Thailand Aviation Open Innovation Initiative Program

Aligned with ICAO NGAP Strategy

Presented by

Thailand NGAP Initiative Program Manager

Part 1 — Context & Alignment :

Why this, why now — and how we align aviation open innovation with the ICAO NGAP Strategy.

Part 2 — Program Design & Delivery :

Program Design : From framework to phased delivery.

Part 3 — Put Project into Practices :

Project in Action, Key Result, and What’s Next.

Part 1 — Context & Alignment

"Why this, why now — and how we aligned aviation open innovation with the ICAO NGAP Strategy."

1.1 Aviation Challenge and the *NEEDs* of Open Innovation

1.2 How Does Open Innovation *RELATED* NGAP ?

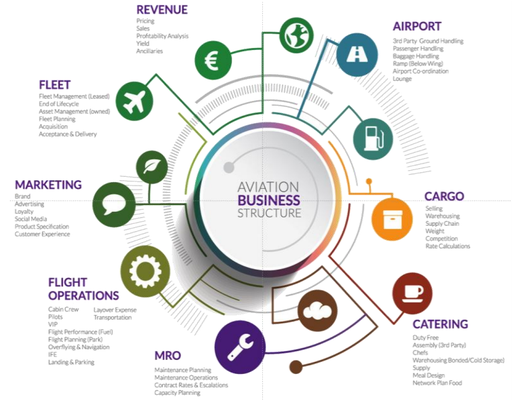
1.3 Regional *MOMENTUM* on NGAP & Training Cooperation

1.4 From Strategy to *OPERATIONALIZATION* the Program

1.1 Aviation Challenge and the *Needs* of Open Innovation

Airline /Airport/Air Traffic Management

Safety/ Capacity/ Efficiency



Value Chain Management

- **Digital Transformation Disruption** => "New" Talent
- **Workforce Resilient** (From Massive Retirements)
- Airline Profit Margin ~13 % with ~3% Net
- Airline/Airport Air/Traffic Management Improvements
- Low Altitude Economy Disruption => "New" Tech

Need…

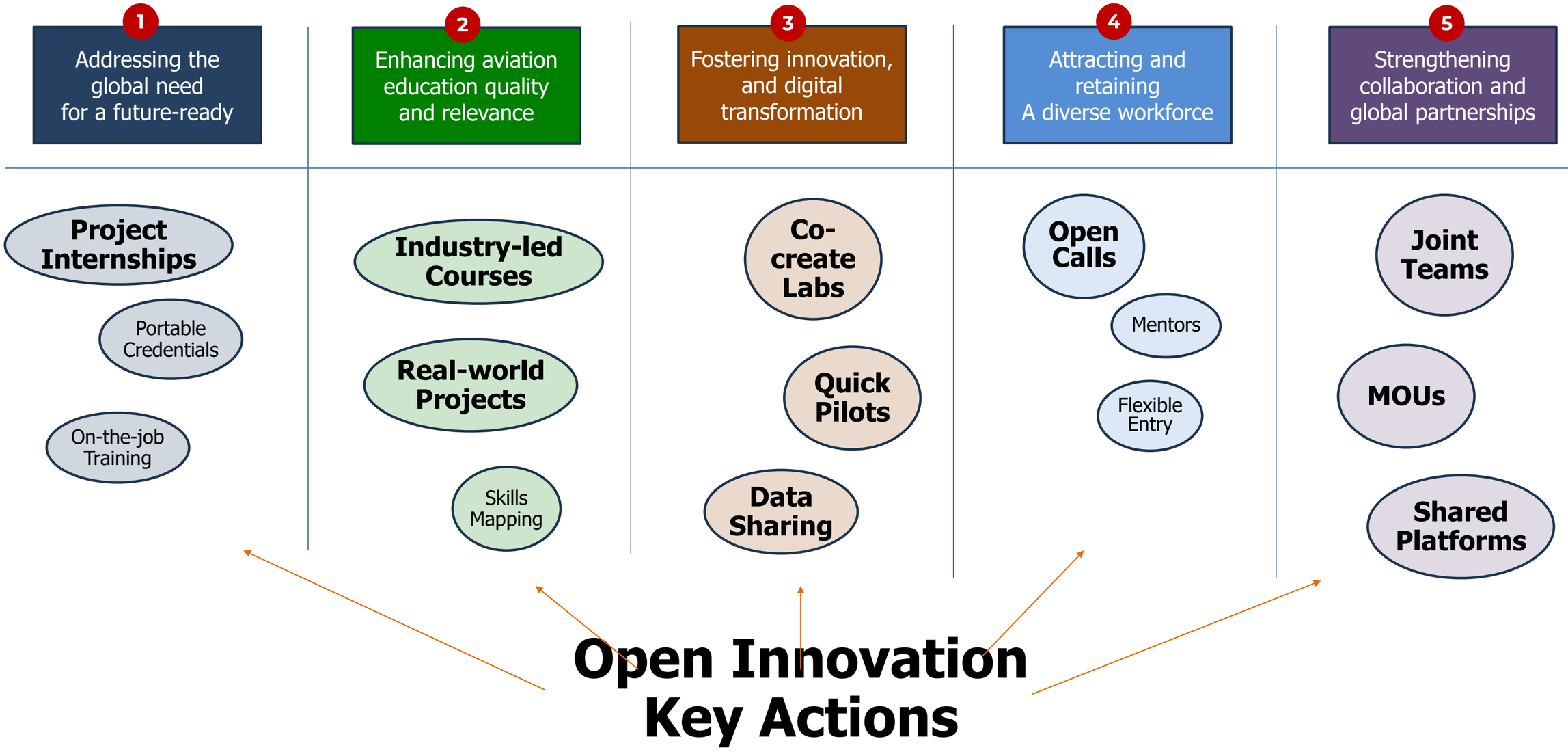
Open Innovation

To close these GAP

Open Innovation = Co-create + Pilot project + Deploy (New Tech) while Building (New Talent)

1.2 How Does Open Innovation *Relate to* NGAP ?

5 Objectives ICAO Next generation of aviation professionals (NGAP) strategy (2024)



1.3 Regional *Momentum* on NGAP & Training Cooperation

The Third Meeting of the Regional Training Cooperation Framework Working Group (RTCF WG/3)

ICAO Asia and Pacific Regional Office, Bangkok, Thailand, 18 - 19 November 2024

"AEROTHAI joined the ICAO RTCF WG/3 and shared initial views on NGAP pathways and regional training cooperation."

Key takeaways

- **Regional:** buy-in for the ICAO NGAP Strategy — the network and forum are ready to act.
- **Thailand's opening:** the Open Innovation and resource mobilization program, aligning to NGAP.
- **Next step:** translate inputs from the forum into a national Open Innovation action plan based on NGAP (today).

From regional consensus → to national Open Innovation action:

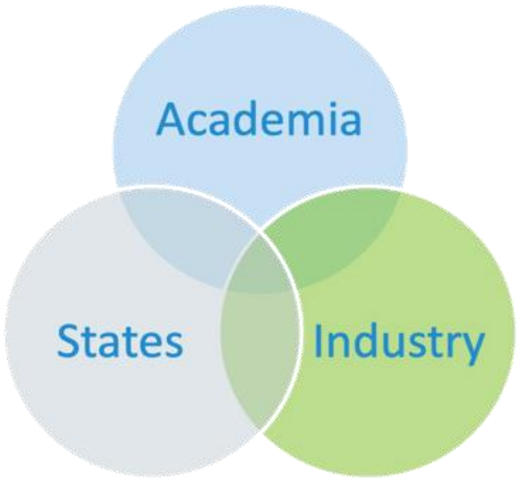
Why Thailand must ACT now.

1.4 From Strategy to *OPERATIONALIZATION* the Program

Thailand translates its strategy into action through the initiative Through…

NGAP AviationX
Next-Gen Innovation & Professional Acceleration

Triple-Helix Partnership



Using…

Project LEAD The WAY

Framework

the way in…
Specific Requirements

X-Factor
"Go deep on real needs"

the way in …
Defining Skills

X-Men
"Find the brave; build new talent"

the way in …
Co-Creation through Collaboration

X-Mission
"Collaborate across the sector, shared value"

the way in …
Call to Action

eXecution
"Make it happen: pilot → deploy → scale."

The **'4Xs':**
'FOUNDATION' of the Program

Part 2 — Program Design :

"From framework to phased delivery."

2.1 Go DEEP on real needs

2.2 FIND the brave; BUILD new talent

2.3 COLLABORATE across the sector, SHARED value

2.4 MAKE it happen: pilot → deploy → scale

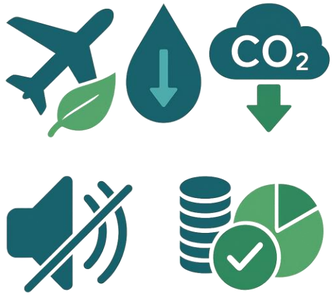
2.1 X-Factor : "Go DEEP on real needs"

Aviation Industry Ultimate Needs

Safety & compliance :
zero-harm ops, audit-ready.

Capacity & efficiency :
ATM/UTM, on-time, faster turnaround.

Talent & future skills :
pilots/engineers/data skills, pipeline ready.



Sustainability & cost :
lower fuel/CO_2/noise, smarter spend.

4-steps
Translate the Need
To Specific Requirement

Diverse, deep discovery :
crowd in voices, go under the surface.

Synthesis to projects :
converge insights into clear project themes.

Digital-by-design :
tightly linked to deep digital transformation.

Evidence-driven priority :
validate with data; rank by impact & feasibility.

Thoroughly Understand the Project

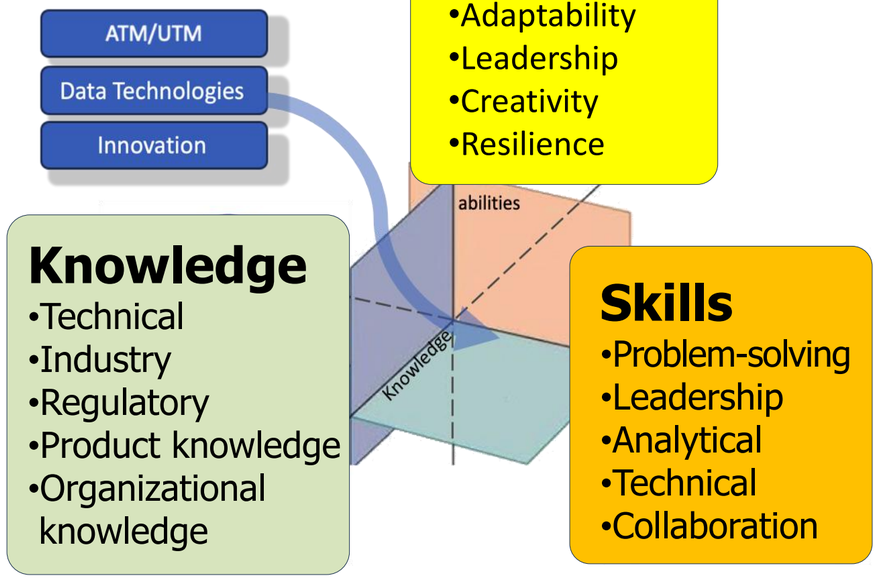
Required Knowledge

2.2 X-Men : "FIND the brave, BUILD new talent"

Who we have, who we find, & who we ultimately need.

Aviation Current-Gen & Next-Gen

WHAT we build



Abilities
- Critical thinking
- Adaptability
- Leadership
- Creativity
- Resilience

Knowledge
- Technical
- Industry
- Regulatory
- Product knowledge
- Organizational knowledge

Skills
- Problem-solving
- Leadership
- Analytical
- Technical
- Collaboration

Outcomes:
Innovation and a future-ready aviation workforce.

HOW we build

2.3 X-Mission : "COLLABORATE across the sector to SHARED value"

7 Strategic Partners
(in National Innovation System)

University Partners
(Specialized in Aviation)

The Federation of Thai Industries (FTI)

Aeronautical Radio of Thailand Co., Ltd. (AEROTHAI)

Office of National Higher Education Science Research and Innovation Policy Council (NXPO)

Program Management Unit for Human Resources & Institutional Development, Research and Innovation (PMU-B)

National Science and Technology Development Agency (NSTDA)

Program Management Unit Competitiveness (PMU-C)

Thailand Professional Qualification Institute (TPQI) (Public Organization)

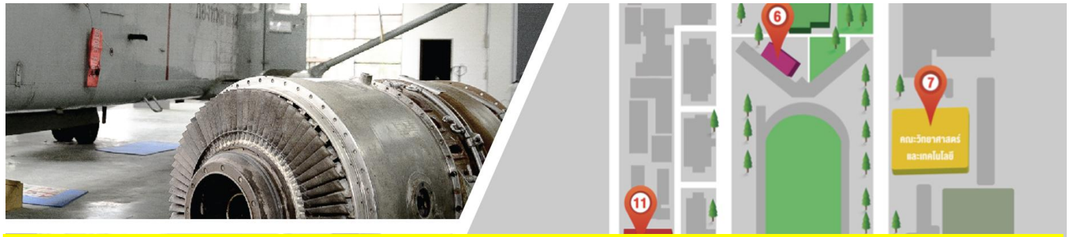
Set collaboration policy; provide funding; recruit participants; scale and diffuse results; Connect with other partners.

Kasetsart University (KU)
Department of Aerospace Engineering, Aerospace and Aviation

Rajamangala University of Technology Krungthep (RMUTK)
Aviation Institute

Suranaree University of Technology (SUT)
Mechanical and Aeronautical Engineering Program

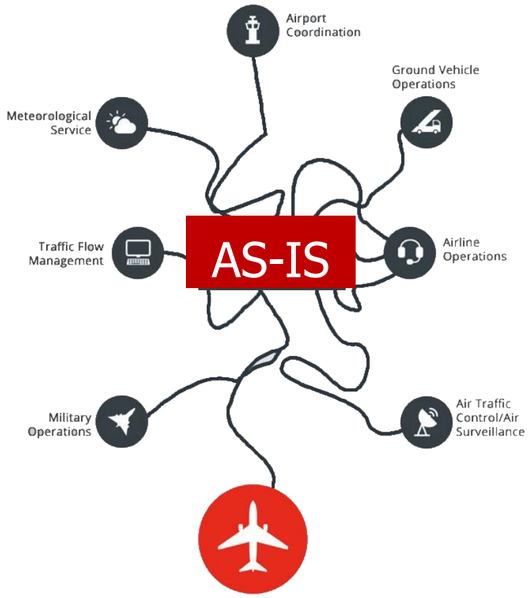
Chiang Mai University (CMU)
International College of Digital Innovation (ICDI)



Drive project execution

2.4 eXecution : MAKE it happen: pilot → deploy → scale

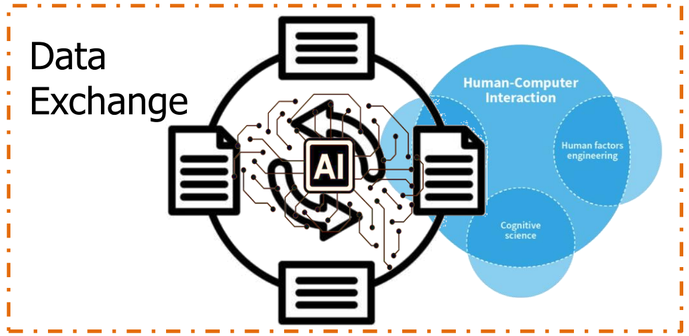
Driving Results with 3Xs + Processes & Tools



X-Factor

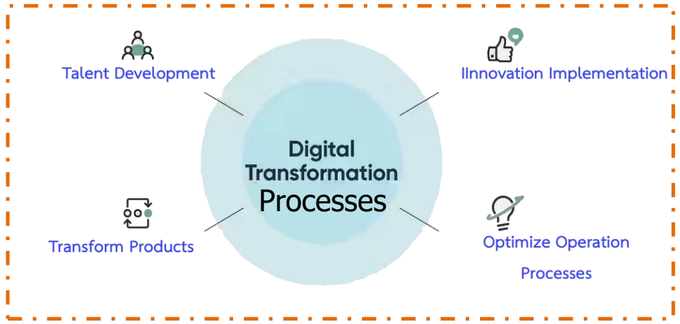
X-Mission

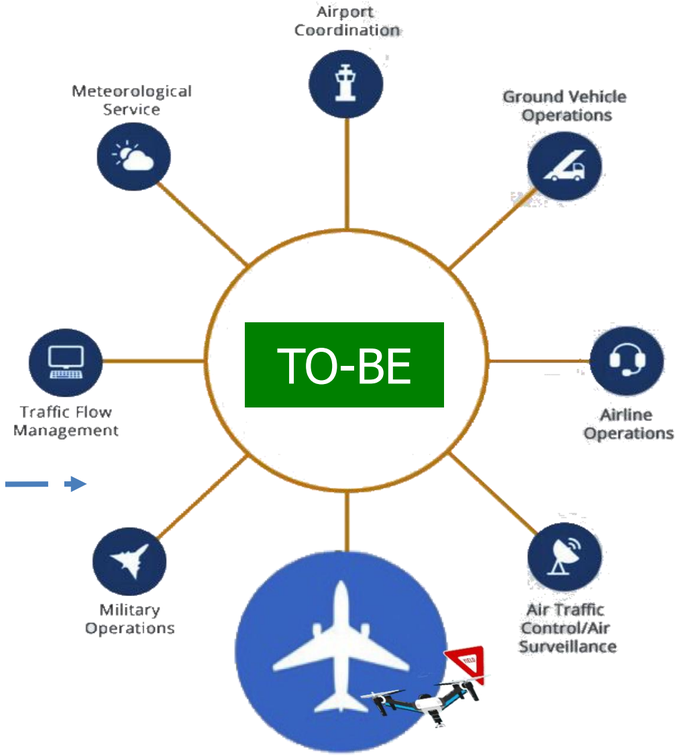
X-Men



Tools

Processes





4 Key Success Factors

- Product Transformation
- Process Optimization/Automation
- Talent Development
- Innovation Implementation

Part 3 —Putting Projects into Practice:

“Project in Action, Key Result, and What’s Next”




3.1 Program Kick-off

3.2 Program Execution

3.3 Program Results >> ‘Schools of Excellence’ for Open Innovation

3.4 Extending the Success

3.5 Success Story Sharing at the NGAP Global Summit 2025

3.1 Program Kick-off

Program Kick-off: On **24 Dec. 2024** @EECi Wangchan Valley

3.2 Program Execution

Design Thinking

Bootcamp

Brainstorming

Joint with Experts

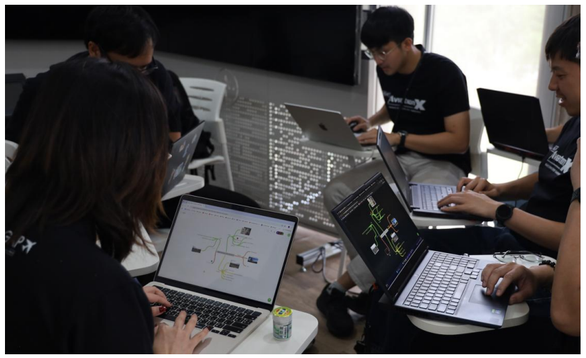
On-the-Job Training

Hackathon

3.3 Program Results >> ‘Schools of Excellence’ for Open Innovation

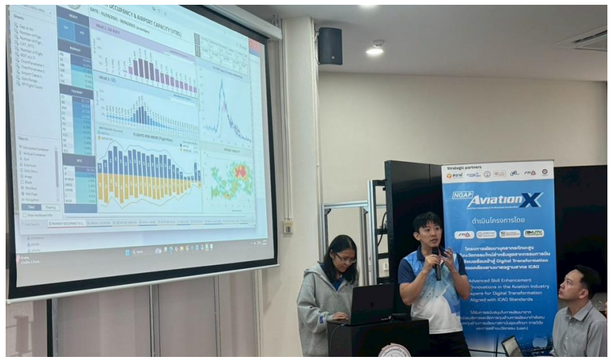
#1 AI & Aviation

Build automation workflows with AI agents and speech/voice analytics (e.g., Hugging Face) to turn unstructured audio into structured, actionable data.



#2 Optimization & Data Science

Apply system-complexity thinking and network/constraint optimization to support ATFM decisions and cut congestion.



#3 Dashboard for Airside Movement

Analyze taxiway/apron flows and use Computer Vision to detect bottlenecks and track aircraft positions from existing CCTV.

3.3 Program Results >> ‘Schools of Excellence’ for Open Innovation

#4 Airspace Capacity Dashboard

Compare demand vs. sector capacity and create a Capacity Monitoring tool with governed data sharing/access.

#5 Computer Vision for Aviation

Build face/object recognition, tracking, and OCR for access control, aircraft localization, and e-license management.

#6 E-VTOL/ UAV

Train safe, compliant UAV ops; plan survey missions and 3D mapping (e.g., LiDAR) for long-endurance flights.

3.4 Extending the Success

A key pathway to amplify our success is the establishment of “**Aerospace Valley**.”

Industry-led development in Aviation & Space Attracting Foreign Investment

Strategic Partners

Aeronautical Radio of Thailand

www.rmutk.ac.th ราชมงคลกรุงเทพ

Aerospace Industry

Kasetsart University

3.5 Success Story Sharing : at the NGAP Global Summit 2025

Ma Tao
Regional Director, Asia and Pacific Office (APAC), International Civil Aviation Organization (ICAO)

Mr. Ma Tao joined ICAO as Regional Director for the Asia Pacific Office in September 2021. Prior joining as ICAO Regional Director Mr. Ma served as the Regional Vice President for North-Asia of the International Air Transport Association (IATA). He was the Permanent Representative of China on the Council of ICAO in Montreal from 2006 until 2017 and served in a number of different positions including Chairman of working group of governance and efficiency (WGGE); First Vice President of the Council of ICAO and Chairman of Technical Co-operation Committee. Mr. Ma began his career in aviation with the Civil Aviation Administration of China (CAAC) in 1983. Over the years, he has held positions of increasing responsibility within the CAAC including Director of the Flight Standards Liaison Division, Assistant Deputy Director General of the Department of Flight Standards; Deputy Director General of the Department of Flight Standards as well as Head of Airworthiness Certification Center of CAAC before joining IATA in 2019. He served as Acting Chairman of the North Asia regional technical cooperation Programme, 'Cooperative Development of Operational Safety and Continuing Airworthiness Programme — North Asia' (COSCAP-NA).

Anukul Tamprasirt
Chairman of Aerospace Industry, Federation of Thai Industries | NGAP Thailand Programme Director

Mr. Anukul Tamprasirt is an International Resource Person. His extensive work experience spans over 40 years in Air Navigation Service Provider (ANSP), multinational companies, international organization (ITC/UNCTAD) and Innovation Implication Projects in APEC and Thailand. His carrier covers large project management, digital transformation, policy advisory and implementation. His domain specialization in Aviation, Insurance, Logistic, Agriculture, Entrepreneurial etc. His technical background covers Big Data, Data Architecture and Artificial Intelligence (AI), Internet of Things (IoT), Data modeling, Datacenter Management, Complex Project Management, etc.