CORUS-XUAM – 2nd Stakeholders Workshop
CORUS-XUAM Demo activities planned in 2022

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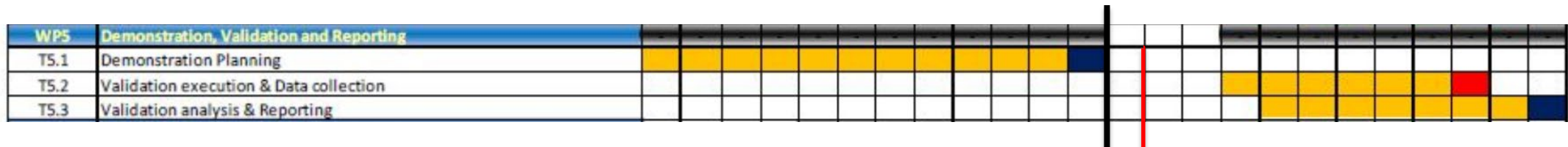
14.03.2022

Agenda

- WP5 objectives andactivites performed

- WP5 next steps

- VLDs overview

WP5 Objectives, tasks, timeline and deliveries

WP objectives:
- Being the bridge between the 6 demonstrations and WP3/4,
- Establishing the way to proceed for collaboration, cooperation and coordination,
- Applying consistent metrics,
- Collecting data,
- Making assumptions on the experimental work to generate valuable conclusions and recommendations.

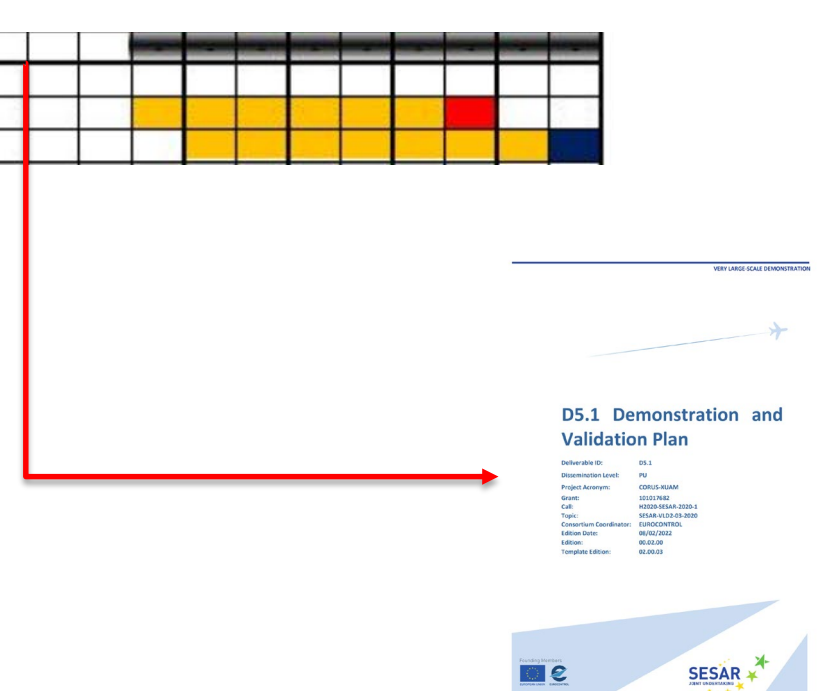| WP5	Demonstration, Validation and Reporting																									
T5.1	Demonstration Planning																									
T5.2	Validation execution & Data collection																									
T5.3	Validation analysis & Reporting																									

T5.1 Leader: Enaire/CRIDA

Start and End date: M1-M12

Task description:
- Producing and maintaining an overall and detailed plans for the demonstrations,
- Identify the demonstration needs and goals,
- Develop a demonstration strategy and experimental plans (according to E-OCVM),
- Determine the key performance indicators and metrics,
- Production of a validation plan,
- Provide best practices, coordinate efforts and demonstrations schedule,
- Production of the demonstration plan.

D5.1 Demonstration and Validation Plan

Deliverable ID: D5.1
Dissemination Level: PU
Project Acronym: CORUS-XUAM
Grant: 101017682
Call: H2020-SESAR-2020-1
Topic: SESAR-VLD2-03-2020
Consortium Coordinator: EUROCONTROL
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Template Edition: 02.00.03

VERY LARGE-SCALE DEMONSTRATION

WP5 next steps:

WP5	Demonstration, Validation and Reporting																				
T5.1	Demonstration Planning																				
T5.2	Validation execution & Data collection																				
T5.3	Validation analysis & Reporting																				

T5.2 Leader: Unifly

Start and End date: M16-M22

Task description:

- Collect data from the demonstrators according to the DemoP produced in task T5.1.

T5.3 Leader: Enaire/CRIDA

Start and End date: M17-M24

Task description:

- Analyse the demonstrations results according to the DEMOP produced in task T5.1,
- Assess the level of maturity of the project,
- Provide valuable conclusions and recommandations,
- Link with WP3/4 to ensure the consistency of the ConOps and the architecture,
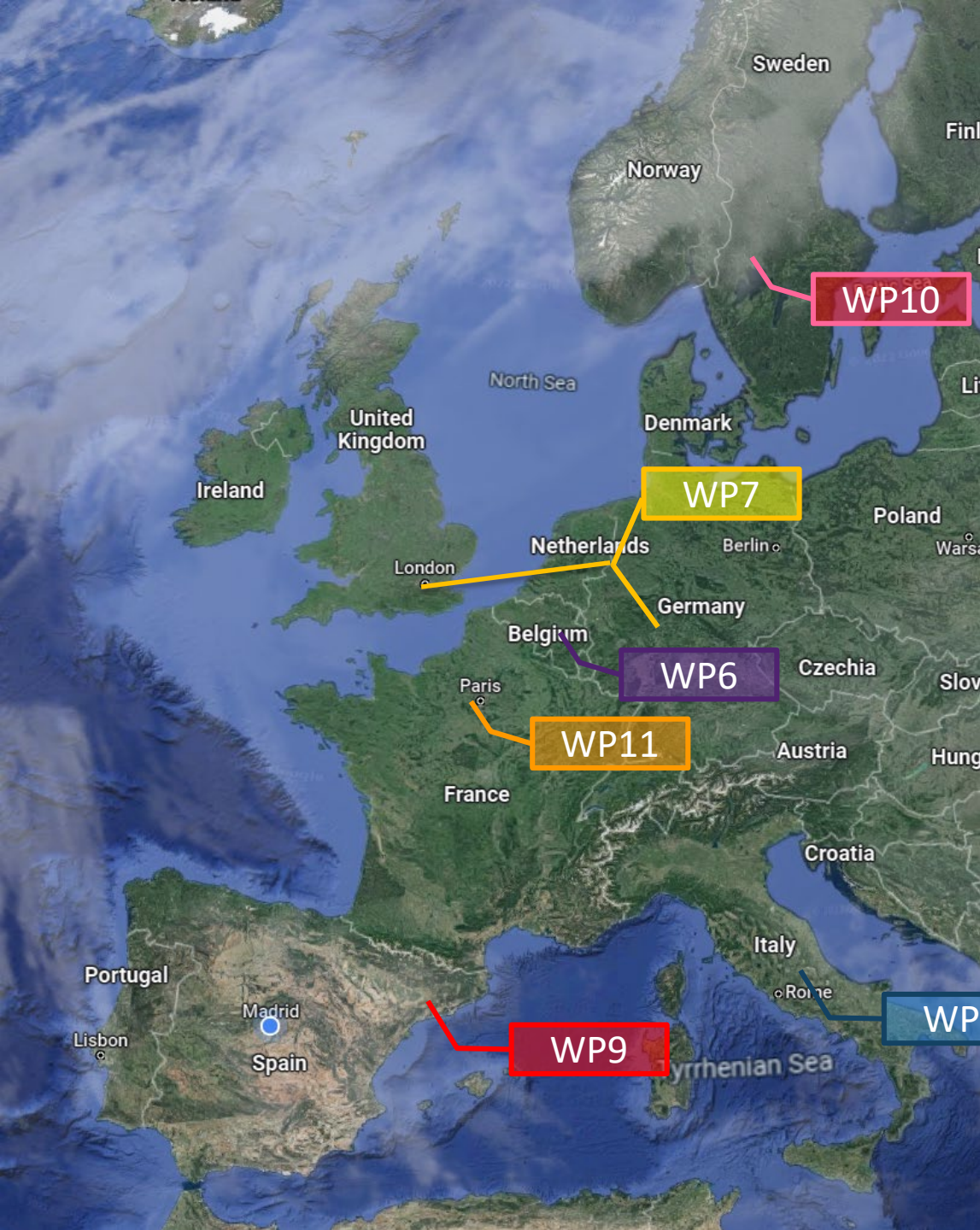- Production of the Demonstration Report

VLDs overview: Six Exercises and 7 Countries

WP7

WP10

WP11

WP8

WP9

WP6

WP6 Belgium

WP7 Germany UK

WP8 Italy

WP9 Spain

WP10 Sweden

WP11 France

VLDs overview: Locations across Europe

6 VLD activities will be performed in:

– **WP6 Belgium**: Brussels, Antwerp and Zeebrugge

– **WP7 Germany & UK**

  – Physically: Bruschal

  – Virtually: Frankfurt & London

– **WP8 Italy:** Taranto-Grottaglie airport

– **WP9 Spain:** Castelldefels (Barcelona)

– **WP10 Sweden:** Linköping Airport city link

– **WP11 France:** Paris Region airports

VLDs overview: Each Exercise Demo in Headlines

WP6 Belgium - *First responder flights, surveillance of port activities within CTR airport environment.*

WP6 Belgium

WP7 Germany & UK – *Air Taxi shuttle services within controlled airspace – Class D & airport CTR*

WP7 Germany UK

WP8 Italy – *Depot to depot logistic operations between two logistics centres within a suburban area.*

WP8 Italy

WP9 Spanish - Last-mile logistics within CTR – *Police and ATC emergency occurrence management*
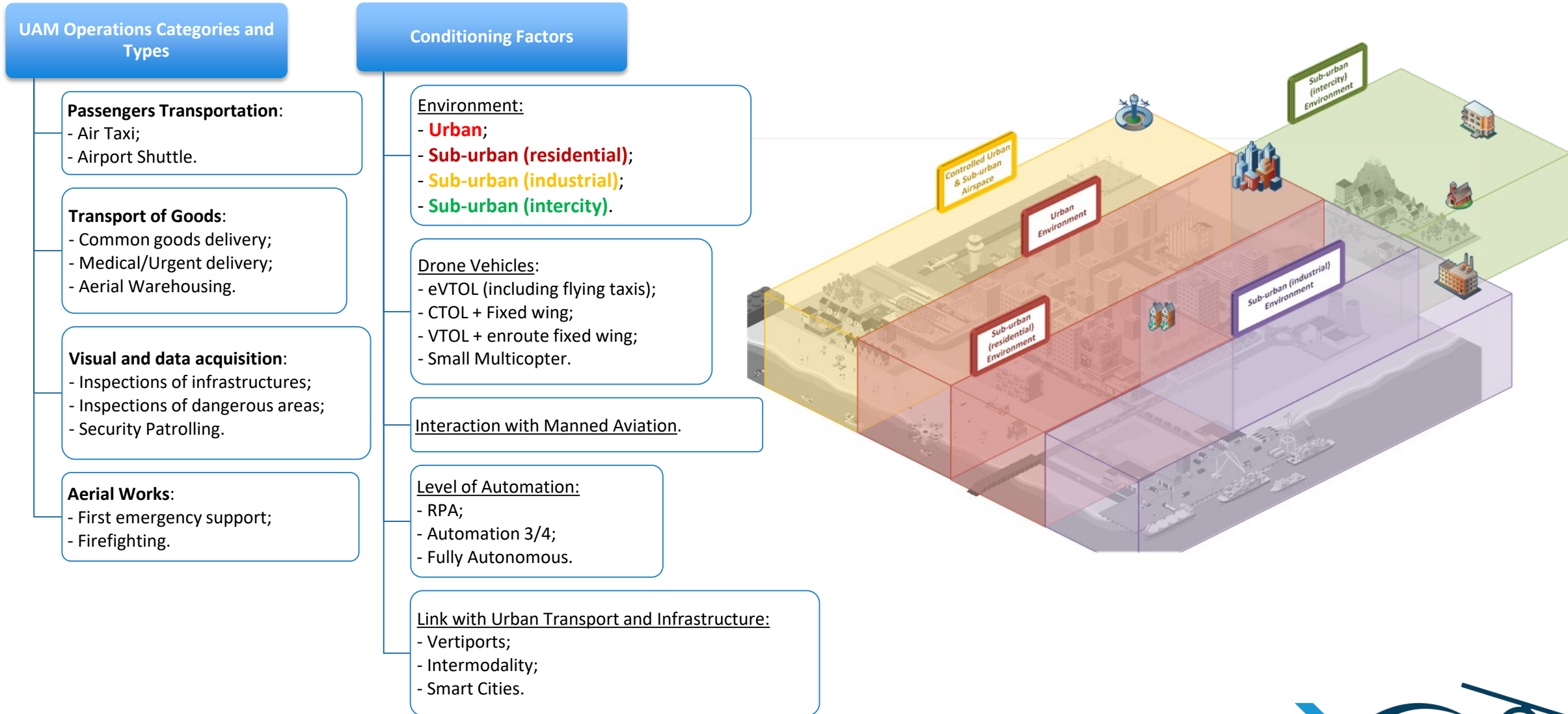
WP9 Spain

WP10 Sweden - *Large cargo UAV in uncontrolled and controlled airspace between 2 cities.*

WP10 Sweden

WP11 France *demo on deconfliction scenarios in airport environment.*

WP11 France

VLDs overview: Overall Demonstration Scope

UAM Operations Categories and Types

Passengers Transportation:
- Air Taxi;
- Airport Shuttle.

Transport of Goods:
- Common goods delivery;
- Medical/Urgent delivery;
- Aerial Warehousing.

Visual and data acquisition:
- Inspections of infrastructures;
- Inspections of dangerous areas;
- Security Patrolling.

Aerial Works:
- First emergency support;
- Firefighting.

Conditioning Factors

Environment:
- **Urban**;
- **Sub-urban (residential)**;
- **Sub-urban (industrial)**;
- **Sub-urban (intercity)**.

Drone Vehicles:
- eVTOL (including flying taxis);
- CTOL + Fixed wing;
- VTOL + enroute fixed wing;
- Small Multicopter.

Interaction with Manned Aviation.

Level of Automation:
- RPA;
- Automation 3/4;
- Fully Autonomous.

Link with Urban Transport and Infrastructure:
- Vertiports;
- Intermodality;
- Smart Cities.

VLDs overview: Scope Covered

Category	Type	Environment				Drone vehicles				Interaction with Manned Aviation	Level of automation			Link with urban transport and infrastructure		
		Urban	Sub-urban (residential)	Sub-urban (industrial)	Sub-urban (intercity)	eVTOL (including flying taxis)	Fixed wing - CTOL	VTOL + enroute fixed wing	Small Multicopter		RPA	Automation 3/4	Fully Autonomous	Vertiports	Intermodality	Smart cities
Passengers transportation (including seamless door-to-door transport of people)	Air Taxi	WP7 Germany UK	WP7 Germany UK	WP7 Germany UK	WP10 Sweden	WP7 Germany UK		WP10 Sweden		WP7 Germany UK		WP7 Germany UK / WP10 Sweden	WP10 Sweden	WP7 Germany UK / WP10 Sweden	WP7 Germany UK	WP10 Sweden
	Airport Shuttle	WP7 Germany UK / WP11 France	WP7 Germany UK / WP11 France	WP7 Germany UK		WP7 Germany UK / WP11 France		WP11 France		WP7 Germany UK / WP11 France	WP11 France	WP7 Germany UK / WP11 France		WP7 Germany UK / WP11 France	WP7 Germany UK	WP11 France
Seamless door-to-door and depot-to-depot transport of goods	Common goods delivery	WP9 Spain	WP9 Spain						WP9 Spain	WP9 Spain		WP9 Spain			WP9 Spain	
	Medical/Urgent delivery		WP8 Italy	WP8 Italy			WP8 Italy			WP8 Italy	WP8 Italy					
	Aerial Warehousing		WP8 Italy / WP11 France	WP8 Italy	WP10 Sweden	WP11 France	WP8 Italy	WP10 Sweden / WP11 France		WP8 Italy / WP11 France	WP8 Italy / WP11 France	WP10 Sweden / WP11 France	WP10 Sweden	WP10 Sweden / WP11 France	WP8 Italy	WP10 Sweden / WP11 France
Visual and data acquisition	Inspections of infrastructures	WP6 Belgium		WP6 Belgium		WP6 Belgium			WP6 Belgium	WP6 Belgium	WP6 Belgium					
	Inspections of dangerous areas	WP6 Belgium		WP6 Belgium		WP6 Belgium			WP6 Belgium	WP6 Belgium	WP6 Belgium					
	Security Patrolling	WP6 Belgium		WP6 Belgium			WP6 Belgium		WP6 Belgium	WP6 Belgium	WP6 Belgium					
Aerial Work	First emergency support	WP9 Spain	WP9 Spain							WP9 Spain	WP9 Spain					
	Firefighting				WP10 Sweden			WP10 Sweden						WP10 Sweden	WP10 Sweden	WP10 Sweden

Legend:
- WP6 Belgium
- WP7 Germany UK
- WP8 Italy
- WP9 Spain
- WP10 Sweden
- WP11 France

VLDs overview: U-space services Addressed

U-space services addressed per exercise
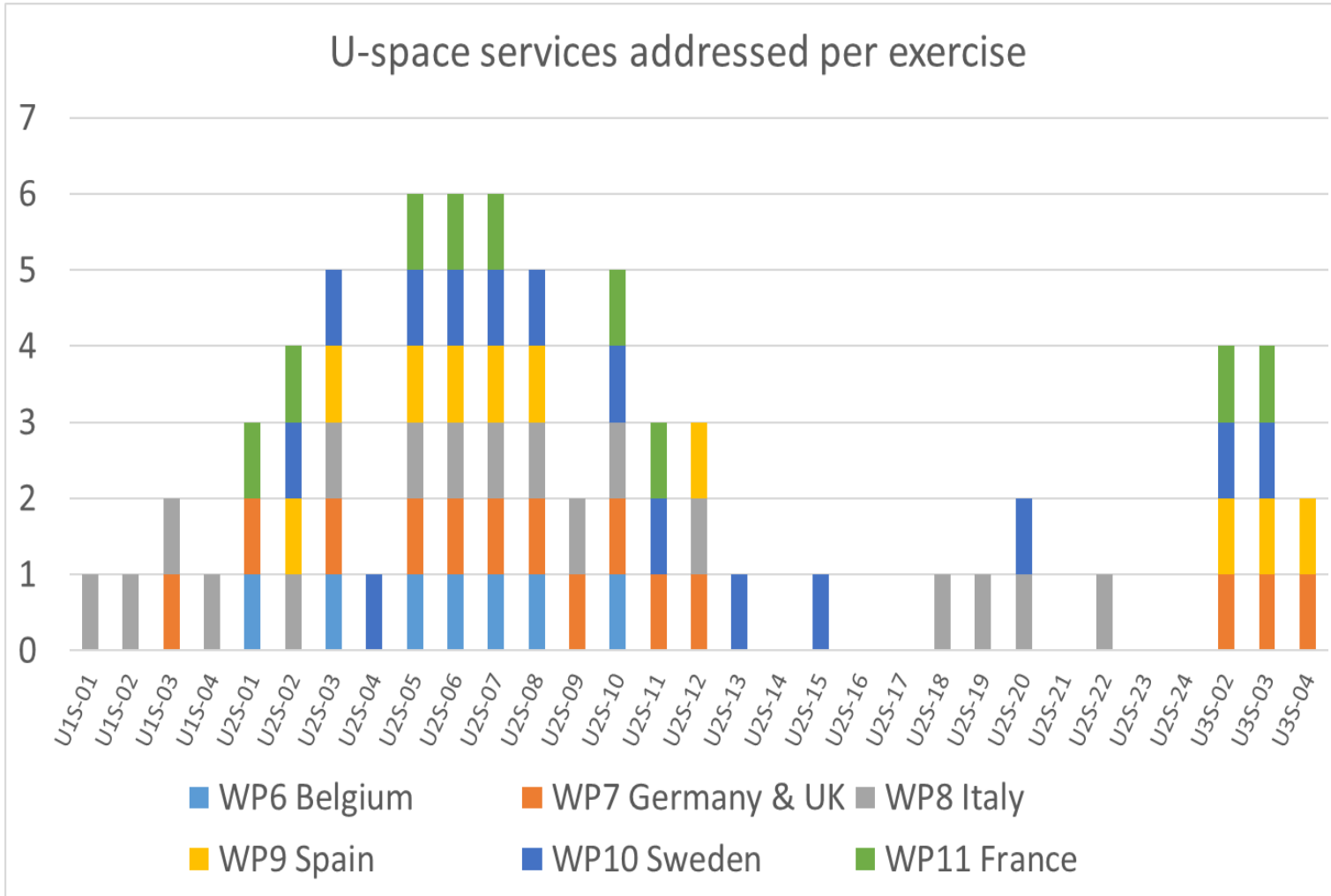
U1 services			
01. Registration	02. e-Identification	03. Geo-Awareness	04. Registration Assistance
U2 services			
01. Geo-fence provision (incl. dynamic geofencing)	02. Emergency management	03. Strategic Deconfliction	04. Weather information
05. Tracking and position reporting	06. Operation plan/Preparation optimisation	07. Monitoring	08. Traffic Information
09. Drone Aeronautical Information Management	10. Procedural Interface with ATC	11. Surveillance data exchange	12. Operation plan processing
13. Risk Analysis assistance	14.Accident/Incident reporting	15. Navigation Infrastructure Monitoring	16.Communication Infrastructure Monitoring
17. Digital logbook	18. Legal recording	19. Geospatial information service	20. Population density map
21.Electromagnetic interference information	22. Navigation coverage information	23.Communication coverage information	24.Citizen Reporting Service
U3 services			
01. Tactical Conflict Resolution	02. Collaborative Interface with AYC	03. Dynamic capacity Management	

VLDs overview: Key Performance Areas Addressed

Category	Type	KPA											
		Access and Equity	Capacity	Cost Effectiveness/ Efficiency	Operational Efficiency	Environment	Flexibility	Global Interoperability	Safety	Security	Scalability	Social Acceptance	Human Performance
Passengers transportation (inclusing seamless door-to-door transport of people)	Air Taxi	EX2.1-CX OBJ-10; EX2.2-CX OBJ-04	EX2.1-CX OBJ-01&02; EX2.2-CX OBJ-02&03		EX2.1-CX OBJ-1to3&5&9&10; EX2.2-CX OBJ-01to04&07; EX5-CX OBJ-02to06&12&13	EX2.1-CX OBJ-04&06; EX2.2-CX OBJ-04	EX2.1-CX OBJ-01&07; EX2.2-CX OBJ-01&04&07; EX5-CX OBJ-09	EX2.1-CX OBJ-07&08&11; EX2.2-CX OBJ-02&05; EX5-CX OBJ-01to04	EX2.1-CX OBJ-05&07&10; EX2.2-CX OBJ-04&06&07; EX5-CX OBJ-2&4&6to8&10&11		EX2.2-CX OBJ-04; EX5-CX OBJ-01	EX2.1-CX OBJ-05; EX2.2-CX OBJ-04	EX2.1-CX OBJ-06; EX2.2-CX OBJ-05&07; EX5-CX OBJ-01&05&09
	Airport Shuttle	EX2.1-CX OBJ-10; EX2.2-CX OBJ-04	EX2.1-CX OBJ-01&02; EX2.2-CX OBJ-02&03		EX2.1-CX OBJ-1to3&5&9&10; EX2.2-CX OBJ-01to04&07; EX6-CX OBJ-01	EX2.1-CX OBJ-04&06; EX2.2-CX OBJ-04	EX2.1-CX OBJ-01&07; EX2.2-CX OBJ-01&04&07; EX6-CX OBJ-02	EX2.1-CX OBJ-07&08&11; EX2.2-CX OBJ-02&05; EX6-CX OBJ-03	EX2.1-CX OBJ-05&07&10; EX2.2-CX OBJ-04&06&07; EX6-CX OBJ-04		EX2.2-CX OBJ-04	EX2.1-CX OBJ-05; EX2.2-CX OBJ-04	EX2.1-CX OBJ-06; EX2.2-CX OBJ-05&07; EX6-CX OBJ-05
Seamless door-to-door and depot-to-depot transport of goods	Common goods delivery	EX4-CX OBJ-01&04	EX4-CX OBJ-01&10	EX4-CX OBJ-01&09	EX4-CX OBJ-01&04&&10		EX4-CX OBJ-05	EX4-CX OBJ-02&03	EX4-CX OBJ-01&04&06&07	EX4-CX OBJ-02&03	EX4-CX OBJ-10	EX4-CX OBJ-01&08&09	EX4-CX OBJ-08&09
	Medical/Urgent delivery							EX3-CX OBJ-04&05&07	EX3-CX OBJ-07				EX3-CX OBJ-09
	Aerial Warehousing		EX3-CX OBJ-04	EX6-CX OBJ-02&03	EX3-CX OBJ-01&04; EX5-CX OBJ-02to06&12&13; EX6-CX OBJ-01&02&03&06		EX5-CX OBJ-09; EX6-CX OBJ-02&07	EX3-CX OBJ-04&05&07&09; EX5-CX OBJ-01to04; EX6-CX OBJ-05	EX3-CX OBJ-02&03&08; EX5-CX OBJ-2&4&6to8&10&11; EX6-CX OBJ-01&03to05&07	EX3-CX OBJ-06	EX5-CX OBJ-01		EX3-CX OBJ-01&09; EX5-CX OBJ-01&05&09; EX6-CX OBJ-01&07
Visual and data acquisition	Inspections of infrastructures	EX1-CX OBJ-04			EX1-CX OBJ-01			EX1-CX OBJ-01&05	EX1-CX OBJ-01&04	EX1-CX OBJ-02&03			EX1-CX OBJ-01
	Inspections of dangerous areas	EX1-CX OBJ-04			EX1-CX OBJ-01			EX1-CX OBJ-01&05	EX1-CX OBJ-01&04	EX1-CX OBJ-02&03			EX1-CX OBJ-01
	Security Patrolling	EX1-CX OBJ-04			EX1-CX OBJ-01			EX1-CX OBJ-01&05	EX1-CX OBJ-01&04	EX1-CX OBJ-02&03			EX1-CX OBJ-01
Aerial Work	First emergency support	EX4-CX OBJ-05										EX4-CX OBJ-08	EX4-CX OBJ-08
	Firefighting				EX5-CX OBJ-02to06&12&13		EX5-CX OBJ-09	EX5-CX OBJ-01to04	EX5-CX OBJ-2&4&6to8&10&1		EX5-CX OBJ-01		EX5-CX OBJ-01&05&09

Legend:
- WP6 Belgium
- WP7 Germany UK
- WP8 Italy
- WP9 Spain
- WP10 Sweden
- WP11 France

VLDs overview: The Planning

Already performed:

WP9 Spain: Execution 08/03/2022 – 10/03/2022

WP11 France: Execution 02/2022 more will come on 05/2022, 06/2022, 09/2022

Next one: **WP6 Belgium**: Execution between 01/05/2022 and 30/06/2022