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Accelerating transformation through technology implementation

Session 6

CONSORTIUM COORDINATOR sesar DEPLOYMENT MANAGER

FOUNDING MEMBER sesar JOINT UNDERTAKING

NETWORK MANAGER

Introduction by Antonio LICU

Head of Digital Transformation Office
Head of Technology Division

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Opening notes

Innovation

- Microsoft 365
- The usage of generative AI – Integration of Copilot across the board

Modernisation

- How EUROCONTROL is modernising its system landscape

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iNM – What we have achieved so far

Sil DE GANG
iNM Programme Manager

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Start iNM OPS

Wave O (DPLT in OPS with RAD, CAL and DNP)

15 OCTOBER 2024

SHADOW eEAD OPERATIONS

Wave 1 (AIS Data Mgt & Retrieval, D-NOTAM, Legal REC)

29 NOVEMBER 2024

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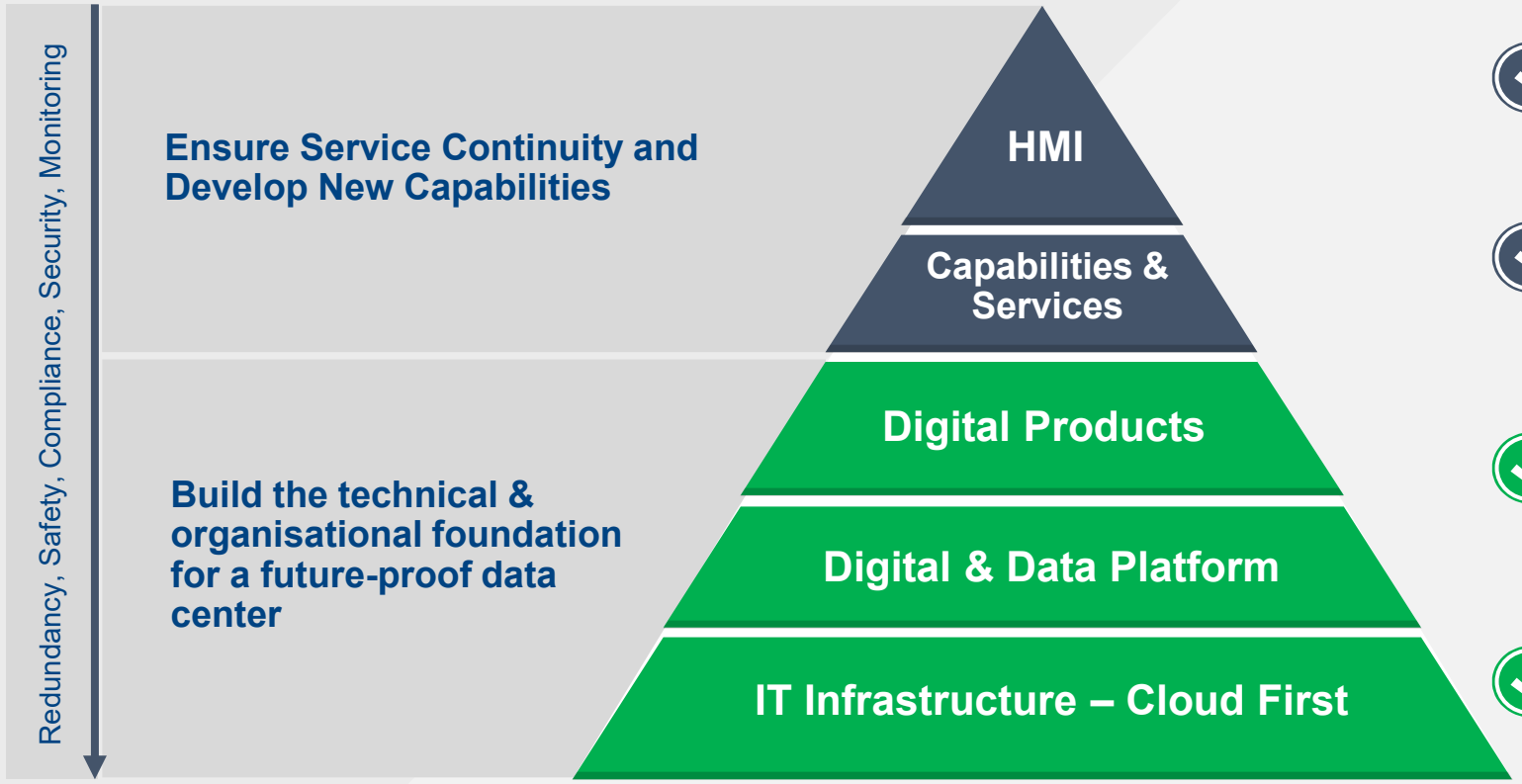
System Landscape Modernisation



- Layered architecture with a clear segregation of concerns
- A clear set of OPS services and capabilities
- Common data layer & secure communication, no tight-coupling across sys. landscape
- Ensures architecture attributes such as scalability, resilience, robustness and security

LEGEND

Service and HMI layers

Digital products and Platforms

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IT Infrastructure
Cloud First

Presented by: Przemyslaw NOWAK

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Important Highlights

15 October 2024

EUROCONTROL goes live with EASA Certified Digital Platform (DPLT) on Mission Critical Operational Cloud Environment (MCE)

To this date no critical or high priority incidents

Further evolution of the Cloud Infrastructure at EUROCONTROL being delivered

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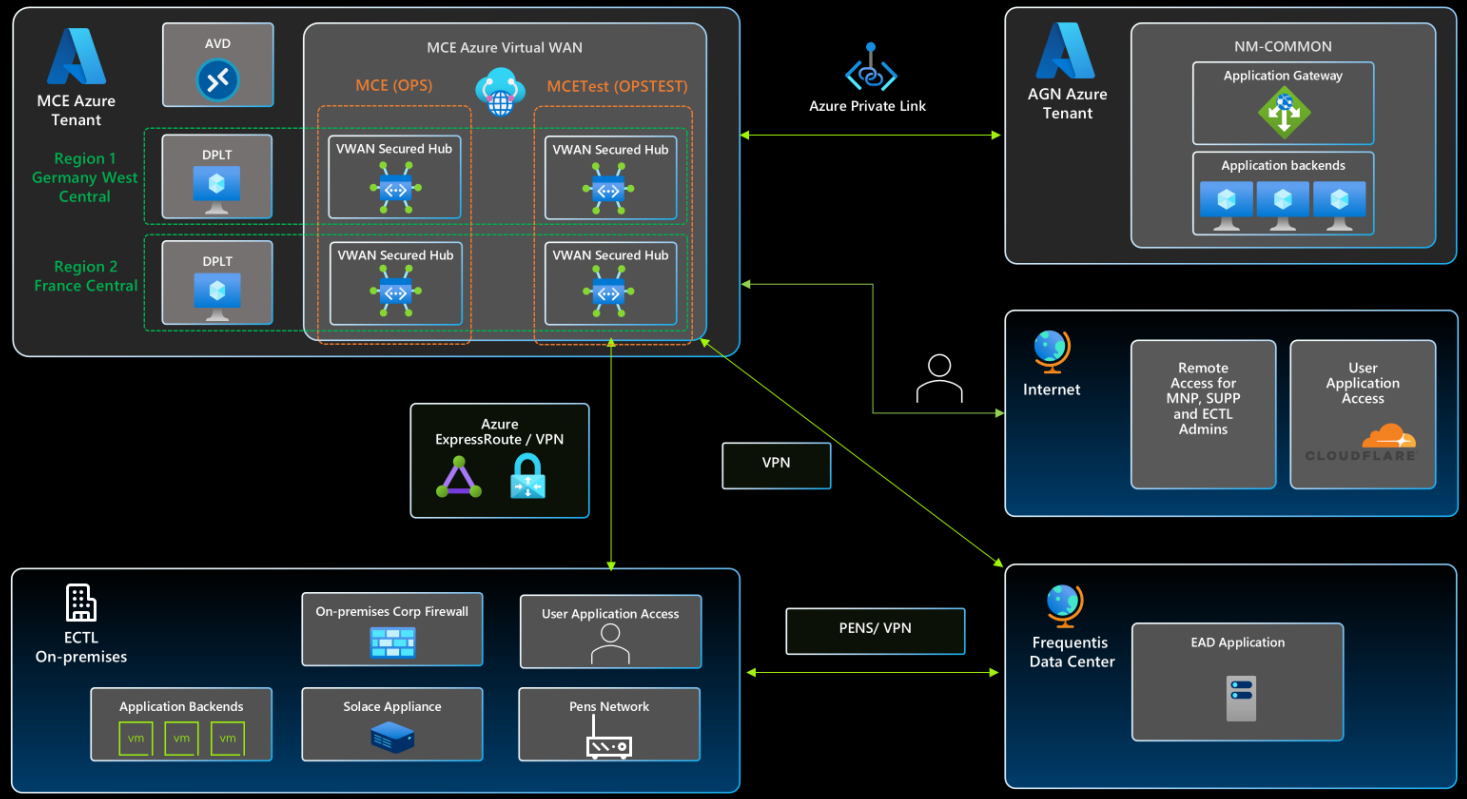
Cloud Infrastructure of iNM - MCE



What is EUROCONTROL **MCE** – **Mission Critical Environment** in Azure Cloud?

- Hosting layer for iNM Digital Platform
- Enabler for Development and Testing Teams
- Enabler for Disaster Recovery of iNM Systems
- Guarantee of Business Continuity
- Steppingstone in Digital Transformation Journey

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Importance for iNM Digital Platform

Scalability of iNM Environments
(20+ running platforms)

Flexibility for the iNM Delivery Teams
(300+ developers and testers)

Increased Performance and Efficiency
(better reported user experience)

Increased Hosting Reliability
(no operational incidents or downtime since go-live)

Increased System Security

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Achievements and evolution

WAVE O & 1

- Operational and pre-operational cloud hosting platforms
- Full EASA compliance achieved for running operational services
- End to end validation completed and passed

WAVE 2

- Enablement of disaster recovery capabilities
- Full EASA compliance for Azure 2nd region
- Business Continuity Operational Procedures
- Pilot phase for 2nd Hyperscaler

WAVE 2 +

- Pilot phase for Flight & Flow on Mission Critical Cloud Environment
- Evolution of 2nd Hyperscaler with selected use cases
- Evolution of MCE to further increase reliability, security and efficiency

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Digital & Data Platform

Presented by: David MORALES

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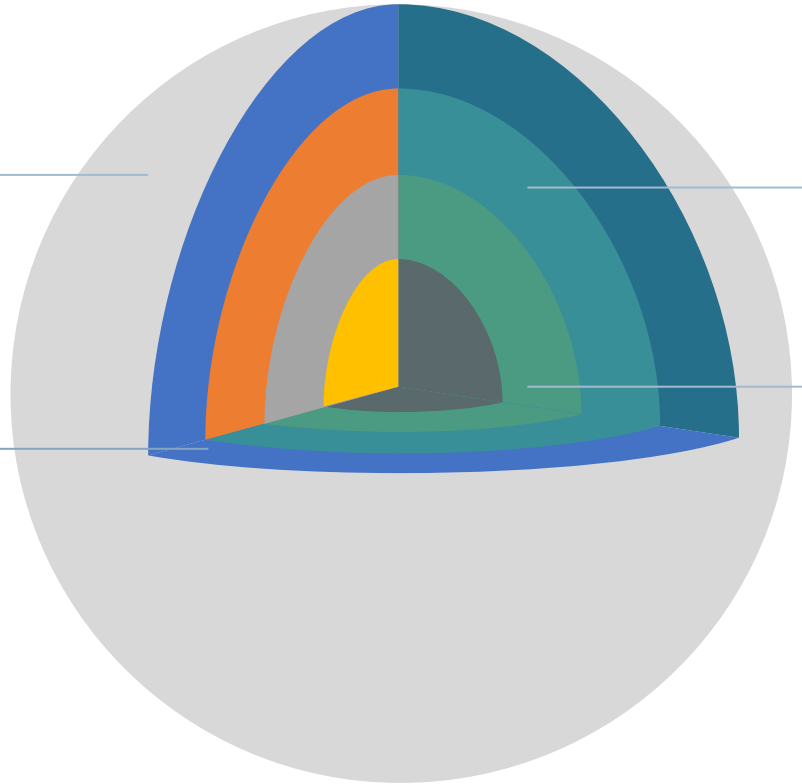
Platforms provide paved roads to sustain the journey.

Security & Compliance

Ensuring the core requirements for air traffic management are met.

Scalability

Ready to grow and adapt workloads as needed.



New architectures

Enabling advanced technologies and solutions.

Flexibility

Ability deploy at any moment, on any infrastructure.

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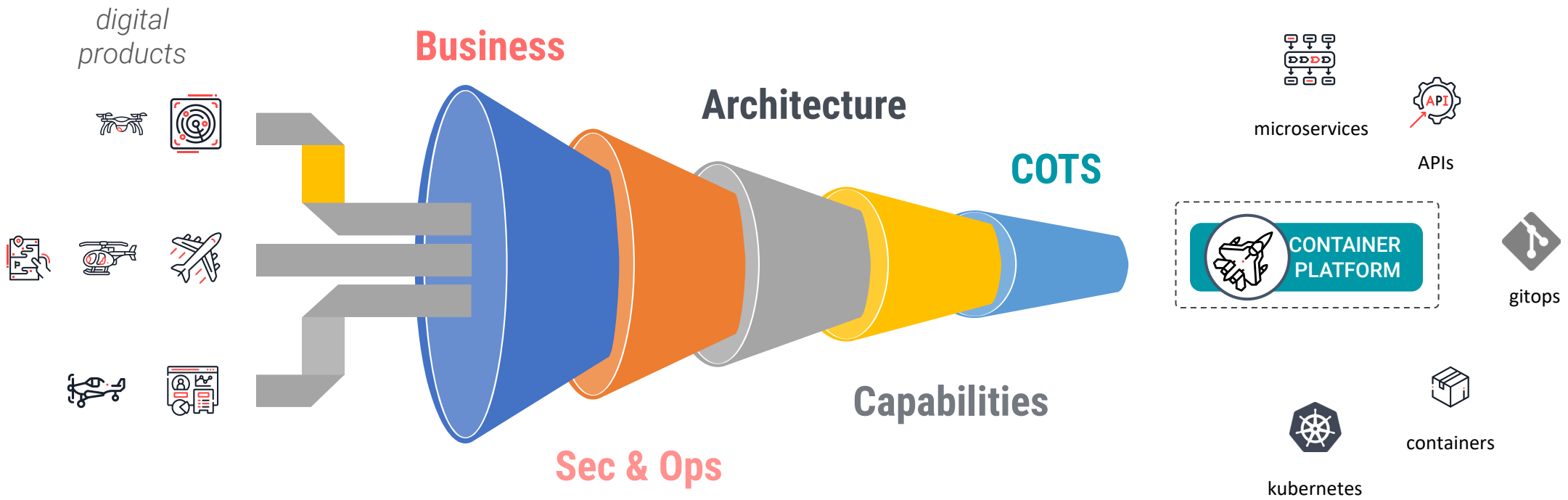
Platforms are the golden paths to unlock a new way of thinking.



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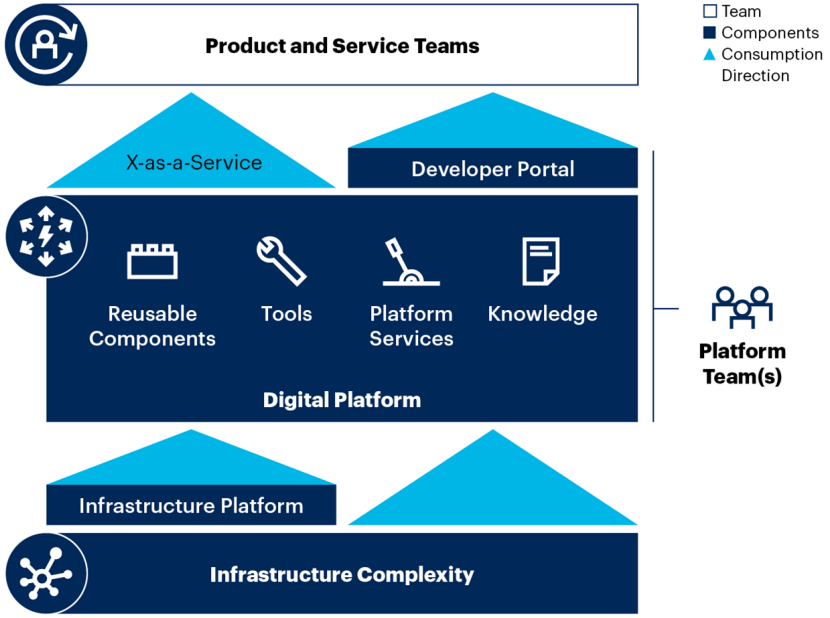
Embracing the industry on a platform engineering strategy

IT Industry View

By 2026, 80% of software engineering organizations will establish platform teams.

These developer-focused infrastructure platforms will provide a ‘paved road’ to production, enhancing technical quality, accelerating time to market, and mitigating risk through a common, validated approach to security and compliance.



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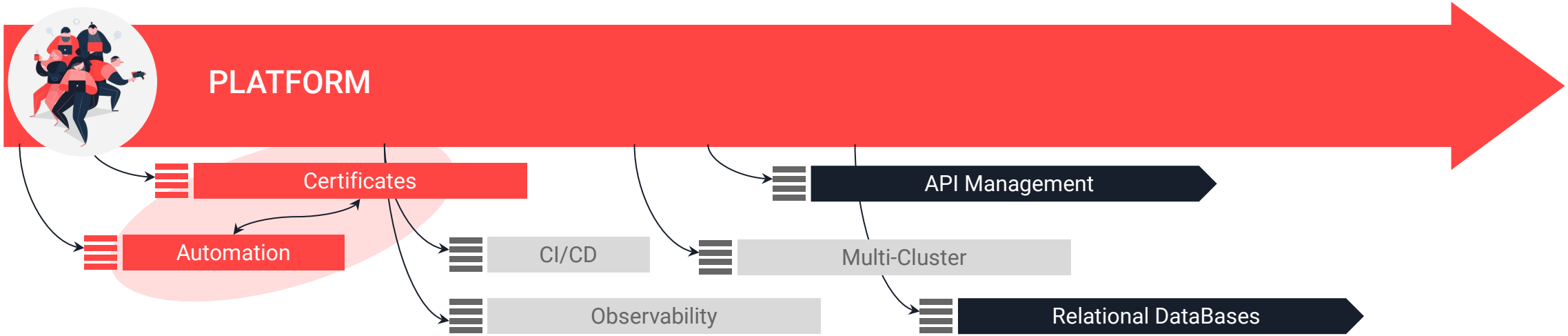
Building the platform with a product mindset



A platform is a set of complex technologies and integrations that must be built and evolved over time, as both underlying components and business needs continuously change.

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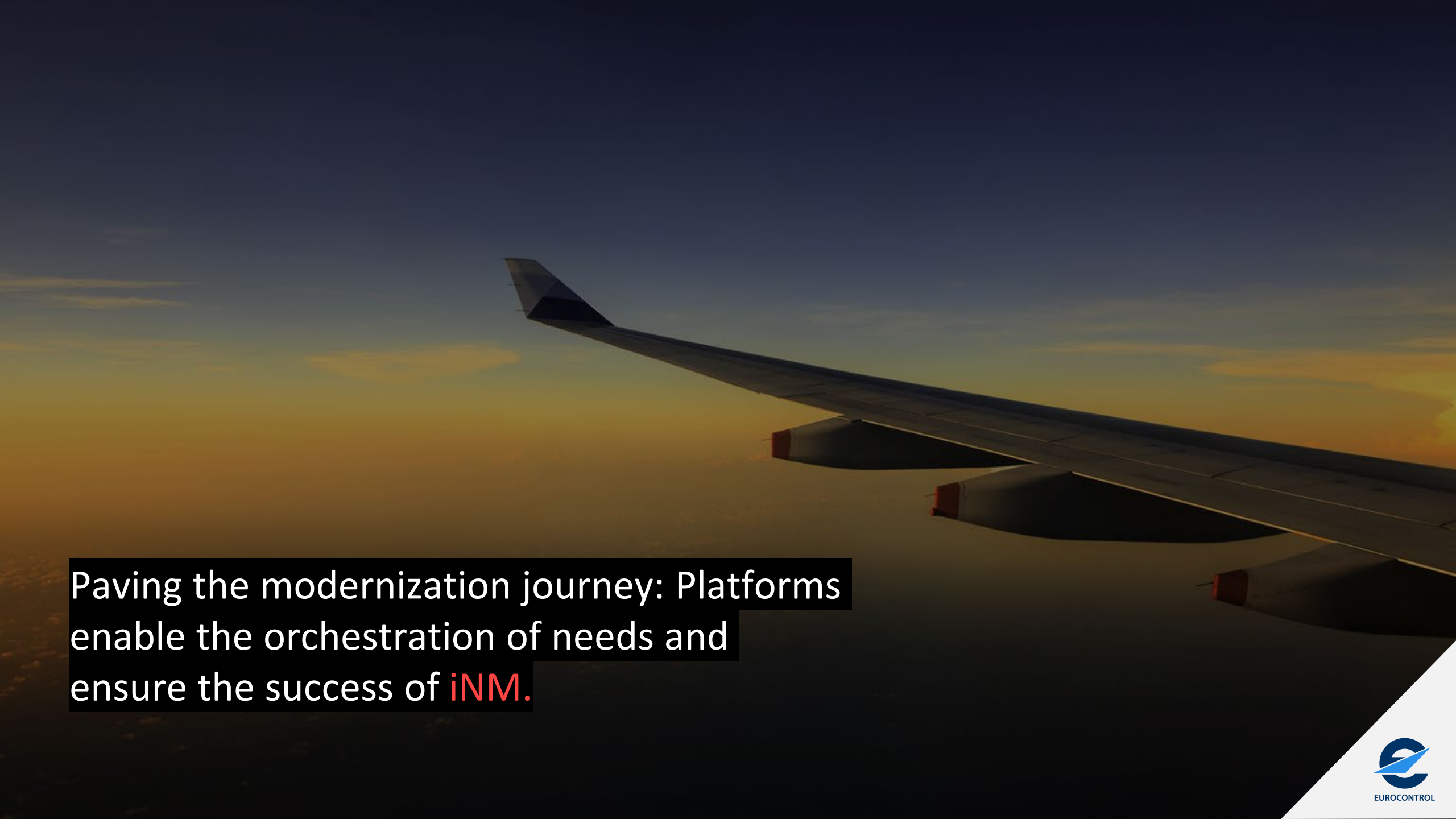

Paving the modernization journey: Platforms enable the orchestration of needs and ensure the success of iNM.

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Enhancing Security
iNM Login & MFA

Operational Impact & How to Prepare

Presented by: Razvan Mihai Margauan

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Cyber threats are rising – iNM is strengthening security by updating MFA policy & moving from RSA to smart devices

What's Changing?

- NM is transitioning **from RSA tokens** to **smart device (smartphone preferred) authentication**.
- **Every user will have their own login** instead of shared accounts – **Corporate e-mail accounts** only

Why Now?

- **Cyber threats are increasing** – There are up to 600 million identity attacks daily & rising.
- MFA is the **industry standard** for securing operational systems – Beyond MFA, security best practices exist.
- **Regulatory compliance** MFA aligns with **ISO 27001, NIST,** and **aviation security best practices**.

Daily, there are up to
600 million identity attacks

MFA blocks 99% of unauthorised attempts
In 2024 alone, over
880 stolen credentials at NM

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Individual corporate e-mail accounts and smartphone MFA enable accountability and significantly reduced phishing risks

Smart-device MFA

A smartphone for each user

- All users will be required to install an MFA authenticator app smartphone – **Google, Microsoft & Okta supported**
- Set-up needed only once – **No internet, network or connectivity needed for login**; same way as with token
- **Simple installation instructions** will be provided to users ensuring seamless set-up – Set-up in a matter of seconds

Individual corporate E-mails

No more shared accounts or personal e-mails

- Each user must have an **individual corporate email account** – Shared accounts are no longer support
- **Organisation can create generic settings –** User preferences can be imported by other users
- **One-time login per shift (valid up to 10 hours)** – 1-hour kickout for inactivity for increased safety

Security Benefits

Individual accountability – Minimise impact

Reduces phishing risks – even if passwords are leaked

Ensures only authorised users access operational systems

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iNM MFA policy aligned to industry best practices to deliver benefits – Beyond security, it is user friendly & costs efficient

Secure

- Autehnticators are **constantly updated** with the latest security features
- Individual and corporate emails enable **quick response** in case of data breachs

Simple & Easy

- **Quick and easy to set-up** and use
- Both **corporate & personal devices** are **supported**
- **No need to carry extra hardware** (e.g., a separate token or usb)

Cost-effective

- RSA tokens no longer required for purchase (**EUR 200 per token saved**)
- **No costs to distribute or maintain**,relevant especially for large organisations

User friendly

- **Compatible with** popular authenticator apps like **Google**, **Microsoft**, & **Okta** – Industry leaders
- Enables **user-based preferences** and further evolutions in NMUI

Resilient

- **Easy to replace** if lost or stoen – **No downtime** waiting for a repalcement
- Backup in place - **Multiple devices can be configured** per individual account

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The MFA set-up and login processes have been designed with the end user in mind and are adapted to work in OPS rooms

Workflow

Set-up

1. Check your **e-mail** for iNM welcome & MFA set-up
2. Choose authenticator & Scan **QR code**
3. Complete set-up on **smart device**
4. Return to your **e-mail**, click the link to the operational **URL and bookmark** for easy access

Login

1. Open **NMUI** on your workstation
2. Enter your **email & password**
3. Approve login with your **authenticator app**
4. **You're in!**

Key considerations

- **Internet needed only once** for authenticator set-up
- **Unique corporate e-mail per user** (no shared accs.)
- **Smart devices** supported: phones, tablets & watches
- **Microsoft**, **Google** and **Okta** authenticators

- **Login preferences saved** – No need to reconfigure every time; import from others user enabled
- **One login for multiple NM applications –** Single Sign-On is enabled.
- **OPS room compatible** – smart devices can be used in **airplane mode** and stored safely after login
- **One-time login per shift** (valid up to 10 hours)

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iNM MFA policy is consistent with current operations – Several concerns considered and mitigated during design process

1 Shift changes/ Handover

Concern

> Users need to log out at shift changes, making handover harder
> Handover process is now complex & difficult

Solution

> **User configurations are saved** before logout
> **Configurations can be imported** by next shift user

2 Too many logins per shift

Concern

> Logging in frequently disrupts workflow, especially during peak workloads

Solution

> **One login per shift** – Valid for up to 10 hours before timeout
> **Single Sign-On (SSO)** means one login covers multiple NM applications

3 Lost or stolen MFA device

Concern

> Smartdevices can be stolen or easily misplaced

Solution

> Users can **reset MFA instantly** or **use alternative device**
> Small set of **backup devices** can be kept **for emergencies** in OPS room

4 OPS room restrictions

Concern

> Some organisations have a no phone policy in OPS rooms
> Using a smartphone during shift can distract

Solution

> **MFA works offline** once installed – No network connection needed.
> **Use airplane mode** after login and **store devices in lockers**

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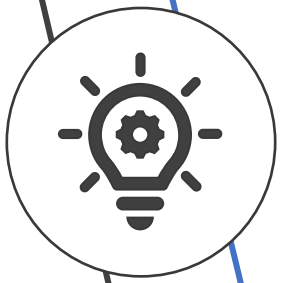
iNM enables clients to manage own access & users – NM will migrate exiting users via phased approach – NMP as backup

Transition considerations

- **NM will migrate existing users** – **Clients enabled to manage** but NM will maintain support
- **NM requires list of users** (incl. e-mail, roles (admin/ read-write or read only) and positions
- **NMP used as disaster recovery** solution– **Keep RSA tokens** until further notice
- **No "public" access for iNM RAD before iNM Wave 2** – RAD still accessible via EUROCONTROL - RAD



Transition roadmap

Release	Date	Key Change
Wave O	Oct 2024	**Digital platform** & MFA introduction
Wave 2	May 2025	**RAD Read-Only** & eEAD MVP (login + MFA required)
Wave 2.1	Nov 2025	**NMUI** replaces legacy tools (CHMI, NMP, etc.)
Wave 3	Apr 2026	**Clients manage** user access **independently**

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To enable delegated access mgmt. a stepped approach is proposed – Step 1 is to prepare for MFA adoption via RAD

Before transition

Wave <2

> **Check with IT** on device policies in your OPS room & read about MFA.

> **Ensure a contract is in place with NM and & point of contact is correct** in NM's records (if not, e-mail update)

> **Create a list of expected users** covering, at minimum:

- Full Name & Organisation & Corporate e-mail
- Function & Role
- Product Access: RAD, Flight, Flow FMP or TWR)
- Access Level (Admin, Read-Write, Read-Only)

During transition

Wave 2-2.1

> **Wait for an activation** e-mail and set-up your MFA account on your smart phone.

> **Follow NM's login guide** to ensure a smooth experience.

> **Recurrently inform your team** about the MFA changes.

> **Ensure all OPS personnel are** on-boarded with new MFA procedures.

Post transition

Wave 2.1+

> **Establish a technical point of contact** for your organisation**.**

> **Stay engaged with NM** & reach out in case of critical issues.

> **Continue internal preparations** for User Access Management and start training with NMUI solution.

> **Further communications will follow**.

Where to Get Help

Online Help & Setup Guides

MFA Login Guide
Common Questions (FAQ)

Emergency support

+32 2 745 19 97 (CSO)
nm.cso.help-desk@eurocontrol.int

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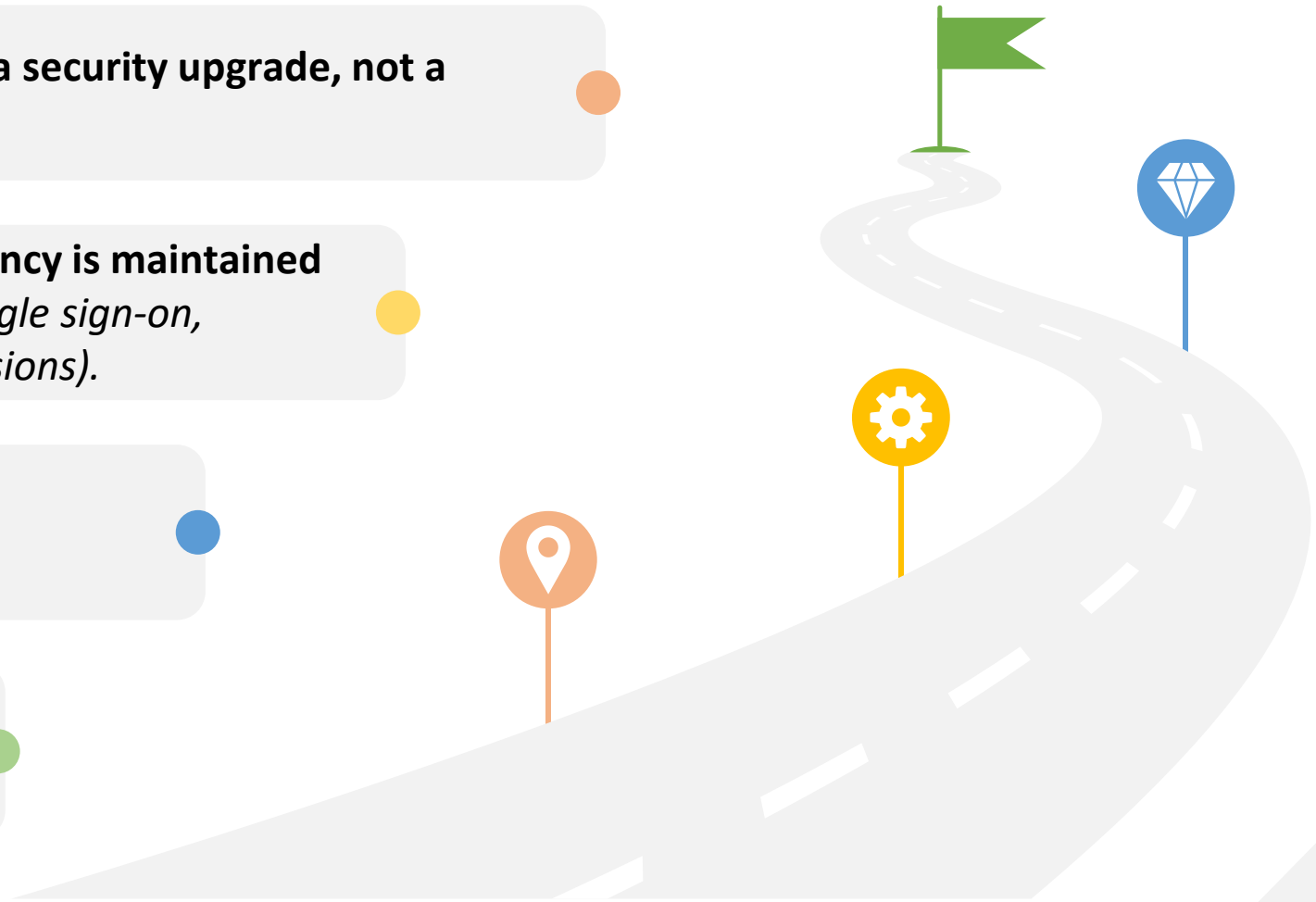
Remember access mgmt. changes (incl. MFA) represent a security upgrade & opportunity, not a burden – NM to support

MFA is a security upgrade, not a burden.

Operational efficiency is maintained *(saved settings, single sign-on, extended login sessions).*

Transition is phased, giving you time to prepare.

Support & training are available – you're not alone in this transition!



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iNM – What's coming next

Ralph TERREIN
iNM Technical & Delivery Manager

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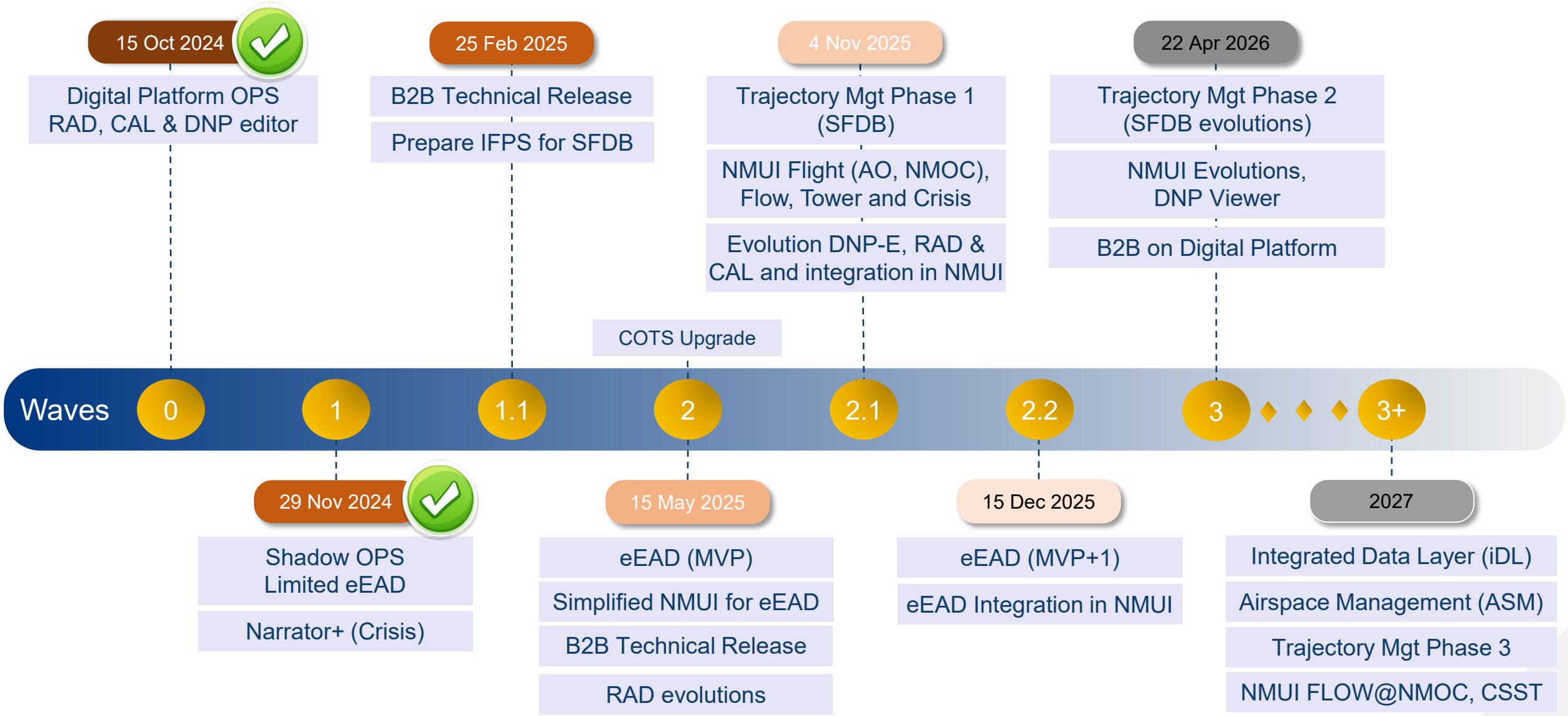
iNM Programme Roadmap



Closing

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START OF eEAD MVP OPERATIONS

15 MAY 2025

INTEGRATED F&F & NMUI OPERATIONS

04 NOVEMBER 2025

FULL eEAD OPERATIONS

15 DECEMBER 2025

INTEGRATED F&F & NMUI EVOLUTIONS

22 APRIL 2026

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