Internazionalizzazione Attività
Addestrativa di Volo
La Visione della Industria

Roma, 23 Maggio 2017
Purpose of this presentation is to provide an overview of Leonardo Aircraft vision on military pilot training market, in terms of challenges and opportunities, with a focus on Fast Jet aircrews.

The following topics will be addressed:

– Market challenges and target Customers
– Technical challenges
– The International context of military pilot training and the National capabilities
As a general consideration, military pilot training is affected from the general trend, in most Countries, of the continuous shrinking of defense budget. This means:

- lowering the number of front line fast jets, due to the increase of their acquisition and operational cost.
- increase the economical impact of the higher-end training phases, if implemented with the same front line assets.
MARKET CHALLENGES

No action cause more and more uncomfortable situations:

• Increasing obsolescence of training assets
• Training syllabi not up-to-date, because the training media are obsolete

... leading to progressive reduction of the number of pilots and outdating of pilots’ skills towards the threats coming from fast evolving defense systems
Air Forces are therefore in front a twofold path:

1. Restructure their training path, leveraging on new products / technologies and new formats, carefully refining each phase and task.
MARKET CHALLENGES

2. Strategically rethink the training need, concentrating the expenditure for principal assets and exploring the possibility to partner with other Air Forces and/or private entities, to achieve a military pilot training service, including “companion” or “adversary” capability.
Main advantages of a service model business are:

- Minimize CAPEX investments by AA.FF.
- Distribute costs over several Customers
- Customized service for each Customer
- Address instructor pilot both initial and continuation training
- Provide one front-end for the Customer taking care from «grass-cutting» to high-end training tasks
- Encourage transfer of technical experiences between training specialists in the frame of an international environment
MARKET CHALLENGES

On the other end:

• Need of a deep connection between military and industrial environment (e.g. set standards, syllabi, agree on instructors’ requirements, training exit conditions etc.)

• Guarantee high quality training, in presence of a wide range of trainees from different cultures and background

• Need of long term agreements with anchor Customers to make the initiative pursuable
TARGET CUSTOMERS

- Air Forces with the strategic mission of maintaining and/or increasing their training capabilities, through their own assets and doctrine, with no or lesser dependency from other entities.

- Air Forces with the need to train military aircrew for their own frontline fighters, but for which a full scale national training academy is not economically justified.

- Air Forces which need to relay on more advanced AA.FF., in terms of both assets and doctrine.

These AA.FF. are the main target of an international training school option.
Apart from the strategic approach, the focus of the AA.FF. training commands is concentrated to carefully optimize the training syllabus, consider every opportunity offered by today technology to shrink the overall pipeline cost:

• Transfer as much as possible the training activities from “live” to “virtual” environment

• Transfer “live” training activities from the upper phase to the lower one (downloading concept)

• Make “live” and “virtual” environments to merge in constructive architecture (LVC) in order to reduce training length and reduce usage of more costly “live” assets
In synthesis, from Leonardo perspective and product line:

### TECHNICAL CHALLENGES

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OCU: Operational Conversion Unit  
LIFT: Lead In Fighter Trainer  
FMS: Full Mission Simulator  
FTD: Flight Training Device  
SBT: Software Based Trainer  
LVC: Live – Virtual – Constructive (training)
From the previous considerations it comes the point of an international military pilot training academy. Several training centers are running worldwide, as of today, in the frame of long term military agreements, such as:

- Euro-NATO Joint Jet Pilot Training (ENJJPT)
- NATO Flight Training in Canada (NFTC)
- UK Military Flight Training System (UK MFTS)

However, some of them have shown limitations in terms of asset obsolescence, cost increasing and shortfalls.
The combination of all the previous considerations leads market analysts to a positive outlook for a business covering the whole training spectrum (from basic to aggressor) in the time span to 2030, when, supposedly, a U.S. government international training offer could be proposed based on the T-X aircraft.

The momentum shall be therefore capitalized now.
Several business development initiatives from top tier industries are therefore running aiming to:

- fulfill the USAF domestic requirement to fill the gap from time now to T-X entry into service (including conversion of Army pilots or Red Air / Aggressor training)
- intercept European and Mid-Far East training needs

Europe can be therefore considered a promising land for the setup of an international training center, open to worldwide customers.
The conditions for a national solution for military pilot training services do exist and leverage on three top level and strictly connected elements:

- **Political:** friendly and confident dialogue with most Countries at political level
- **Military:** tradition, prestige, doctrines and methodologies of the Italian Air Force
- **Industrial:** Leonardo technologically advanced assets, such as M-345 and M-346, innovative networked approach (e.g. LVC) and new developments (M-346 FA to support “cooperative” training.)
Important topics which may influence investors in geographically locate an international training school have to be addressed from an industrial point of view:

• Some European Countries and many U.S. states offer long term fiscal advantages and economically support infrastructure build-up.

• Availability of military instructor pilot pools (e.g. US National Guard case) to rely on.

• Local communities support to military environment

• Administrative regulations (LND is working to identify and set suitable approach in our Country).
Questions ?
Back-up slides
Basic / Advanced training

The market requires to provide significant cost saving in producing a fast jet pilot, through:

- Expanded flight envelopes (speed and altitude) which ensure more training per flight hour and higher “download” capability from Advanced/LIFT phase.
- State of the art avionics and data management
- Solving the trade-off between jet aircraft and turboprops.
Advanced / LIFT and upper training phases

• Fill the gap and meet 4\textsuperscript{th} / 5\textsuperscript{th} generation fighters’ performances:
  ✓ Higher energy and agility, maneuverability & carefree handling
  ✓ Increase of sophistication and number of on-board systems, sensors and weapons

• Introduction of new pilot’s capabilities: e.g. information management (aircraft to operate as «net hub», managing and discriminating the «operational data»)