

# Passion for Innovation

## Answering the future ATM needs



# A challenging worldwide context

**AIR TRAFFIC is expected to double within 20 years**

- How to increase system capabilities without decreasing safety?
- What can Thales do to diminish environmental impact from aviation?

## 📌 GUIDELINES

- End-user driven system
- Traffic-efficiency
- Green ATM

## 📌 TARGETS

- Current Thales customers
- Future ATM customers
- Future markets (Airlines, AOCs, Service Providers)



## A CORPORATE ENVIRONMENT DEDICATED TO INNOVATION

- Driven by innovation: 2.5 billion euros invested in R&D in 2013; portfolio of 13,000 patents
- Thales Innov' Days: presenting our latest innovations to the outside world, attracting more than 1,000 customers in 2014
- Four Research & Technology Centers: France, Netherlands, UK, Singapore
- Participative internal initiatives to stimulate personal involvement and award the best innovations of the year



### NEXTGEN INNOVATION LAB

Arlington, VA, USA

The NextGen Innovation lab was established to address future concepts and initiatives specific to the U.S. FAA. It provides Thales ATM engineers with an environment to conduct rapid prototyping activities and develop and test new concepts in the areas of data communications, automation and integrated air traffic tower applications.

### CASIA - CENTRE FOR ADVANCED STUDIES IN ATM

Melbourne, Australia

CASIA is a 400m<sup>2</sup>, futuristic-looking creative workspace dedicated to ATM and ATFM research. It hosts demonstrations of the latest products and prototypes, as well as "traditional" R&D activities, such as new technologies integration or external systems interfacing.

### THE LINK BY THALES

Toulouse, France

The latest Thales innovation lab has been created to ease the integration of airborne and ground segments, providing an integrated platform to test cockpit functionality and ground infrastructure. Leveraging from its dual expertise, and working closely with ANSPs, airports and other authorities, Thales can capture the developments of all initiatives (ICAO ASBUs, SESAR, NextGen...) and transform ATM systems with the latest technologies and procedures.

### SKYCENTRE - ATM INNOVATION LAB

Rungis, France

The SkyCentre hosts the ATM Innovation lab, a unique space where a dedicated team goes beyond the boundaries to create innovative and disruptive concepts. Working hand-in-hand with end-users and R&D entities, the lab offers solutions that make air traffic the safest, most efficient and greenest it can be.

# Anticipating end-users' needs to propose efficient solutions



## EFFICIENT INTERACTIONS

HOW TO COMBINE INTERACTIVE MEANS AND OPERATIONAL NEEDS?  
ENHANCING HUMAN/MACHINE INTERACTION THROUGH ADVANCED  
TECHNOLOGIES: EYE TRACKING, MULTI-TOUCH SURFACE, VOICE  
RECOGNITION, AUGMENTED REALITY, 3D...

### Projects

- SHAPE: immersive ATC working position speeding-up interactions and reducing decision-making time, for higher efficiency
- ART: Augmented Reality Tower
- Realistic 3D Air Situation Display
- Portable ATC Instructor (iPad)

## EFFICIENT TRAFFIC

HOW TO OPTIMIZE TRAFFIC WHILE KEEPING THE MAXIMUM SAFETY?  
INCREASING AUTOMATION: CONFLICT RESOLUTION, MULTI-CRITERIA  
OPTIMIZATION, COMPLEXITY MANAGER, ADVISORIES, GREEN  
INDICATORS...

### Projects

- Ecosystem: pre-tactical position to supervise and prepare traffic
- Conflict detection and resolution
- 3D traffic analyzer and generator
- Tailored departure
- Noise and fuel consumption indicators

## INNOVATIVE SERVICES

THE AQUILA CONSORTIUM OF THALES AND NATS TOGETHER WITH STRATEGIC SUB-CONTRACTORS IS DEVELOPING A SAFE, ENDURING AND COSTS SAVING PROPOSITION FOR THE UK MOD.

### Projects

- Delivery of Military Air Traffic Management services over a 22 year long period to all UK military airbases
- Innovative procurement process, through the use of an output based specification
- New business model: from individual contracts to a single service provider to handle the collective requirement.

# The future starts now

## EXCELLENCE DRIVEN

Because the future is the responsibility of today's students, Thales has more than 30 cooperation agreements with universities and public research laboratories on three continents. The research partners include prestigious institutions such as the universities of Oxford, Cambridge, Georgia Institute of Technology and the Ecole Polytechnique.

## FORWARD-LOOKING INITIATIVES

THALES BENEFITS FROM ITS DUAL AIR/GROUND EXPERTISE TO ENSURE HARMONIZATION BETWEEN THE MODERNISATION PROGRAMS WORLDWIDE.

OUR ROADMAPS ARE FULLY ALIGNED WITH SESAR, NEXTGEN AND ICAO ASBUS, THUS SECURING YOUR INVESTMENTS.



### SESAR

- Leading manufacturing industry partner, bringing 36% of the total industry contribution
- 250 experts from 6 countries dedicated
- Conducting real-time simulations to ensure coherent situational awareness between ground and airborne users

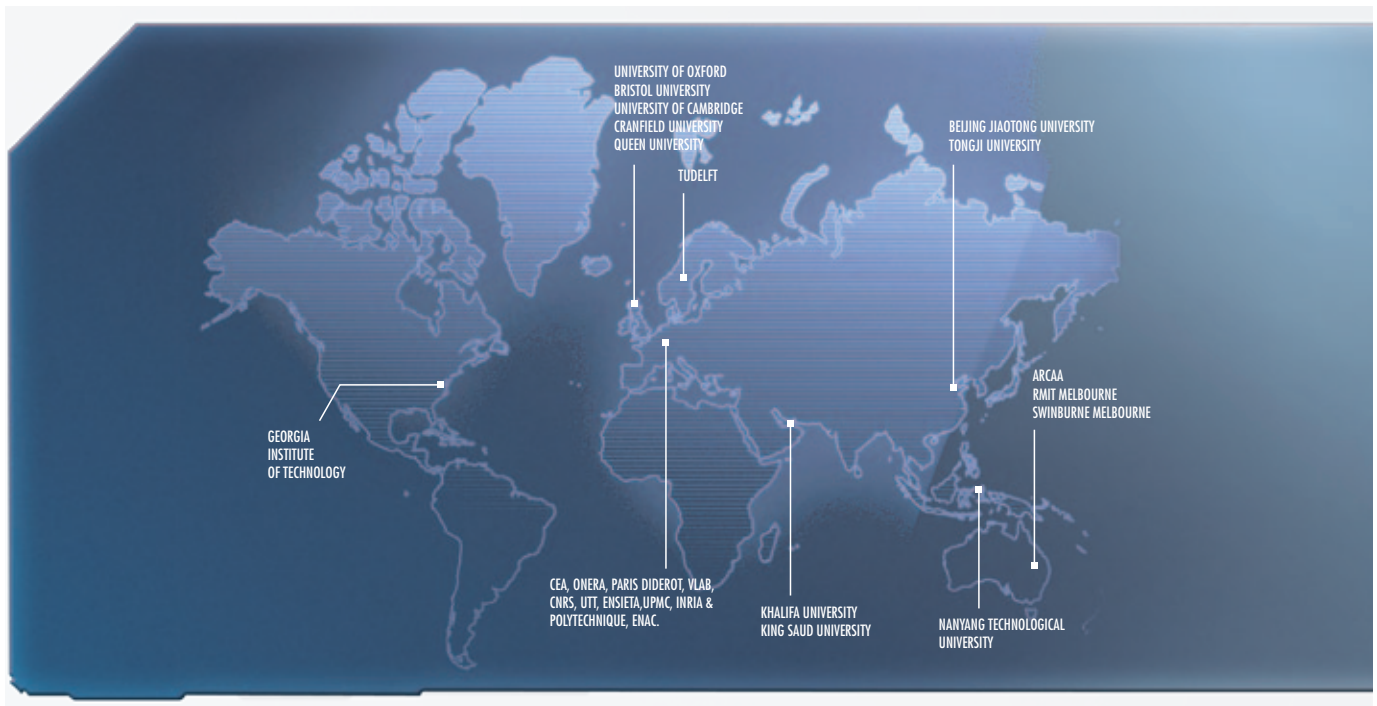
### FAA NEXTGEN



- Deployment of key surveillance infrastructure across the U.S.
- International Data Comm messaging standards to reduce routine ATC voice communications
- Providing expertise in advanced automation concepts to progress NextGen

## ICAO AVIATION SYSTEM BLOCK UPGRADES

- Only ground supplier actively involved in the definition of the ASBUs
- Defining with you the adequate implementation plan answering your operational needs
- B0 compliant and available solutions; already delivering B1 technologies



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