficult to get to. We can also mention timber skidding or the building of homes.

Stratobus will enable coverage of land or sea radar or optical, permanent surveillance and observation of civilian safety and sovereign areas, with, for example, high optical resolution over hundred square km areas. The Stratobus will also provide independent direct telecommunication services over a specific area.

AN 20000 multimission Airship, will enable point to point mission for construction elements, antennas transportation, mining extraction and will also provide long lasting ISR surveillance mission

- **Master the regulatory and safety aspects:** The "certification" roadmap is currently being drawn up for approval by the French Directorate-General for Civil Aviation (DGAC) and European Aviation Safety Agency (EASA)
- **Master the technological risks:** The French Aeronautics, Space and Defence Research Lab (ONERA) is overseeing this roadmap together with the French Government Space Agency (CNES) and French Alternative Energies and Atomic Energy Commission (CEA).

2 - Ecosystem:

- **Industrial plant:** Installation studies are underway in Istres for the airship sector with the SAN Ouest Provence intermunicipality. For these projects to be implemented and prototypes to be tested, the right industrial plant is needed. The Ouest Provence aeronautics cluster meets such a need: it will be located in connection with the Istres air base (BA 125) and comprise several production buildings and premises over a total built surface area of 45,000 sq.m. on a 33 ha site. This new cluster will therefore be able to accommodate large airship prototypes.
- **Training:** currently being defined



3 - Support for high-stakes projects

StratoBus

The Stratobus project is being led by Thales Alenia Space with support from Thales for this innovative product, and a strong industrial consortium. Customers are already identified for whom the performances of the first Stratobus within five years will meet a clearly specified need.

[Stratobus picture](#)



Photo caption: Stratobus, a project initiated by the Pégase cluster and led by Thales Alenia Space, with its partners Airstar, CNIM and CEA-Liten. The advantage of Stratobus is that it offers complete autonomy from a fixed position. Stratobus, a surprising vehicle halfway between a drone and a satellite, will be able to carry out a wide range of missions, including observation, security, telecommunications, broadcasting and navigation.

LCA 60T, led by Flying Whales

The large capacity Airship project "LCA 60T" is being led by the company Flying Whales in partnership with ONERA and a consortium comprising aerospace tiers 1 in particular.





The first Flying Whales airships will be in the rigid airship category and have a hold or underslung payload capacity of 60 metric tons and a cruising speed of around 100 km/h. Although they benefit from the same operational flexibility as a helicopter (point-to-point, overcoming the constraints of transport infrastructure and loading/unloading its freight while hovering), their operating cost per transported ton will be ten to twenty times lower than the latter.

The first engineering stage was finalised in 2014 and 2015 and the technical and economic viability of the solution has been confirmed. This stage has been carried out in close loop with ONERA and the industrial partners. All of the sub-systems have been approved and the certification roadmap given the go-ahead in partnership with the EASA.

Aerolifter, the aircrane, wire-guided airship

The Aerolifter project is being led by the company Airstar to develop produce and sell a wire-guided airship specialising in aerial work in mountainous or sloping areas, especially for timber skidding. What makes it distinct is that a pilot flies it to its operation area, and then it is tethered and wire-guided for the load handling operation.

Two versions of the Aerolifter are capable of transporting loads weighing 2 t or 4 t over short distances (around 2 km), tethered to a guiding cable and using the aerostatic lift to climb slopes with no load, then to sustain the load on the descent. In terms of applications, Aerolifter will also allow aerial inspections of high- voltage lines, aerial tracking and locating in altitude, aerostatic crane, etc.



AN 20 000, multi missions Airship from A-NSE

The multi-mission airship A-N 20.000 is designed to answer to market need especially to ISR (intelligence, Surveillance, Reconnaissance), load point to point transport or large dimensions antennas transport.

The identified customers are already involved in the Consortium .

The A-N 20000 capacity of 8 to 12 metric tons , point-to-point, overcoming the constraints of transport infrastructure make it convenient for the following markets:

- Transport for building and civil engineering works
- Large antennas transport
- Mining material transport
- ISR Surveillance

The technical, regulatory and safety aspects of « UAV to be » are part of the program.



The plan's decisive impact on the sector's emergence

The plan is of major interest in terms of giving these airship projects the biggest chance of success.

- All sorts of synergies have been forged between the projects – both technical and regulatory ones.
- The industrial plant representing considerable investment can be pooled for the prototype development stage
- The projects also share the same training programs and supply chain
- They have similar certification processes
- The case studies open new markets to several products and projects

In this way, the networking, pooling between projects and sector-wide management approach thus make complete sense.

