

NIGHTINGALE

Novel Integrated Toolkit for Enhanced Pre-Hospital Life Support and Triage in Challenging and Large Emergencies



NIGHTINGALE has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 101021957



NIGHTINGALE is...

- + Three-year European project
- + Started on October 1, 2021
- + Total budget: 8,831,477,50€
- + 11 countries and 23 partners:
 - Research and Technology Organisations
 - Emergency medical practitioners
 - First responders
 - Specialised SMEs and industries



PROJECT PARTNERS



NIGHTINGALE



The background image shows several firefighters in full protective gear, including helmets and air tanks, working at an emergency scene. They are positioned around a dark-colored car, possibly a sedan, which is partially visible on the right side of the frame. The scene is dimly lit, suggesting an outdoor setting at dusk or dawn. The overall tone is professional and focused.

MISSION

NIGHTINGALE will advance
pre-hospital life support and
triage in mass casualty
incidents

NIGHTINGALE will...

- + Optimise current procedures and methods of triage and pre-hospital life support
- + Enhance the operational capacities of emergency medical services in the event of mass casualty incidents
- + Offer intelligent, integrated, and interconnected technological solutions for emergency teams
- + Develop a commonly agreed operational framework for multi-agency emergency response



INNOVATION

NIGHTINGALE will offer an
innovative toolkit designed for
emergency medical response during
mass casualty incidents

Triage and vital signs devices

Devices and mobile applications that assist with unique identification of victims and show the triage status of patients. The devices offer hands-free functionalities and visualisation of vital signs of patients

DEVICES

- DIGITAL TRIAGE TAG
- VITAL SIGNS EARPLUG
- FIRST RESPONDER WEARABLE
- TRiage AND VITAL SIGNS APP
- AUGMENTED REALITY GLASSES

Microelectronics
IoT
AR



Intelligent systems

Intelligent systems that enhance situational awareness and operational capacities of emergency teams. The systems provide information about mass casualty incident scenes quickly, supporting fast triage, diagnosis and prognosis of patients whilst allowing optimal utilization of resources and assets

DEVICES

- UAV RAPID TRIAGING SYSTEM
- THERMAL SCANNING SYSTEM
- RESOURCES AND ASSETS OPTIMISATION
- DIAGNOSIS AND PROGNOSIS SERVICE

AI



Interoperability and data fusion

Information-processing modules support interoperable access of heterogeneous data from the field and open data sources. The system integrates early warning notifications and provisional recommendations that can be communicated to victims and the general public.

DEVICES

- EARLY WARNING AND RISK ASSESSMENT
- DECISION SUPPORT SERVICE
- INTEROPERABLE DATA LAKE
- DATA LAYER

AI
Connectivity



Multi-Agency collaboration

Integrated systems that provide a common operational picture and advance coordination and cross-team collaboration of emergency medical services and civil protection agencies

DEVICES

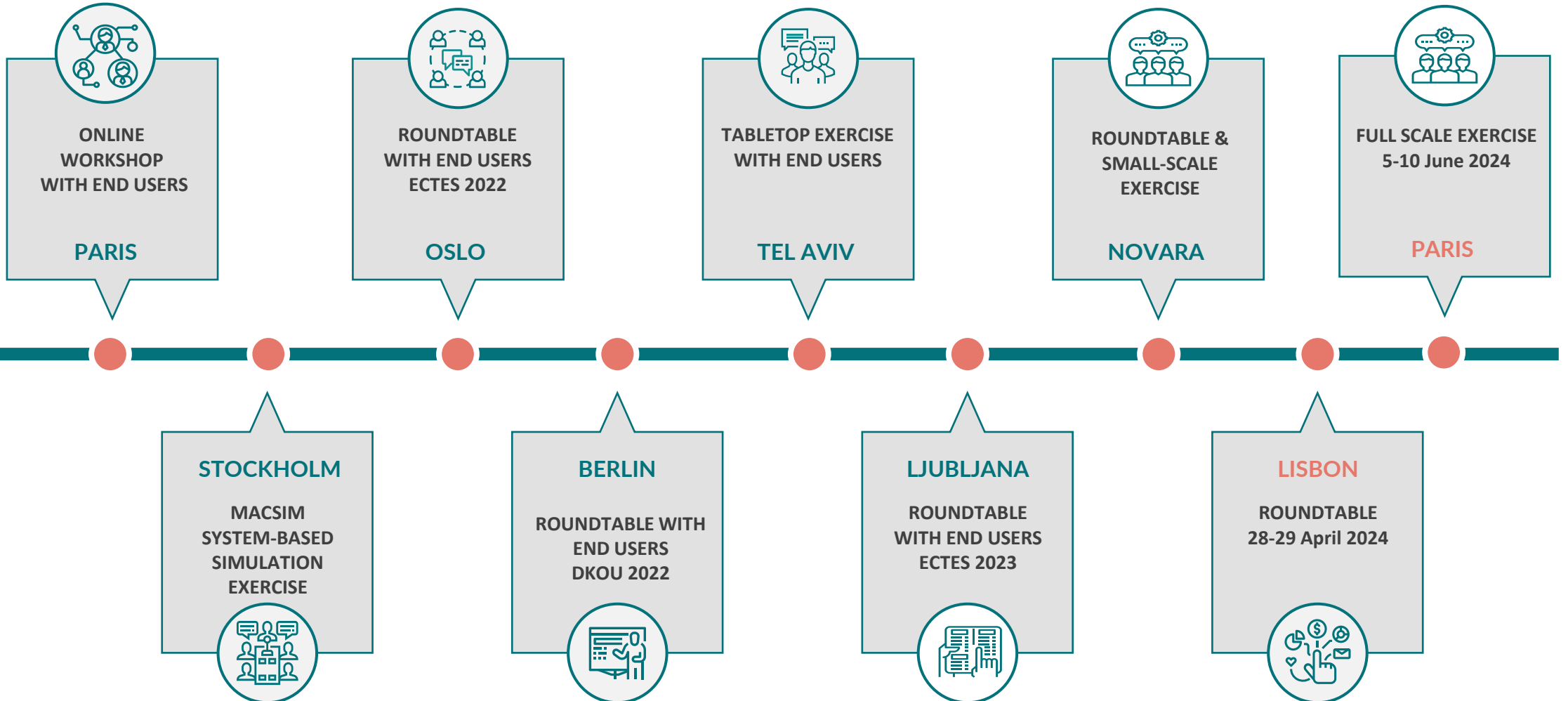
- (C3/IMS)*
- NG 112 (PSAP)**
- SWAPP APP
- SCENARIO BUILDER
- AUGMENTED REALITY SERVICE

Connectivity



*CC3/IMS = COMMAND, CONTROL AND COORDINATION & INCIDENT MANAGEMENT SYSTEM
**PSAP = PUBLIC SAFETY ANSWERING POINT

NIGHTINGALE Toolkit: user-centred design



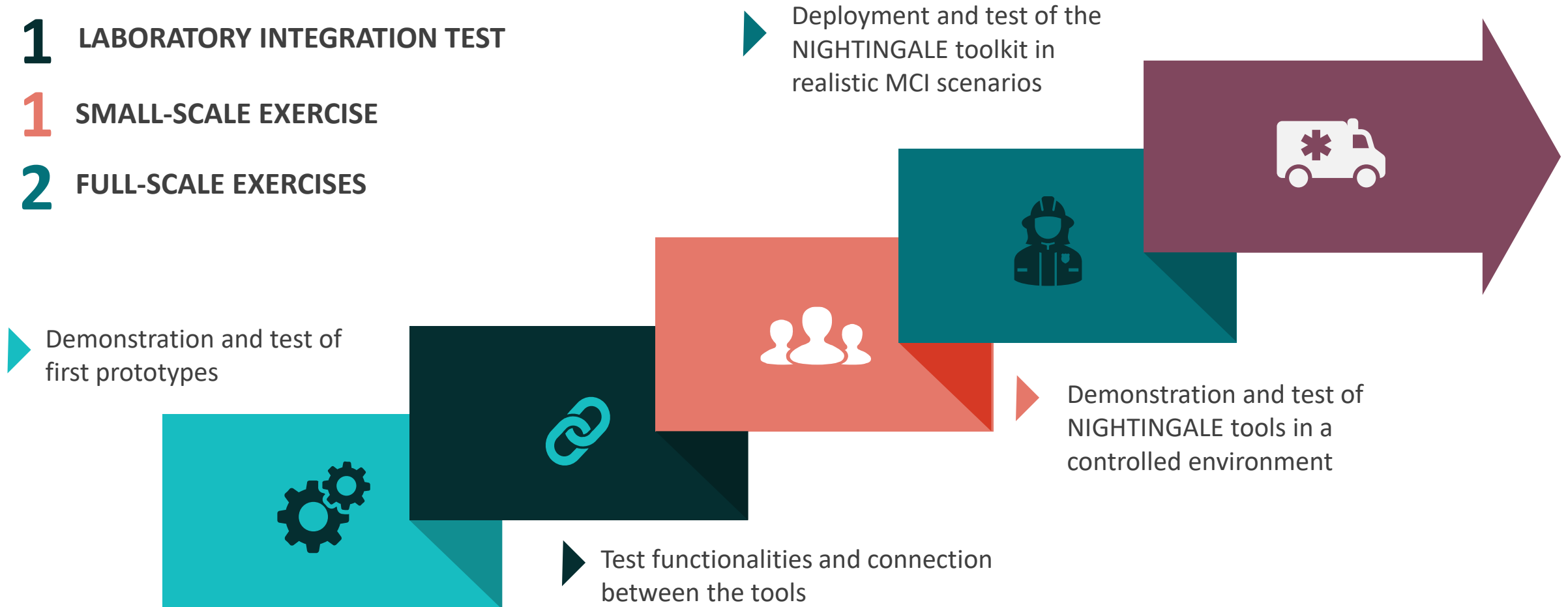
NIGHTINGALE Toolkit: Extensive validation and testing

2 TABLETOP EXERCISES

1 LABORATORY INTEGRATION TEST

1 SMALL-SCALE EXERCISE

2 FULL-SCALE EXERCISES



NIGHTINGALE SSX 16-20/10/2023

SMALL SCALE EXERCISE AND ROUND TABLE (END USER DRIVEN)



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NIGHTINGALE - SSX LOGISTICS

1. Organized and hosted by UPO at Novara, Italy (16-20/10/2023)
2. Two days Round table end user driven (at Novarelo)
 - ❖ Assessment current MCI Response plan & Creation KPIs and evaluations of an MCI Response plan
 - ❖ Legal/Ethical Impact of Toolkit use in MCI Response
3. Dedicated training sessions per tool to the players (at command center)
4. Tactical demo (at command center)
5. SSX: 2 scenarios, 25 victims, 4 runs in total (at Galliate [command center and field])
6. Debriefing sessions (players, observers, technical partners in parallel and one sessions with everyone)



Small Scale Exercise overview

SSX included:

- ❖ 2 scenarios, 25 victims, 16 players (operators) divided in 2 groups
- ❖ **Scenario 1:** explosion during a country fair
- ❖ **Scenario 2:** vehicle ramming during a political rally
- ❖ In total **4 runs of the SSXs scenarios** conducted and each group of players run both scenarios
- ❖ NIGHTINGALE toolkit **deployed in 2 different location** (tools and the command center and tools at the field) and managed to communicate and **exchange securely information/data**.
- ❖ **Immediately** when the incident reported all the tools and **agencies** (different FR teams) was **aware about the incident**.
- ❖ Teams at the **command center and the field** (field leader) had the **same view of the operation**.
- ❖ Immediately when a victim **triaged the information/data** was **available** at command center and **at any potential agency** has a command center (example hospital, civil protection, etc). **Information was transmitted in less than 2 seconds (in all locations field/command center/hospitals/etc) with no data loss.**





Projects have received funding from the European Union's Horizon 2020 & Horizon Europe programmes



A HORIZON 2020 RESEARCH PROJECT



NIGHTINGALE TRIAGE



www.nightingale-triage.eu



NIGHTINGALE Project



@NGTriageEU