UNIFLY

ICAO Drone Enable 2022

Experience from Successful UTM Implementations

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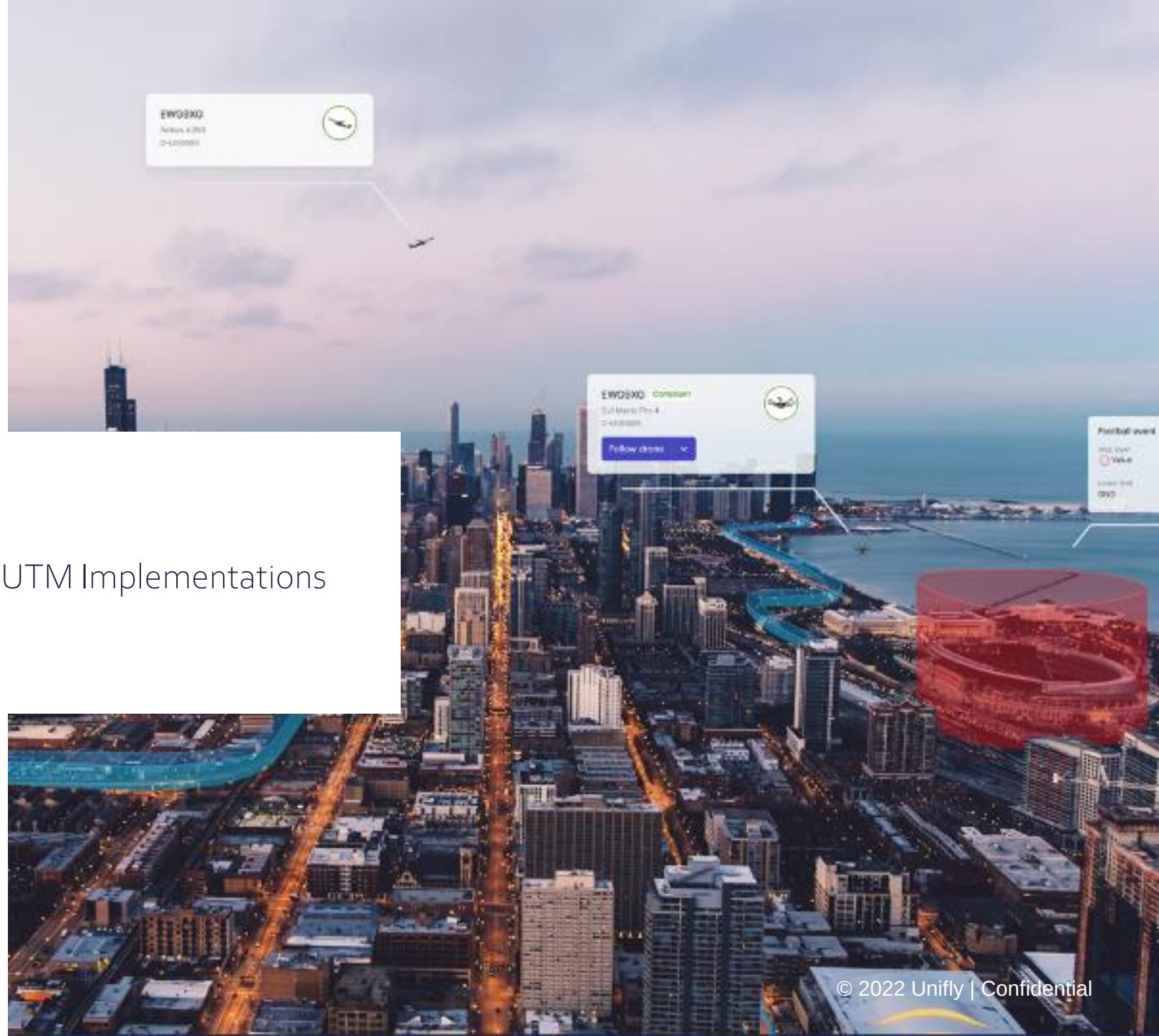
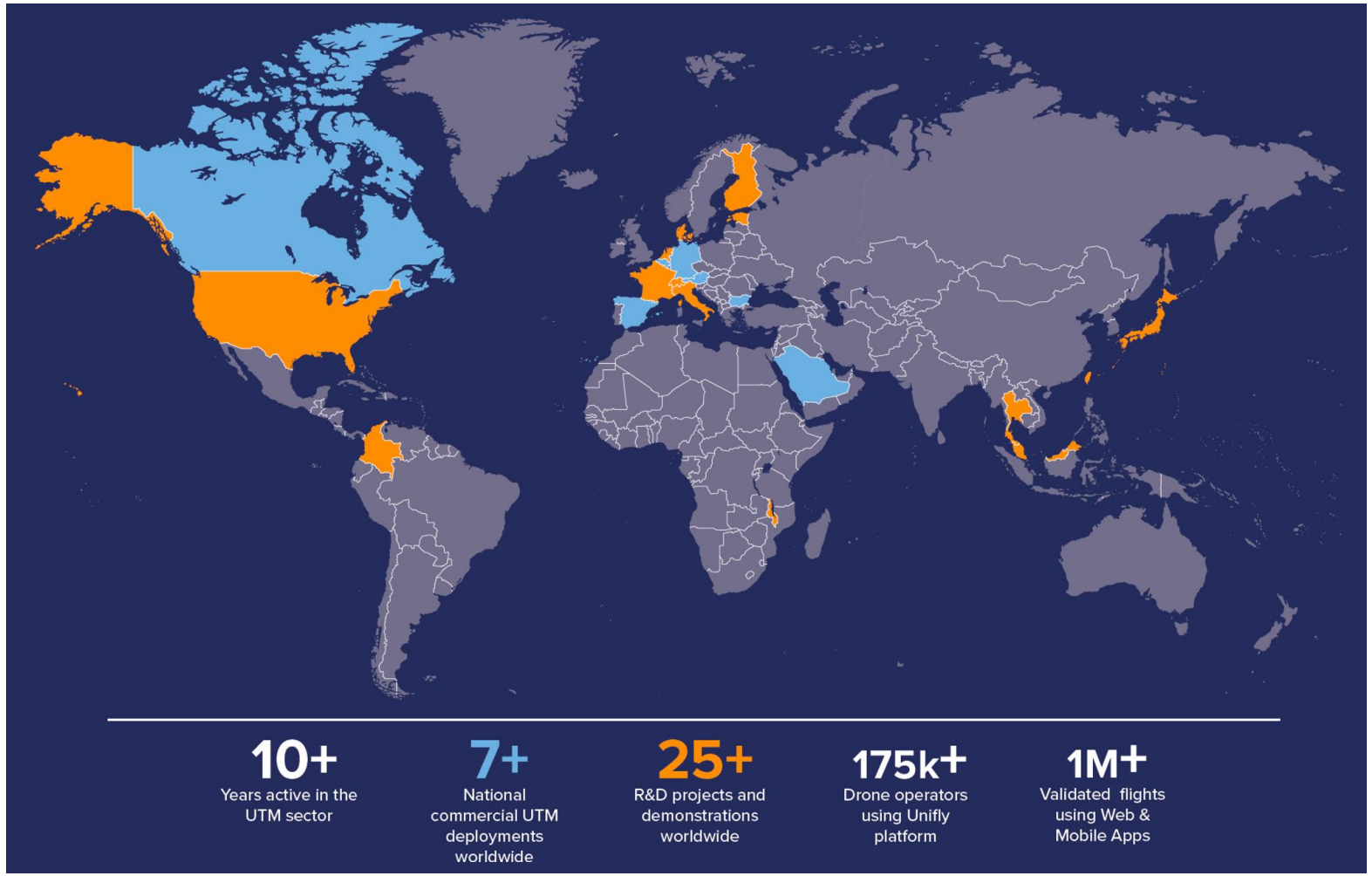


FLANDERS INVESTMENT & TRADE

Flanders State of the Art

Unifly enables ANSPs & USPs to deploy and operate UTM at scale



ANSPs

DFS Deutsche Flugsicherung
NAV CANADA
skeyes
BULATSA
ENAIRE

UTM Service Providers

skeydrone
Enabling safe drone operations
DRONIQ
Port of Antwerp
NEOM نيوم

UTM Research

SESAR JOINT UNDERTAKING
FEDERAL AVIATION ADMINISTRATION
HITACHI
UAS INTEGRATION PILOT PROGRAM

Best practices from two successful UTM implementations

	NAV CANADA	Port of Antwerp
Responsibility	Manage Canadian civil airspace	Port's landlord, operator, regulator, and community builder
Role	Air Navigation Service Provider	U-Space 'Geo-zone Manager'
Original objective	Implement a legal mandate	Improve the Port's operational efficiency
Why UTM	Efficiently manage RPAS authorizations in controlled airspace	Enable safe RPAS operations In the Port
Deployment scale	National	Regional
Initial interest	2018 (RFI)	2017 (SAFIR project)
UTM deployed	June 2021	March 2021

UTM services implemented to date (Phase 1)

	NAV CANADA	Port of Antwerp
Registration (in the UTM system)	✓	✓
AIS data	✓	✓
Non-AIS data (national parks, obstacles, etc.)	✓	✓
Meteorological data	✓	✓
Flight planning (VLOS)	✓	✓
Strategic deconfliction	✓	✓
Airspace authorization	✓	✓
Restriction management	✓	✓
Activity reporting: intent, status, monitoring	✓	✓
Crew, Fleet, and Operations Management	✓	✓
Priority management		✓
Identification		✓
Tracking and location		✓
Conformance monitoring		✓
In-flight conflict advisory and alerting		✓

Lessons learned and best practices – 1 of 2

Stakeholder management

- Identify all impacted stakeholders within and outside the organization
- Involve them early, and define the roles and responsibilities of each stakeholder
- Mandate one team as UTM implementation coordinator

Define your business model

- Strategic motive to deploy UTM may vary widely: Is UTM a source of cost or of revenue? Will that evolve over time?
- Identify the use cases and economics for deploying a UTM system, that are relevant to you

Factor in non-technical requirements

- Critical for future-proof systems: architecture, scalability, data and system security
- But these aspects are often very broadly defined in tender specifications
- Recommendation: include them in the technical requirements and in evaluation criteria

Lessons learned and best practices – 2 of 2

Identify and monitor key performance indicators (KPIs)

- ANSP: regulatory compliance (% registered pilots adopting UTM) and efficiency for ATS (% permissions automated)
- Port Authority: impact on the Port's efficiency (time and costs) and environmental objectives

Plan for 'secondary activities'

- Examples: AIS/GIS data maintenance, 1st-line and 2nd-line support, staff training, internal & external communication, etc.
- Often overlooked when preparing budget and requirements
- Include secondary activities and their dependencies in the project plan

Adopt a pragmatic approach

- Foundational UTM services are much required today, yet regulations and standards are still being defined
- UTM implementation is a phased approach
- Don't aim for the end state in Phase 1

A pragmatic approach to UTM implementation

Pitfalls and challenges

- Regulatory frameworks continue to evolve → U-Space, Remote ID, BVLOS, etc.
- Technical standards are still under definition → UTM-UTM data exchange, prioritization, separation, etc.

Successful implementations follow a phased approach

- *Phase 1: Deploy core system components and foundational services*
  - UTM service provision: Web & Mobile apps for the pilot community to access the services
  - System management: Supervision & Admin portal for the responsible authorities
- *Phase 2: Expand the system, as the regulatory framework and technical standards mature*
  - Other stakeholders: Additional USPs, public safety as operators, local authorities as supervisors
  - Additional services: Remote ID and tracking, tactical deconfliction, congestion management, etc.

This approach allows to leverage the benefits of UTM today, with a future-proof system

What is next?

From pre-flight to in-flight UTM services

- Remote ID & Tracking regulations will soon enter into force in Europe and the U.S. → Key enabler for in-flight UTM services
- Low-risk BVLOS regulation in preparation in Canada → In-flight UTM services to facilitate and monitor BVLOS operations

Extend UTM access to more stakeholders

- Integration of local/regional authorities in the national UTM system → Example: Belgium & Netherlands (cf. BURDI project)
- Allow private UTM Service Providers to offer value-added services → Example: Canada

ATM–UTM interface

- Too early to talk about an 'ATM–UTM integration'
- Instead, need to identify specific use cases that are relevant for the ANSP
- Example: provide ATM traffic data feed to UTM system for crewed–uncrewed separation monitoring (DFS in Germany)

Thank you

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