



Development of commercial space transportation: Italian activity and perspective

Benedetto Marasa
ENAC Deputy Director General

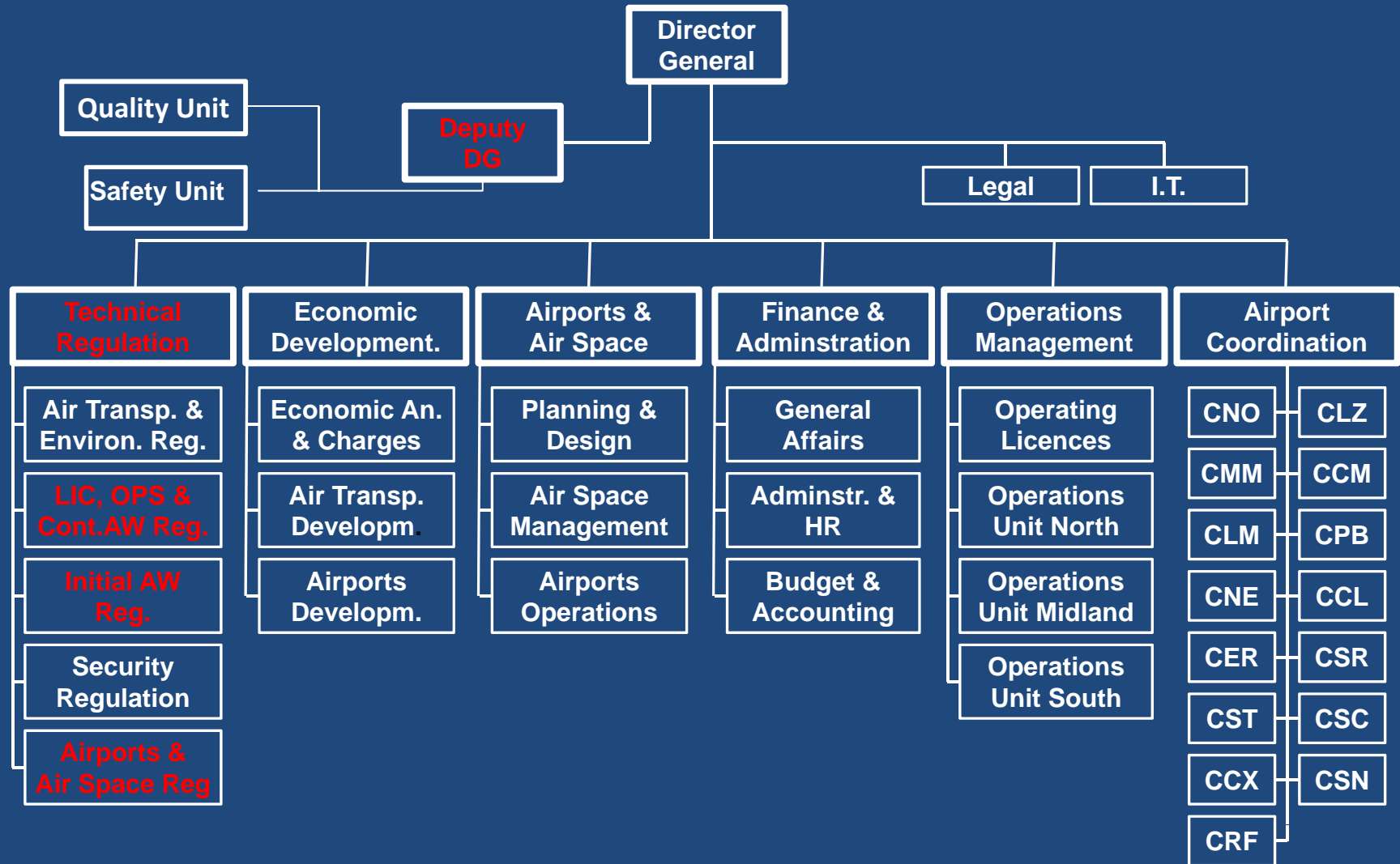


ENTE NAZIONALE AVIAZIONE CIVILE - ENAC

- Italian Navigation Act establishes that ENAC is the Italian Civil Aviation Authority ; it has the responsibility to issue regulation necessary to regulate the civil aviation
- ENAC was established on 25th July 1997 by Legislative Decree no.250/97 as the National Authority tasked to issue the technical regulation, carry out the surveillance and control in the civil aviation sector.
- ENAC is engaged in dealing with the diverse regulatory aspects of air transport system and performs monitoring functions related to the enforcement of the adopted rules regulating administrative and economical issues



ENTE NAZIONALE AVIAZIONE CIVILE (Italian Civil Aviation Authority)



ENAC STAFF

Total staff:

834

of which:



44 Directors

190 Professionals

25 Flight Inspectors

184 Airport Inspectors

391 Administrative Staff

A Man Power Plan (MPP) is managed and updated, at single process level, in order to track the human resources needs.



ITALIAN AIR FORCE – GENERAL STAFF

3rd Department “*Planning of Aerospace Resources*”

- Formulating guidelines for the preparation and use of the aerospace tool,
- Contributing to the definition of the security and national defense policy
- Dealing with the issues related to military-technical cooperation of the Italian Air Force in the international arena.

1st Office: General Planning and Transformation;

2nd Office: Operational Capabilities;

3rd Office: Air Force Space Policy;

4th Office: Air Force International Policy;

5th Office: Intelligence & Awareness Policy;

Situation Room;

Project Managers;



ITALIAN AIR FORCE LOGISTIC COMMAND

1st DIVISION – “Flight Test Centre”

Flight Test Wing (Aerospace System Engineering Group)

Armament Department

Chemistry Department

Space and Aviation Medicine Department

Cooperation ITAF-ENAC

- Letter of Intent (LoI) for Sub-orbital Space Transportation - 17 March 2014
- Develop **procedures and standards** to support **flight test activities** of commercial **sub-orbital flights** within Italian National Air Space.





Cooperation on new emerging technologies:

- Remotely Piloted Aircraft
- Hypersonic and Sub-orbital flight



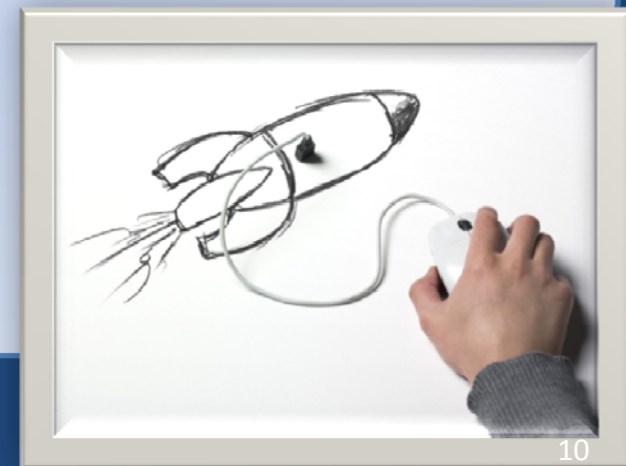
Memorandum of Cooperation FAA-ENAC Washington, DC – March 12, 2014

- Cooperation in the development of:
 - Safety regulations
 - Standards
 - Licensing measures
 - Projects of mutual interest
- To be applied to commercial space transportation



**First Meeting of the Cooperation WG
Washington, DC - 20 May 2014**

*Italian mutual interest project proposal
for the
introduction of
Sub-orbital flights
within Italian National Air Space*



Topics

- Suborbital Flight Regulatory Framework
- FAA-ENAC/ITAF Space Projects of mutual interest
- Conclusions



Flight Domains

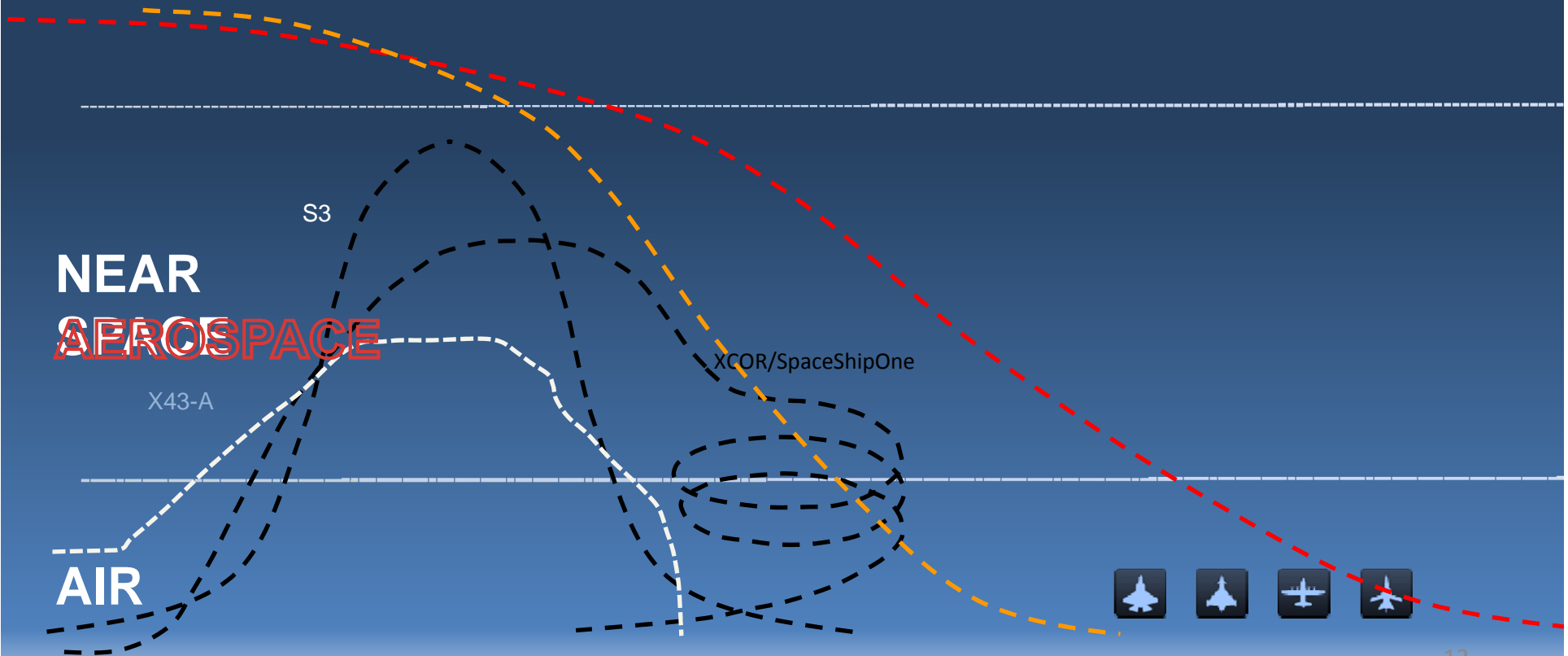


SPACE

NEAR

AEROSPACE

AIR



Goals

- To **pursue** possibility of routine sub-orbital flight operation
- To **develop** regulatory framework at National level and in the European context
- To **support** national industries already present or willing to enter in this field



Project

- To prepare rules and procedures and to **develop** facilities to allow experimental activities *within Italian National airspace*
- **To support** U.S. sub-orbital vehicles within Italian National Air Space

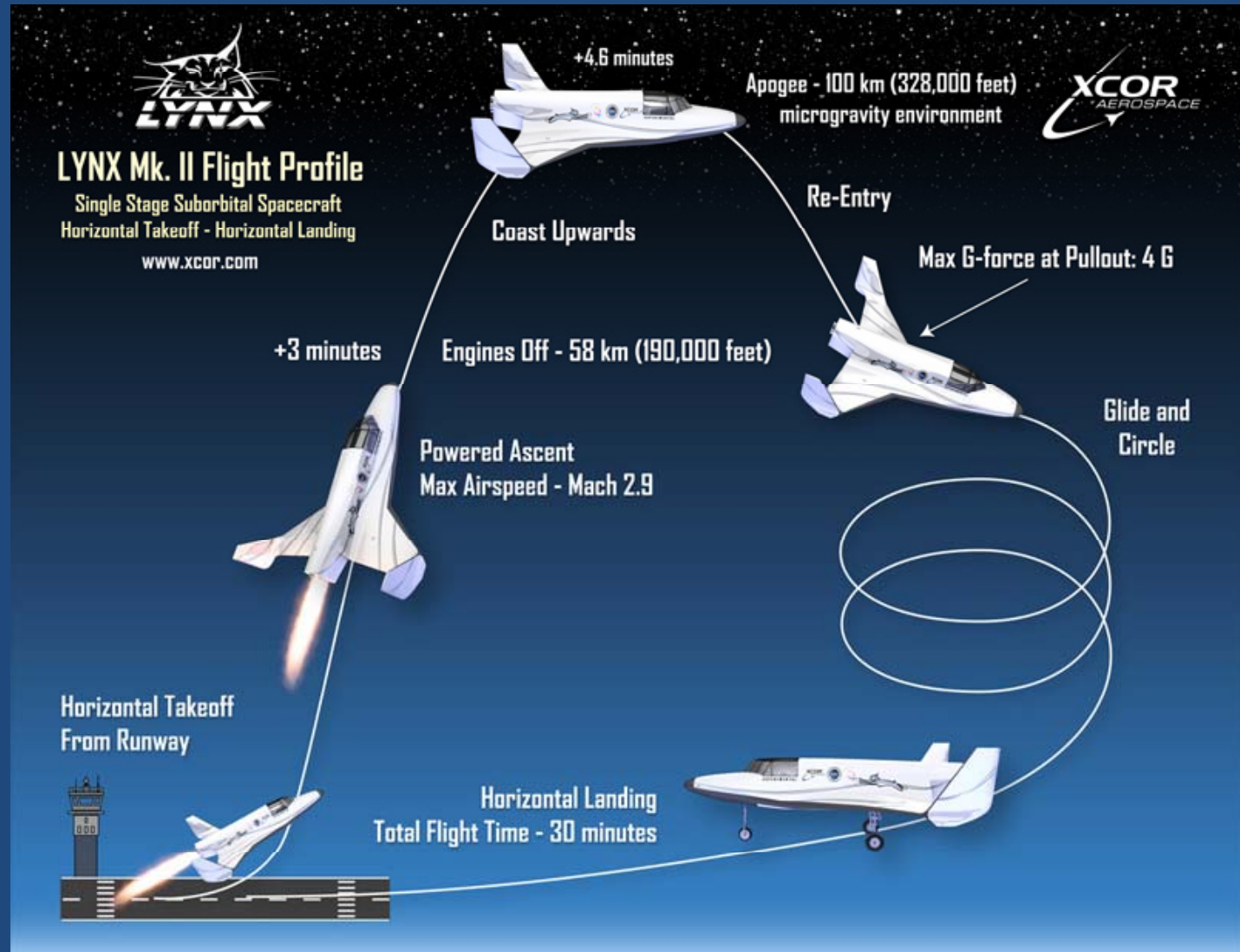


Italy: the PERFECT place in Europe for commercial sub-orbital flights

- Location
- Climate
- Tourist attraction
- Gateway to Europe



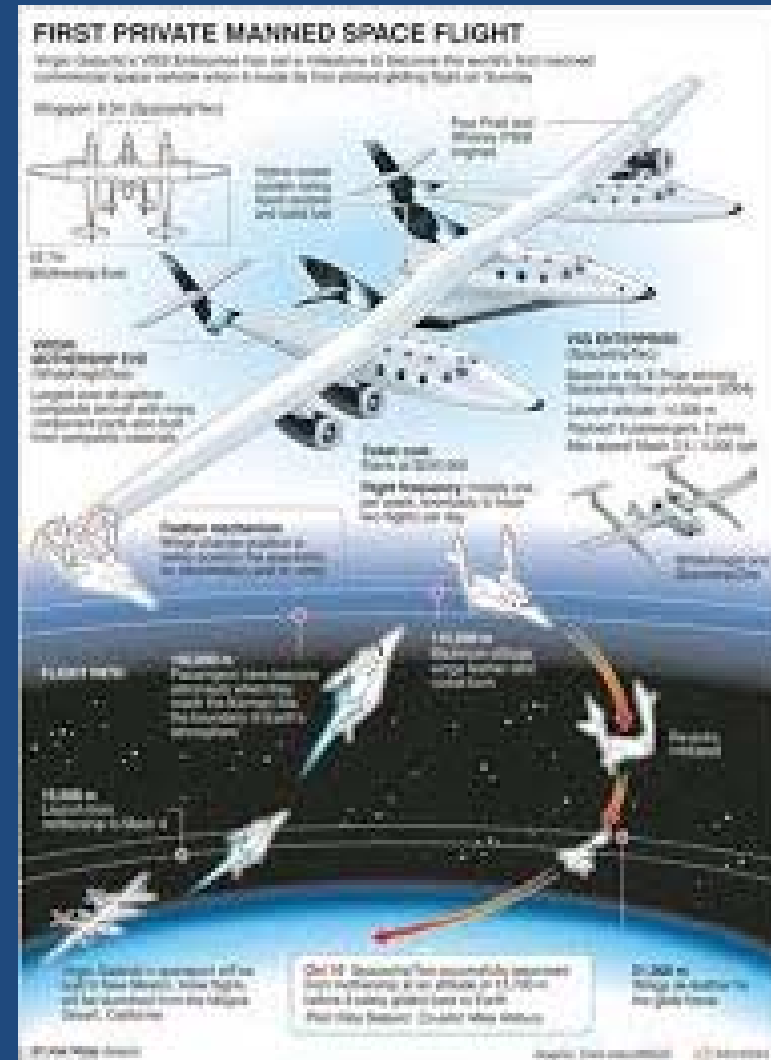
Programs of Interest



Programs of Interest

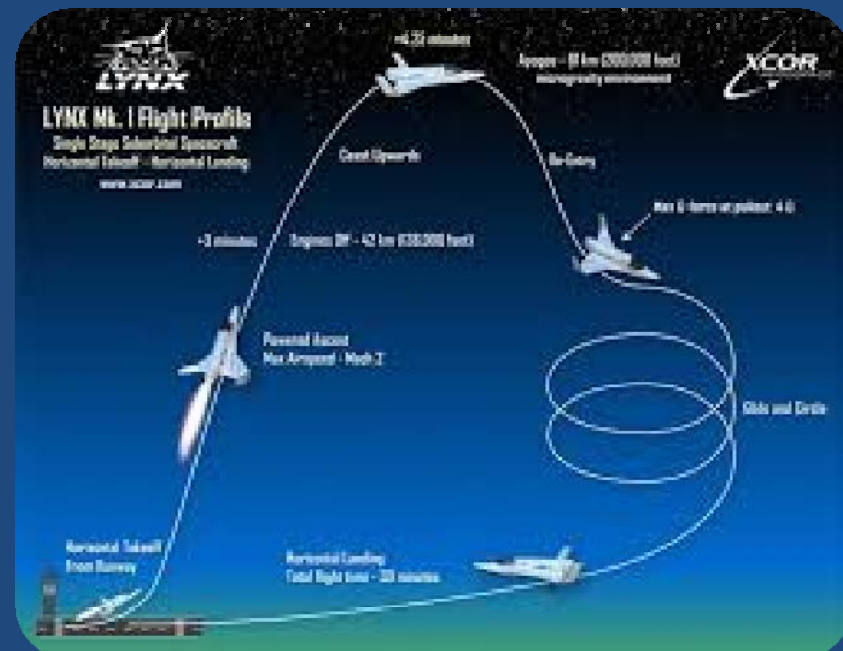


Programs of Interest



Doctrine

- Develop certification & regulatory framework:
 - *Ad hoc regime then....*
 - *....Aviation-like*
- ENAC Long-standing experience in aircraft/organisation certification



Methodology

In developing
national suborbital flight capacity

To look to FAA experience in
Regulation, Organization, Training,
To ensure coordination at Europe level



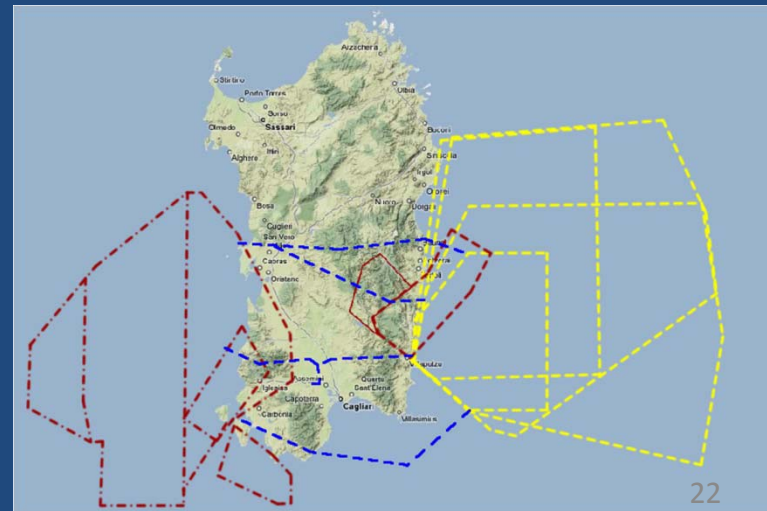
Personnel & Expertise

- ITAF knowledge to manage flight tests/trials with a focus on launch and re-entry:
- Astronauts from Italian Air Force
- Experimental Test Pilots & Engineers
- Flight surgeons
- ENAC Professionals for certification, licensing and oversight



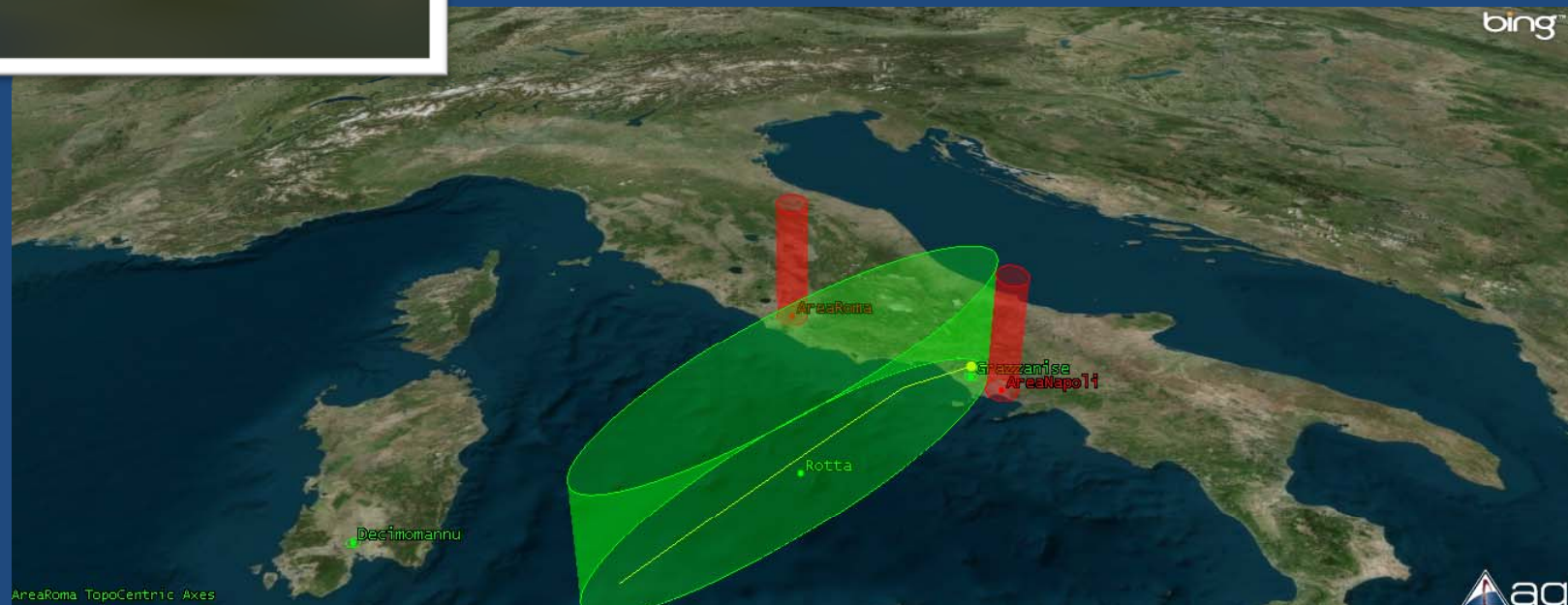
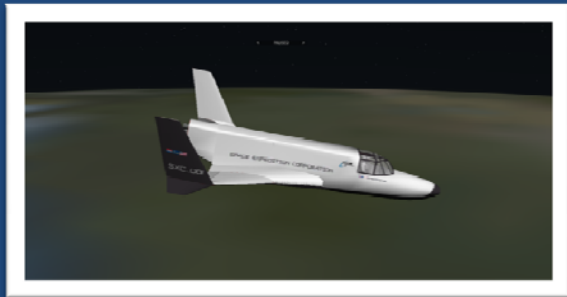
Existing Facilities

- ❑ Existing airports easily tailored to sub-orbital requirements and presented in the fashion of Spaceports
- ❑ Test Ranges and Flight Test Center to manage experimental aerospace campaigns
 - ❑ Modelling & Simulation
 - ❑ Operational Test & Evaluation (OT&E)
 - ❑ Aerospace medicine
- ❑ Center for Italian Aerospace Research (CIRA) for engineering support
 - ❑ **Wind and Plasma tunnel**
- ❑ Ground Systems for surveillance and tracking of airspace and near-space systems used during sub-orbital flights

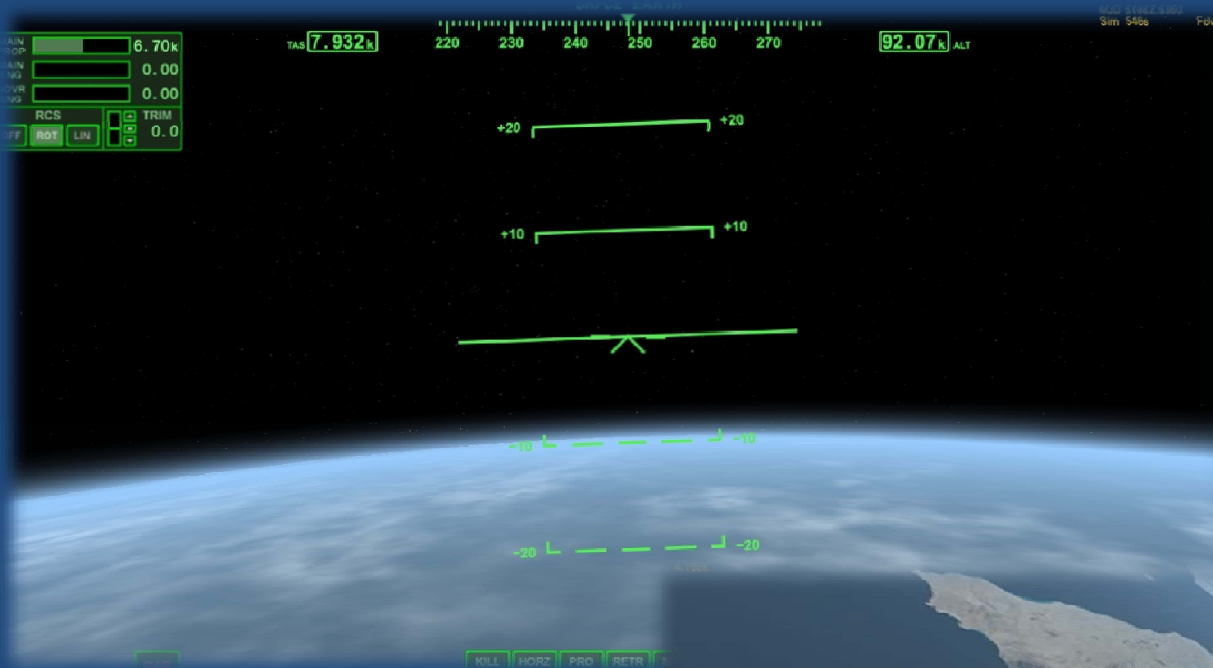


Ongoing studies

- **Simulations** developed by ITAF Flight Test Center in order to re-define the traditional aeronautical layer with Near-Space flight properties



Ongoing studies



XCOR Lynx Head Up Display
@ 100 km altitude

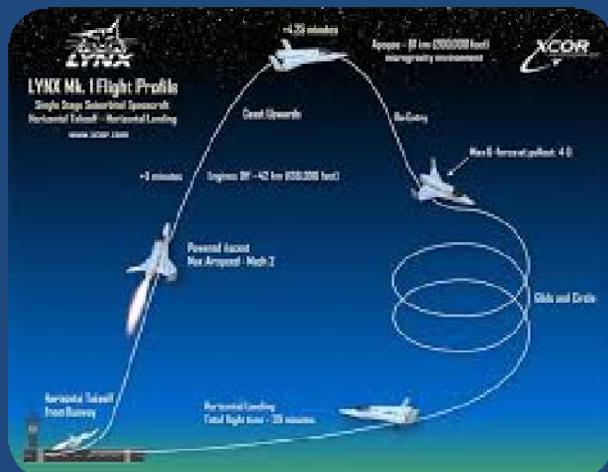
God's view from
XCOR Lynx @ 100 km
altitude



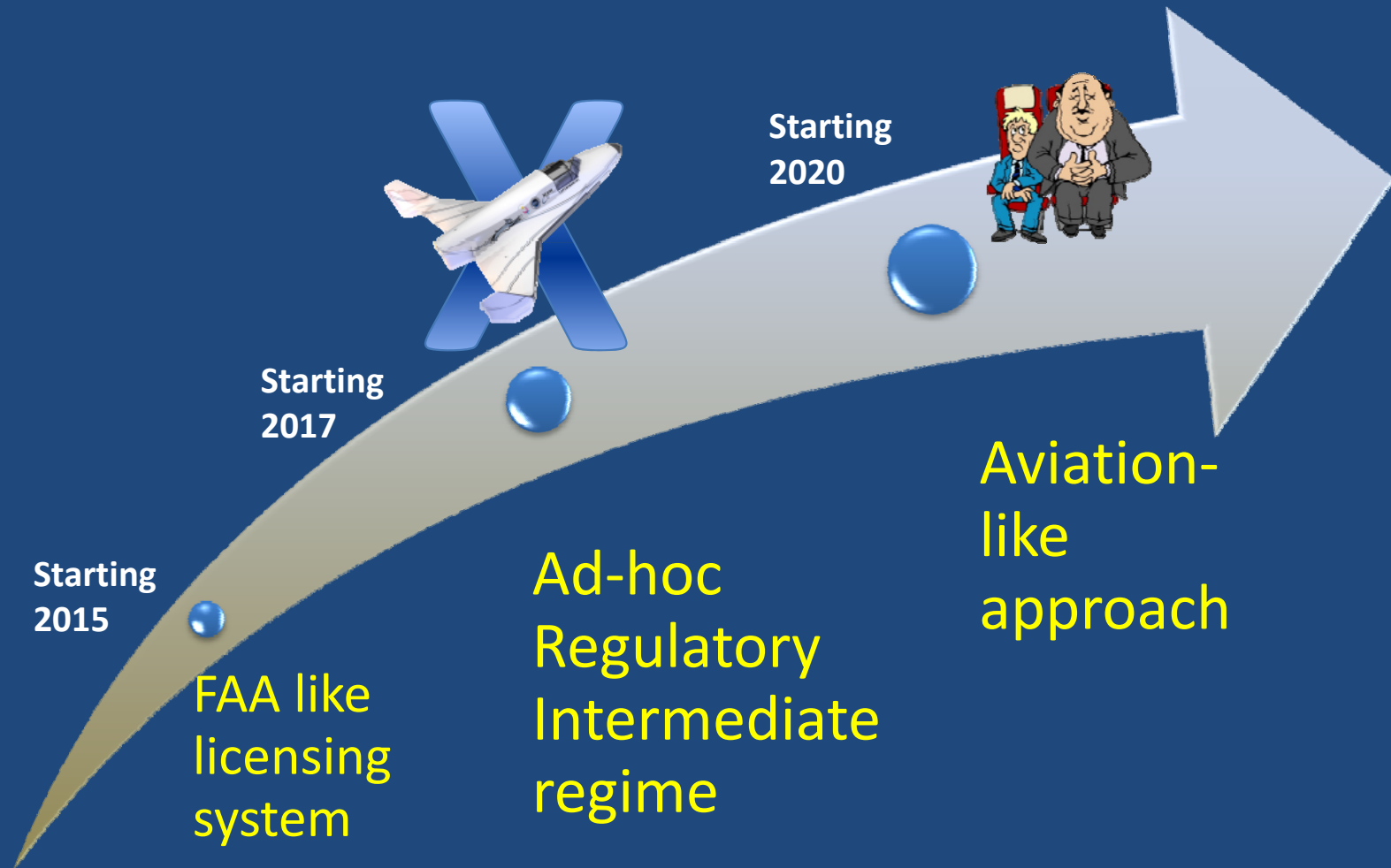
Possible Scenarios

Operate US Space Transportation Systems from Italy

- **Step 1** - Realisation of the first Spaceport in Italy, permitting sub-orbital flights with U.S. space transportation systems:
 - Horizontal take off and landing
 - Same take off and landing site
- **Step 2** - Realisation of a sub-orbital flight with a Point-to-Point navigation within two Spaceports:
 - Horizontal take off and landing
 - Common ballistic descent and landing on a Spaceport



Possible Timeframe



Conclusions

Italy offers the perfect geographic position and climate for accommodating sub-orbital flights

Introduce *United States sub-orbital vehicles within Italian National Air Space*

Benefits for both countries

In accordance with the MoC FAA-ENAC

We are willing to find the way to do it.





- Attendance to COMSTAC ISPWG would greatly help development of the Italian suborbital flight regulatory framework;
- A dedicated workshop on the suborbital flight will be organized by ENAC-ITAF in mid 2015;
- Participation of FAA AST and ISPWG representatives will be highly appreciated.





Grazie mille !!