EMBRACING DIGITAL TOWER TECHNOLOGY

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NATS

SEARIDGE TECHNOLOGIES

NATS Protected

Contents

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What is a Digital Tower?

- No fully agreed industry definition like ASMGCS
- It is a collective term for many terms you have heard: Remote / Virtual / Digital / SMART / RVT / MSC / MTC / Etc.

- *Eurocontrol's Skybrary definition: Remote Tower Service (RTS) is a system which allows aerodrome Air Traffic Control (ATC) or Flight Information Service (FIS) to be provided from a location other than the aerodrome whilst maintaining a level of operational safety which is equivalent to that achievable using a manned Tower at the aerodrome to oversee both air and ground movements.*

Convergence
- Connecting airside & ATC

Automation
- AI based decision support

Augmentation
- Video Tags / Overlays/ MET

Digital Out the Window View
- Cameras

Digital Tower: Visualisation

Digital Out the Window View

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Digital Tower: Visualisation

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Digital Tower: Visualisation

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4K Cameras

Artificial Intelligence

Integrated Airport data

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Smart Stand Demo

Digital Tower: Visualisation

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ATC and Airport Convergence
Case Study: Hong Kong CAD / AAHK

» Digital Apron and Tower Management Systems (DATMS)

» One platform: two systems – DTF & DAMS. 100+ CWPs across airport estate

» Data sharing between DTF & DAMS supports convergence of ATC and surface movement flow

Benefits

» Digital Tower for ATC in support of operation of new Runway 3

» Enhanced views of critical areas – approach, touch down

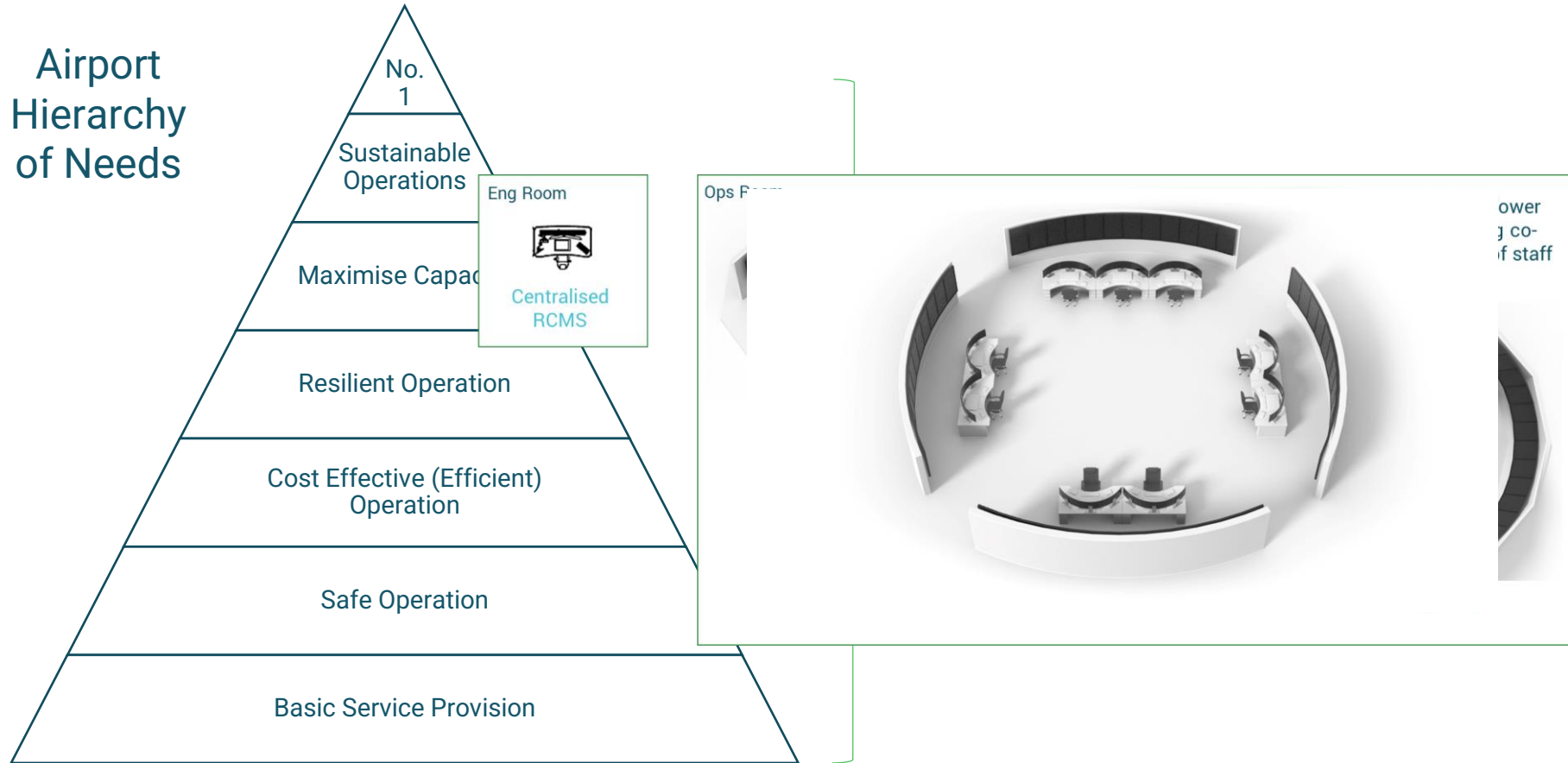» AIMEE runway occupancy alerting

» AIMEE traffic light automation

» Digitization of Apron Management at new IAC

» Alerting for On-Time Performance and delays
  » Support decision making & holistic planning
  » Facilitate resources allocation

» AIMEE TLAS – 68x back-of-stand road/gate traffic lights for vehicle stoppage

» Integration of relevant operational airport data –A-CDM, VDGS, gate allocation, tow, ground handling, service equipment allocation

Key Lessons Learnt (NATS & Big Tech)

- Move Fast, Fail Fast, Learn Fast

- Invest small, invest now

- Prototype on an open, scalable, cloud-based architecture

- Involve the users & regulators from day one

- Evolve business case based on tangible benefits shown on prototype

Business Needs

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Airport Hierarchy of Needs

Pyramid levels (top to bottom):
- No. 1
- Sustainable Operations
- Maximise Capacity
- Resilient Operation
- Cost Effective (Efficient) Operation
- Safe Operation
- Basic Service Provision

Eng Room
Centralised RCMS

Ops Room

ower
g co-
f staff

Digitalisation is the key enabler to meet airports needs

Innovate to Invest

Digital Transformation Roadmap

Digital Tower Lab: 'Seeing is Believing'

Concept Validation

Increasing Return on Investment

NATS Searidge

LHR FULL DIGITAL CONTINGENCY AND HYBRID TOWER CONCEPT