TWENTY SEVENTH MEETING OF THE ASIA/PACIFIC AIR NAVIGATION PLANNING AND IMPLEMENTATION REGIONAL GROUP (APANPIRG/27)
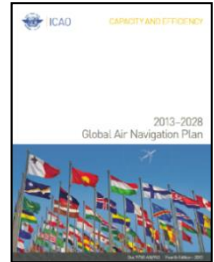
FOSTERING A SAFE, SECURED AND EFFICIENT AVIATION SYSTEM THROUGH IMPLEMENTATION OF NEW AIR TRAFFIC CONTROL SYSTEM IN HONG KONG

Presented by Hong Kong, China

Background – The ATC System Replacement Program

- The existing Air Traffic Control (ATC) System has been providing reliable and non-stop services since July 1998.
- Various new ATM functions, advocating by the ICAO, have been introduced to the existing ATC System over the years
    - to deploy them firstly on standalone systems and
    - to integrate them into ATC System to ensure a smooth transition
        - ✓ Pre-Departure Control,
        - ✓ AIDC,
        - ✓ Arrival Manager,
        - ✓ Tower Electronic Flight Strip, etc.

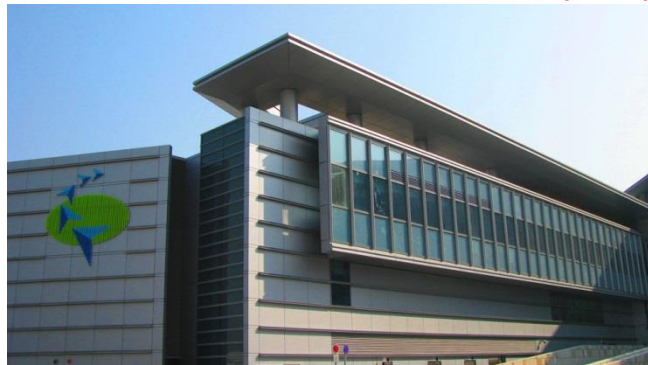# Background – The ATC System Replacement Program (cont')

- Reference made to
  - Global Air Navigation Plan (GANP)
  - Aviation System Block Upgrade (ASBU) framework
  - Latest international standards on technical, safety and ATC operational requirements.
    - B0-FICE Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration
    - B0-SNET Increased Effectiveness of Ground-based Safety Nets
    - B0-RSEQ Improved Traffic Flow through Sequencing (AMAN/DMAN)
    - B0-ASUR Initial Capability for Ground Surveillance
    - B0-AMET Meteorological information supporting enhanced operational efficiency and safety

Existing and New ATC System
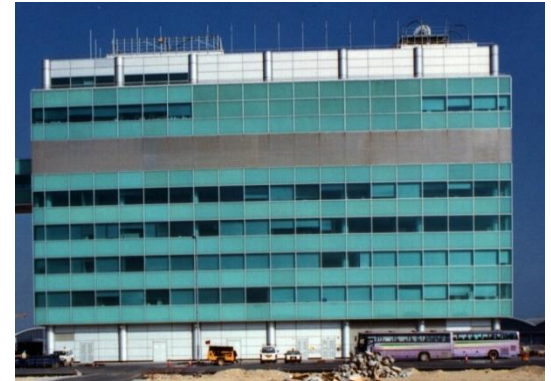
New ATC System
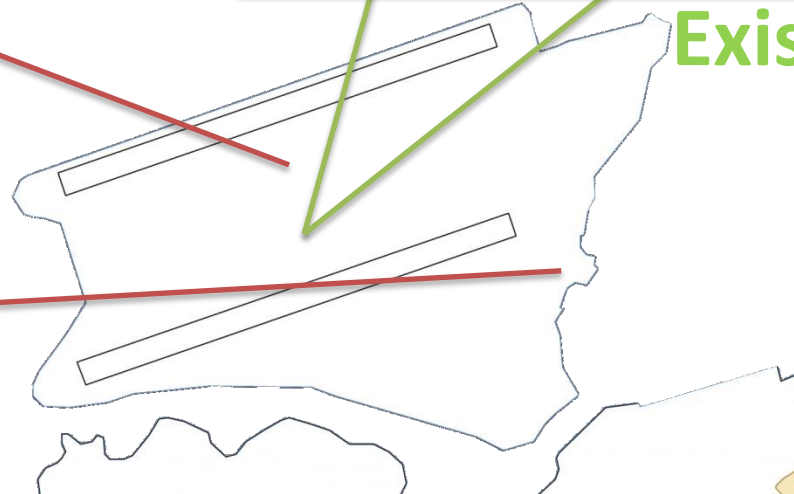
N-TWR
(Existing)

E-ATCC (New)

S-TWR
(Existing)

W-ATCC (Existing)

Existing ATC System

New ATC System – Eight Major System Contracts (1)

- The entire ATC System was implemented through a total of eight major system contracts.

- To ensure that the system operation complies with the safety management and contractual requirements. Installed system had to undergo a series of tests; and

- Comprehensive safety assessments in accordance with

  - international aviation safety management standards, and

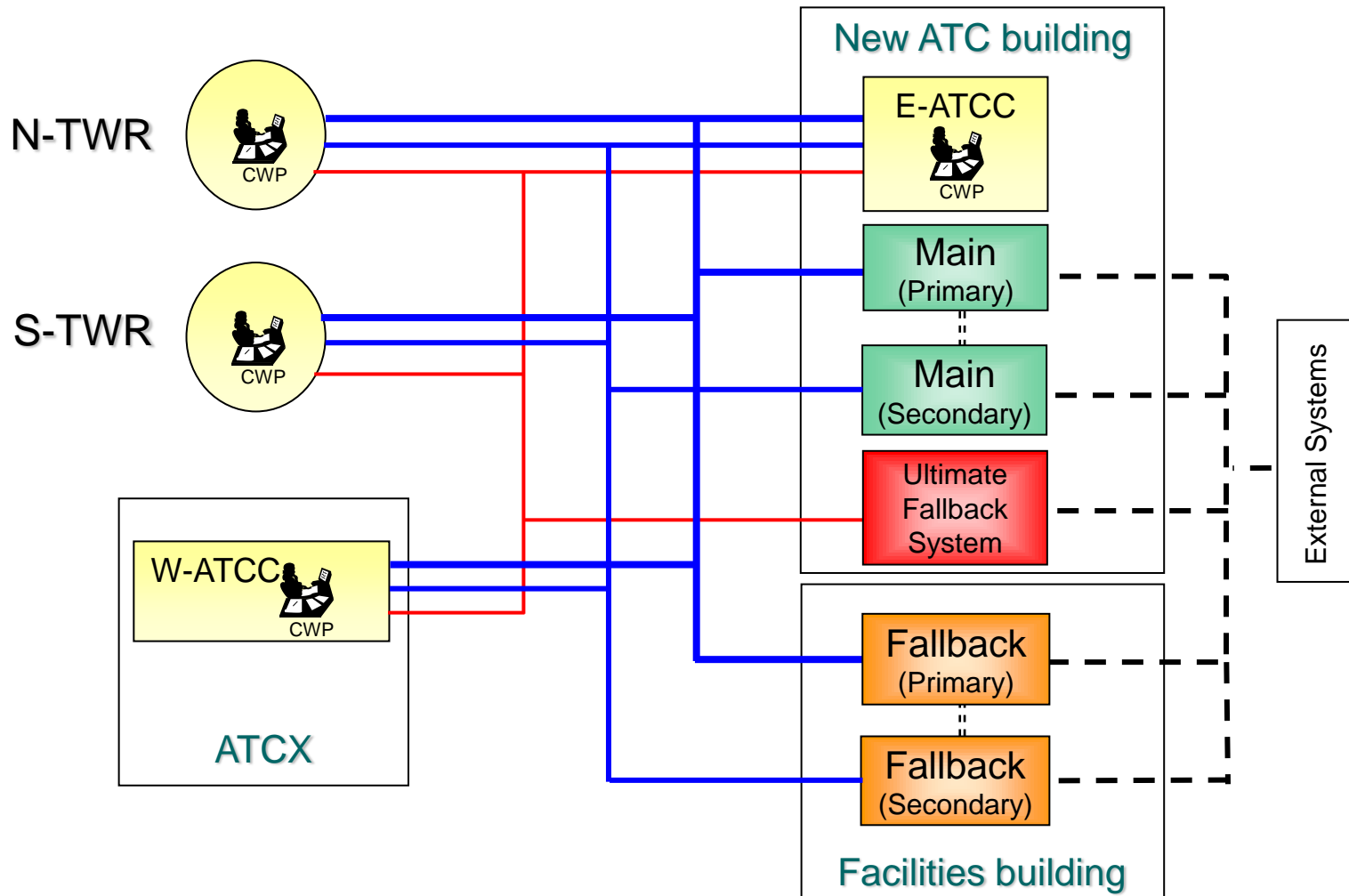 - established government procedures.

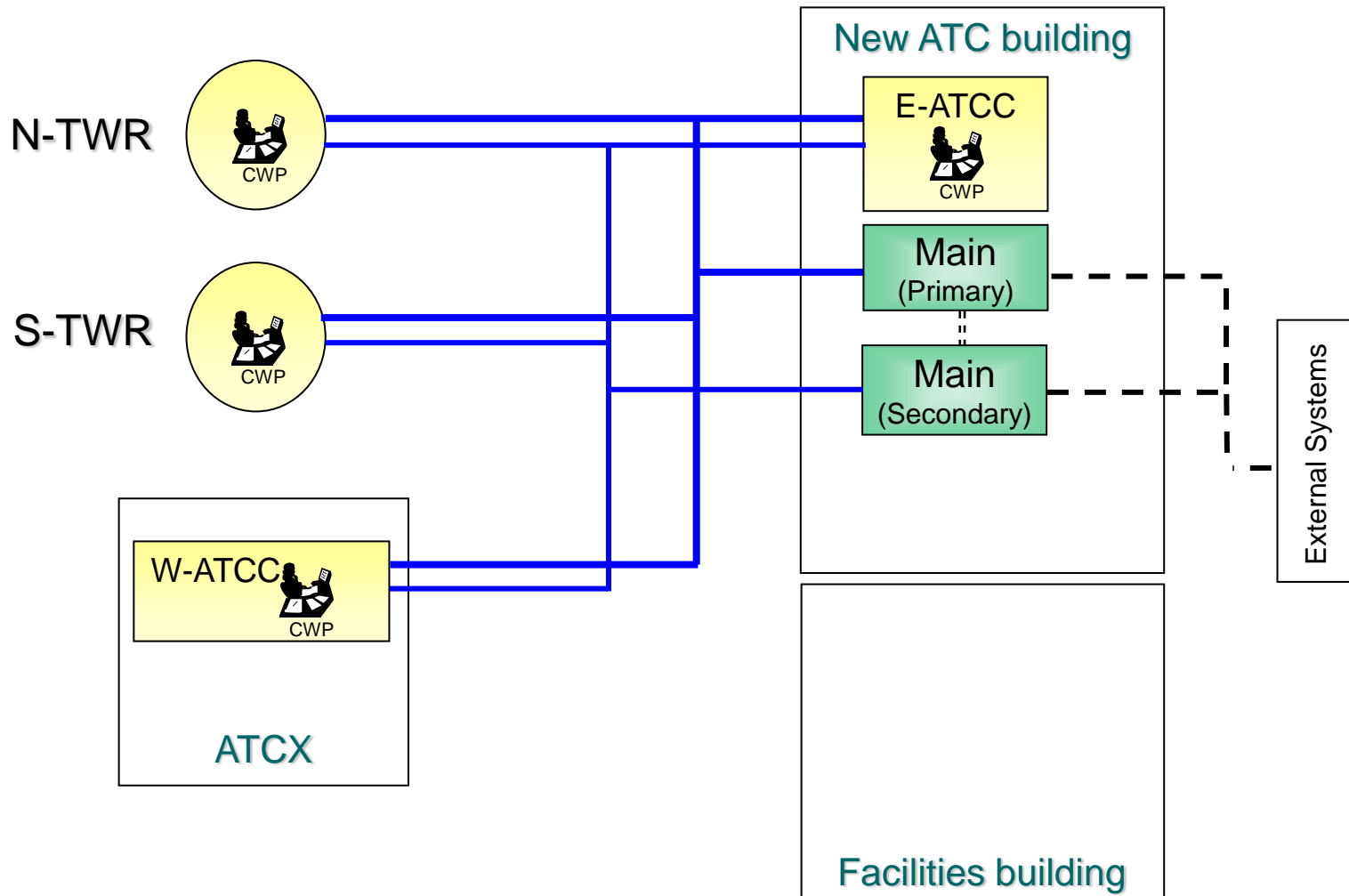# New ATC System – Eight Major System Contracts (2)

E-ATCC

New ATC System – ATMS (1)

- The new ATMS is provided with the latest information technologies, including
  - highly enhanced flight information and data processing capabilities,
  - advanced automatic safety net features,
  - more precise flight trajectory prediction functions,
  - multi-surveillance tracker technology, and
  - graphical presentation of current and predicted meteorological information.

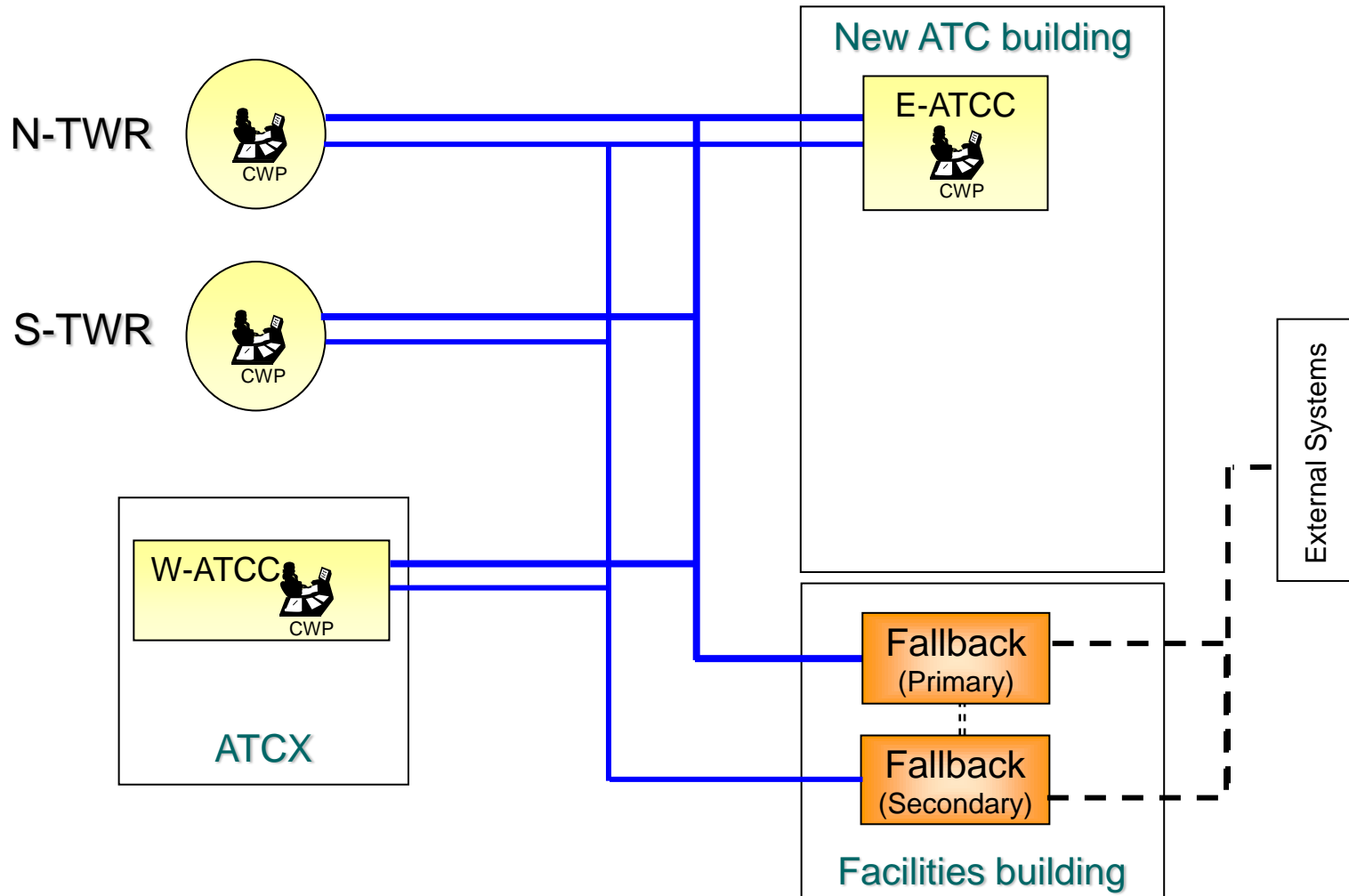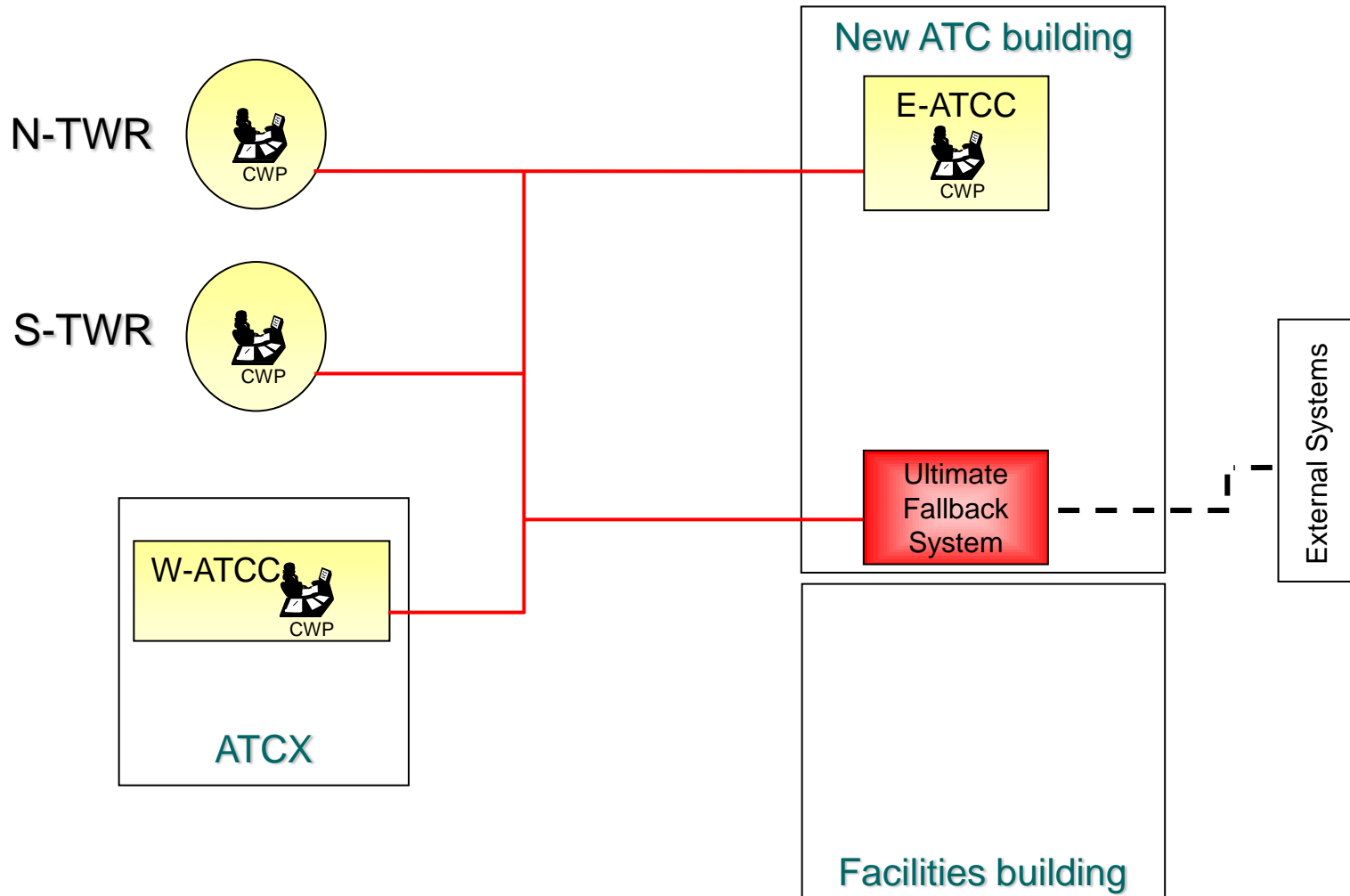# New ATC System – ATMS (2)

New ATC System – ATMS (2)

N-TWR

S-TWR

New ATC building

E-ATCC
CWP

Main
(Primary)

Main
(Secondary)

External Systems

W-ATCC
CWP

ATCX

Facilities building

New ATC System – ATMS (2)

New ATC System – ATMS (2)

New ATC System – Training and Testing

- Real-time surveillance traffic and flight plan data feeding the existing ATMS are duplicated to the new ATMS.
  - The new ATMS becomes a fully-fledged and ultimate training platform allowing trainees to interact with real traffic and mimic real ATC
- This arrangement allows for the flexibility of switching in and out of the functionalities of new ATMS partially or in full for
  - shadowing tests,
  - shadowing operations, and
  - phased operational transition.
- The same arrangement was conducive to the validation, analysis and appreciation of the operation of the new ATMS.

New ATC System – Safety Management (1)

- In addition to the internal processes,
  - Safety case reports
  - System engineering and safety assurance assessments
  - Human factor and ATC assessments
  - Relevant safety control measures

New ATC System – Safety Management (2)

- Apart from the equipment, staff readiness is also critical in ensuring that the new ATC System

  - Enhance staff confidence
    Series of intensive training sessions for air traffic controllers and relevant staff in phases through the use of simulator system

  - Enhancing staff competence
    Familiarisation training on the new ATC System.

- Comments from the controllers were reported back to the project team to further enhance the functionality of the new ATC System.

- The meeting is invited to :

    - note the content of this paper; and;
    - seek support from the ICAO in organizing special seminars/workshops to help expedite States/Administrations on their implementation of ASBU modules through experience sharing on the best practice, lessons learned, and difficulties encountered.

Thank You

- Safe   - Orderly   - Efficient
- Airworthy   - Teamwork

Committed to a Safe, Efficient and Sustainable Air Transport System