




Deliverable D3.4 – Evaluation framework for the pilots

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Nature of the Deliverable		
R	Document, report (excluding the periodic and final reports)	X
DEM	Demonstrator, pilot, prototype, plan designs	
DEC	Websites, patents filing, press & media actions, videos, etc.	
OTHER	Software, technical diagram, etc.	

Dissemination Level		
PU	Public, fully open, e.g. web	X
CO	Confidential, only for members of the consortium (including the	

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Project Summary

PREPSHIELD aims to foster a more holistic and citizen-centric approach to health crisis preparedness and management, by co-creating policy recommendations, methods and an AI-powered platform for crisis management to better prepare for and address health emergencies from a social and societal perspective. To reach this objective, PREPSHIELD will rely on the participation of public authorities, citizens (specifically from vulnerable and non-compliant groups), Civil Society Organizations (CSOs), disaster Relief Organizations (DROs), and healthcare institutions. Based on the needs of these groups, PREPSHIELD will develop recommendations for health crisis preparedness, management and communication as well as tools to simulate future crises through an iterative process, involving various pilots for their evaluation. These pilots will include a communication pilot, tabletop exercises (TTE) and an online exercise, which will include all these stakeholders and take place at different scales in different countries: local (Hamburg, DE), regional (Piedmont, IT) and national (Romania). The online exercise will rely on a PREPSHIELD platform and app (built on




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the proven CRIMSON platform) to reproduce real-life crisis communication conditions and provide decision-makers with simulations and feedback on the behavior, wellbeing, capacities, and resources of the other stakeholders. The project brings together a complementary consortium of five universities, two public authorities, one Research and Technology Organization (RTO), two non-profit organizations, one Small Medium Enterprise (SME) and two large enterprises from seven European Union (EU) countries (and Switzerland).

Document objective and executive summary




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List of Partners

N°	Participant organization name	Acronym	Country
1	UNIVERSITÀ DEGLI STUDI DEL PIEMONTE ORIENTALE AMEDEO AVOGADRO	UPO	IT
2	RIJKSUNIVERSITEIT GRONINGEN	UG	NL
3	UNIVERSITETET I OSLO	UiO	NO
4	TECHNISCHE HOCHSCHULE KOELN	THK	DE
5	CS GROUP-FRANCE	CSG	FR
6	SOPRA STERIA GROUP	SSG	FR
7	EREVNITIKO PANEPISTIMIAKO INSTITOUTO SYSTIMATON EPIKOINONION KAI YPOLOGISTON	ICCS	EL
8	MINISTERUL AFACERILOR INTERNE	DSU	RO
9	SOCIETATEA NATIONALA DE CRUCE ROSIE DIN ROMANIA	RRC	RO
10	FREIE UND HANSESTADT HAMBURG EV.-LUTH. MARTIN LUTHER KING- KIRCHENGEMEINDE	FHH MLKS	DE DE
11	STEILSHOOP		
12	EUROQUALITY SAS	EQY	FR
13	UNIVERSITAT ZURICH	UZH	CH



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Abbreviations

CMT: Crisis Management Team

CSO: Civil Society Organizations

DoA: Description of Action

KPI: Key Performance Indicators

OECD: Organisation for Economic Co-operation and Development


TTE: Table-Top Exercise

WP: Work Package

Document Objective and Executive Summary

The objective of this Document is to present the PREPSHIELD Evaluation Framework and describe the methodology used in its design. Within the PREPSHIELD project, the Framework was developed with two primary aims: first, to assess the iterative process of the table-top exercises (TTEs) and online pilots conducted during the project—both with and without digital tools—by evaluating their implementation, including the clarity of objectives, participant engagement, and learning outcomes; and second, to test and evaluate the best practices for inclusive health crisis preparedness and management developed under Work Package 1. These objectives guided the design of the Framework, ensuring it facilitates the project’s iterative approach by allowing lessons learned from each exercise to inform ongoing improvements in both best practices and digital tools. This document further details the Framework itself, the methodology used to design it, the means of evaluation employed—namely the observation checklist and post-exercise survey—and presents key



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insights drawn from its first application in occasion of the first TTE in Hamburg in September 2025.

Introduction

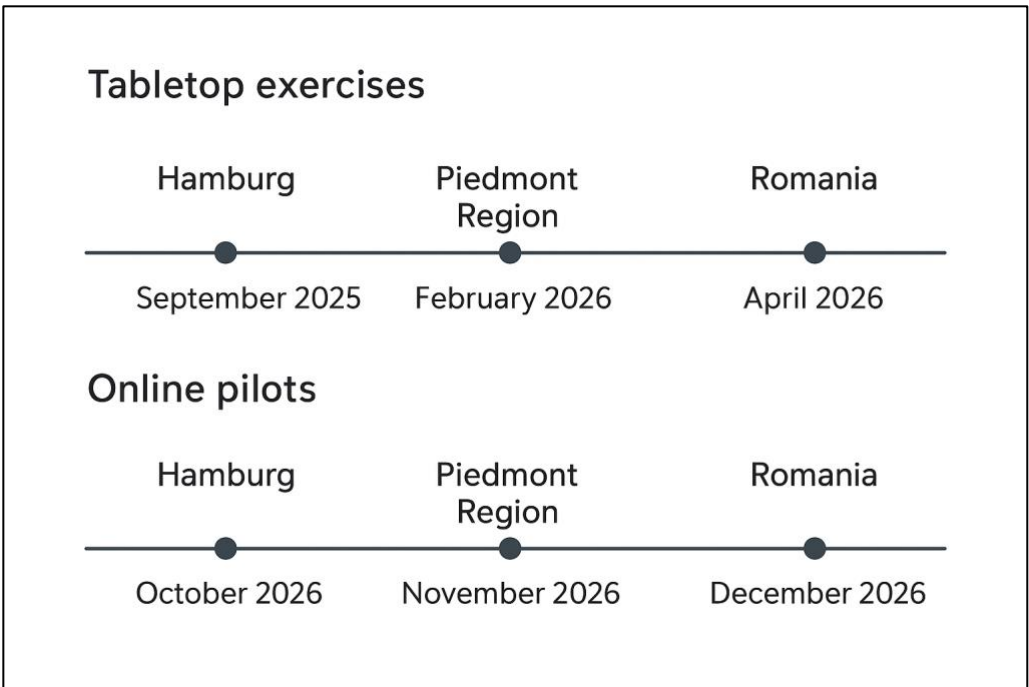
In the context of the PREPSHIELD project, the Evaluation Framework was developed with two primary objectives: the first is to assess the iterative process of the table-top exercises (TTEs) and online pilots conducted within the project timeframe – with and without the use of digital tools – by examining how these exercises are implemented, including the clarity of objectives, the level of participant engagement, and the learning outcomes. The second is to test and evaluate the best practices for inclusive health crisis preparedness and management (hereinafter, “best practices”) developed within Work Package 1 (Tasks 1.4 and 1.5). These best practices are tested during the exercises and iteratively refined based on the results obtained. The best practices developed under WP1, which are comprehensively documented in Deliverables D1.2 and D1.3, encapsulate the lessons learned in crisis preparedness and management, including aspects related to risk communication and health literacy.

Project exercises are designed to test decision-making, coordination processes, and organizational capacities in realistic crisis scenarios, such as epidemics and pandemics, with the ultimate aim of strengthening whole-of-society health crisis preparedness and management. To achieve this, they are designed to engage in a broad range of stakeholders across multiple governance levels. Participants include policymakers, disaster managers, communication experts, and healthcare professionals who constitute the Crisis Management Team (CMT), while civil society organizations (CSO) and citizens - including vulnerable and non-compliant groups identified in WP1 - constitute the Market Group. The exercises are divided into two main formats: TTEs, which are in-person, discussion-based




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sessions conducted at a strategic level, and online pilots, which are fully digital simulations conducted through the PREPSHIELD platform. They take place across three pilot sites of different scale: Hamburg (city level, Germany), the Piedmont Region (regional level, Italy), and Romania (national level). PREPSHIELD’s pilots are the result of specific combinations of context, actors, practices, and tools working together within particular governance and trust settings. This diversity allows the project to identify context-sensitive patterns and transferable lessons across scales. The graph below shows the timeframe for the TTEs and online pilots carried out as part of the PREPSHIELD project in the different sites.



All participants receive preparatory training developed within WP3 (Deliverable 3.2) and delivered by the pilot leaders. On the one hand, training for the CMT is designed to ensure a common understanding of the PREPSHIELD best practices, which are to be applied during the project exercises. In parallel, the market group receives a specific training on basic




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pandemic concepts to ensure a shared understanding of the context, followed by a targeted preparation on the exercise structure (whether a TTE or an online simulation), and on their specific roles within it. The Evaluation Framework is applied throughout these exercises to monitor their implementation and support the objectives outlined in Task 3.5.

Another objective of the project is to assess the use of digital tools – the PREPSHIELD mobile app and the AI-powered platform – by collecting feedback from stakeholders during the exercises. The Evaluation Framework has been designed to align with the PREPSHIELD project’s iterative methodology, which involves multiple pilot exercises serving as feedback loops for continuous improvement of both the tools and the framework itself.

In parallel, Subtask 3.5.3, started in M13 and led by UZH, complements the PREPSHIELD Evaluation Framework by assessing the potential impacts of participants’ decisions during the exercises. While the Framework presented in this Deliverable evaluates the implementation of best practices and the way the pilots are conducted, Subtask 3.5.3 has a distinct focus, examining the health, wellbeing, economic, and environmental consequences of these decisions, based on predetermined criteria and assumptions defined in Task 2.1 (Scenario definition for pilots). For example, a decision to implement a lockdown with mobility restrictions may reduce air pollution (environmental benefit) but negatively affect economic activity and individual wellbeing. This impact-oriented, meta-level analysis identifies key decision crossroads and informs the debriefing phase, helping participants to understand the broader consequences of their decisions through epidemiological modelling and enhancing their preparedness for managing health emergencies. Findings from the evaluation conducted under Subtask 3.5.3 will contribute to the refinement of Deliverable 2.1 “Forward-looking health crisis scenarios”, which outlines potential future health crises, their origins, and their multidimensional impact.



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Methodology

The Evaluation Framework was developed in alignment with the Organisation for Economic Co-operation and Development (OECD) Evaluation Criteria (1), which provides a normative foundation for assessing the value of development interventions (policy, strategy, programme, project, or activity). The OECD framework includes six criteria: relevance, coherence, effectiveness, efficiency, impact, and sustainability, which serve as complementary lenses to understand an intervention’s merit. According to the OECD, these criteria should be viewed as complementary lenses through which an intervention can be examined and understood (1).

These OECD criteria were adapted to the PREPSHIELD context of simulation-based testing of best practices and digital tools for health crisis preparedness. Given that table-top exercises (TTEs) and online simulations aim primarily to test and validate best practices and tools rather than to measure long-term outcomes, some criteria were intentionally modified, merged, or excluded:

- *Effectiveness* was removed, as outcome-level results (e.g., health or policy impacts) cannot be meaningfully assessed within the short-term timeframe of simulation-based testing.
- *Sustainability* and impact were merged into a single feasibility criterion, reflecting the project’s focus on the practical applicability, usability, and scalability of both best practices and digital tools.
- *Coherence* was considered embedded in the project design, as both the best practices and the TTE storybook were developed through a research-driven process (WP1) involving an extensive literature review and stakeholder consultations. This ensured internal and contextual alignment from the outset.



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Consistent with OECD recommendations, the criteria were applied flexibly, according to the specific evaluation context and stakeholder needs. As a result, the PREPSHIELD Evaluation Framework focused on three main criteria (relevance, efficiency, and feasibility) as they are deemed most suitable for the evaluation within simulation exercises:

- *Relevance* assesses whether the intervention (best practice or tool) addresses the appropriate needs and objectives.
- *Efficiency* evaluates whether available resources are used optimally to achieve intended outcomes.
- *Feasibility* examines whether the tested approaches are practical, scalable, and sustainable.

Based on this adapted Evaluation Framework, Key Performance Indicators (KPIs) were developed to operationalize the criteria of relevance, efficiency, and feasibility within the PREPSHIELD context. The KPIs addressed two complementary dimensions: the implementation of best practices, and the execution of the simulation exercises (process-related KPIs).

KPIs for best practices were directly derived from the co-created content of WP1. They capture how each best practice was applied during the exercises – whether through procedural actions or participant behaviors – and are linked to one of the three OECD-derived criteria. As per Task 6.2, which falls within the project management domain, process-related KPIs were co-developed with project partners to ensure that all aspects of the organization and implementation of the exercises were adequately represented. These KPIs also serve to evaluate and improve the way the pilots are conducted, particularly in terms of their effectiveness in creating a realistic environment and engaging participants. These include, for example, the alignment of the storybook with project objectives, the



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usability of the digital tools (mobile app and platform), and the overall level of participant engagement. A preliminary set of process KPIs was drafted by UPO and subsequently refined through partner consultation, ensuring coverage of all relevant dimensions and allowing for the addition of new indicators where needed. The KPI structure and logic were informed by existing international frameworks (e.g., WHO PanPRET-1 tabletop simulation on respiratory pathogens), which include similar process indicators such as the level of engagement and clarity of coordination mechanisms.


The structure of each KPI presented in the Evaluation Framework is presented in the table below.

Description	Provides a concise explanation of the KPI, including its purpose and scope
Definition	Clearly defines the KPI, outlining the measurement criteria and calculation method
Target value	Specifies the desired or expected performance level for the KPI
Reference	Indicates the source or standard used as a benchmark for the KPI
Verification	Describes the method or data source used to verify KPI results
Relevance with the requirements	Explains how the KPI aligns with and supports project or organizational requirements
Priority	States the relative importance of the KPI in the overall Evaluation Framework

Table 1: Structure of each KPI

For each KPI of the Evaluation Framework, a KPI target value (the desired or expected level of achievement for that indicator) was established. As no quantitative benchmarks exist in the literature for these specific indicators, target values were determined through researcher judgment and contextual feasibility analysis, ensuring that they were ambitious but realistic within the scope of the simulation exercise, consistent with project activities and stakeholders' expectations, and comparable across pilot sites for cross-case analysis. This



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also aligns with OECD’s recommendations that evaluation frameworks should balance rigor with adaptability (1).

In addition to the target values, each KPI included two descriptive fields: “*Relevance with requirements*” and “*Priority*”. The “*Relevance with requirements*” field to clarify its scope and relative importance within the Evaluation Framework. It specifies the degree to which a KPI aligns with the objectives and commitments defined in the project’s Description of Action (DoA). When a KPI is marked as “DoA,” it indicates that the indicator directly addresses a requirement or expected outcome formally defined in the project’s approved work plan.

On the other hand, the “*Priority*” field reflects the relative importance of the KPI within the overall Evaluation Framework. A “*High*” priority designation signifies that the KPI measures a critical aspect of project performance, essential for assessing the achievement of core objectives, while “*Medium*” or “*Low*” priorities denote indicators that provide supportive or complementary insights.

The KPIs were then operationalized through two measurable and complementary components: post-exercise surveys and the observation checklists (reported in the following sections). Both aim to qualitatively capture the exercise performance as well as participants’ perceptions. Specifically, the post-exercise survey and the observation checklist were designed to ensure comprehensive coverage of all dimensions of the Evaluation Framework, encompassing both process-related aspects (e.g., facilitation, participant engagement) and the application of best practices developed in WP1 (see paragraph “First application of the Evaluation Framework: the TTE in Hamburg”).



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The post-exercise surveys were developed and tailored to two specific target groups corresponding to the participants in the TTEs: the CMT and the Market Group. The two different post-exercise surveys were therefore adapted in wording, focus, and examples to ensure accessibility and relevance for each audience. In addition, local partners supported the translation of them for their application on each pilot site. The questions used a 5-point Likert-scale to capture perceptions of clarity and satisfaction, ensuring comparability across pilot sites.

The overall structure and logic of the surveys were informed by existing evaluation frameworks applied in epidemic-response TTE (2) thereby ensuring methodological coherence with established practices in health crisis preparedness assessment.

The observation checklist created to be used by experts during TTEs combined quantitative indicators (e.g., frequency of use of predefined templates, number of decisions taken by the CMT or market group) with qualitative observations (e.g., participant interaction quality, clarity of decision-making, or inclusiveness of communication). This mixed-methods approach enables evaluators to capture both measurable outcomes and contextual nuances of performance.

Together, the surveys and observation checklist provide complementary perspectives: while the checklist captures real-time behavioral data and decision-making procedures, the surveys gather reflective feedback from participants, allowing for triangulation of evidence and a comprehensive assessment of both the process quality and the implementation of best practices within PREPSHIELD.



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Structure and Key components

In this section, the Evaluation Framework is presented along with its relative complementary components: the post-exercise surveys and the observation checklist. The KPIs correspond to the different components of the Evaluation Framework. The framework presented here was specifically designed to test the best practices within the TTEs; small adaptations will be required for the evaluation within the online exercises.

Specifically, there are KPIs related to the best practices, KPIs related to the process, and KPIs related to the process including the use of digital tools, and are color-coded accordingly:

- KPI of the best practices (green)
- KPI of the process (blue)
- KPI of the process with the use of digital tools (orange)



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Evaluation Framework

KPIs of best practices: KPI_bp

KPI ID: Central coordination _ bp 1a	
Description	Centralized coordination with a clear chain of command structure
Definition	Time (in minutes) from crisis onset to activation of centralized coordination structure (e.g., formal CMT response)
Target value	≤ 30 minutes
Reference	Efficiency indicator <ul style="list-style-type: none"> OECD Criteria
Verification	Observation checklist (Yes/No) <ul style="list-style-type: none"> Recorded time (minutes) from crisis onset to activation
Relevance with requirements	DoA
Priority	High

KPI ID: Local coordination _ bp 1b	
Description	Local coordination
Definition	Time (in minutes) from crisis onset to when local actors (e.g., district health authority, municipal officials, CSOs) are formally included in coordination
Target value	≤ 45 minutes
Reference	Efficiency indicator <ul style="list-style-type: none"> OECD Criteria




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Verification	Observation checklist
Relevance with requirements	DoA
Priority	High

KPI ID: Coordination Structure_ bp 1c	
Description	Perceived clarity of coordination structure across central/local levels
Definition	Percentage of coordinating participants who report high clarity in roles and responsibilities
Target value	≥ 80% report high involvement
Reference	Relevance indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Post-exercise survey (Likert scale)
Relevance with requirements	DoA
Priority	High

KPI ID: Coordination Structure_ bp 1d	
Description	Perceived authority among local actors
Definition	Percentage of coordinating local actors who report high involvement in roles and responsibilities
Target value	≥ 80% report clear structure
Reference	Relevance indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Observation checklist




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	Post-exercise survey (Likert scale)
Relevance with requirements	DoA
Priority	High

KPI ID: Digitalization of the system _ bp 2	
Description	Interoperable digital tools for information sharing and dissemination
Definition	Percentage of updates on health guidelines and protocols that are uploaded and disseminated through the centralized digital platform, with feedback channels enabled
Target value	≥ 80% of updates are digitally disseminated through the centralized system within the agreed timeframe
Reference	Relevance indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Observation checklist
Relevance with requirements	DoA
Priority	High

KPI ID: Inclusive coordination _ bp 3a	
Description	Inclusive structures engaging civil society and vulnerable groups in health crisis decisions
Definition	Percentage of decisions reviewed or influenced by vulnerable group representatives.
Target value	≥ 50%




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Reference	Relevance indicator • OECD Criteria
Verification	Post-exercise survey, Observation checklist
Relevance with requirements	DoA
Priority	Medium

KPI ID: Inclusive coordination _ bp 3b	
Description	Inclusive structures engaging civil society and vulnerable groups in health crisis decisions
Definition	Percentage of participants (vulnerable group representatives) that report health measures are inclusive and supported by clear guidelines
Target value	≥ 80%
Reference	Relevance indicator • OECD Criteria
Verification	Post-exercise survey
Relevance with requirements	DoA
Priority	Medium

KPI ID: Inclusive coordination _ bp 3c	
Description	Inclusive structures engaging civil society and vulnerable groups in health crisis decisions




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Definition	Percentage of participants (vulnerable group representatives) who rate health measures and guidelines as contextually appropriate (e.g., in Hamburg)
Target value	≥ 80%
Reference	Relevance indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Post-exercise survey (Likert scale)
Relevance with requirements	DoA
Priority	Medium

KPI ID: Data collection_ bp 4	
Description	Digital collection of crisis-relevant data relative to the functionality of the platform
Definition	Percentage of crisis-relevant data collected (number of beds, number of resources utilized, etc.) through the digital platform)
Target value	≥ 80%
Reference	Relevance indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Observation checklist
Relevance with requirements	DoA
Priority	High

KPI ID: Data protection_ bp 5	
Description	Safeguarding health and personal data in emergencies




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Definition	Digital health data management processes (e.g., case reporting, testing, vaccination tracking) that comply with data protection principles (necessity, security, limited access, and transparency to the public)
Target value	100% compliance
Reference	Relevance indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Observation checklist
Relevance with requirements	DoA
Priority	Medium

KPI ID: Trained spokespeople _ bp 6a	
Description	Clear and coordinated risk communication
Definition	Percentage of official risk communication disseminated by trained spokespersons through pre-established channels
Target value	≥ 80%
Reference	Observation checklist (Yes/No)
Verification	Efficiency indicator <ul style="list-style-type: none"> • OECD Criteria
Relevance with requirements	DoA
Priority	High




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KPI ID: Communication templates _ bp 6b	
Description	Clear and coordinated risk communication
Definition	Percentage of risk communication messages using pre-tested templates
Target value	≥ 80%
Reference	Observation checklist
Verification	Feasibility indicator
Relevance with requirements	DoA
Priority	High

KPI ID: Communication facilitators _ bp 7	
Description	Community-based facilitators and CSOs
Definition	Percentage of total messages directed at marginalized groups that were disseminated through civil society organizations or trusted local community facilitators
Target value	≥ 80% of messages targeting vulnerable groups disseminated via trusted civil society organizations or community facilitators
Reference	Feasibility indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Observation checklist, post-exercise survey (Likert scale)
Relevance with requirements	DoA
Priority	Medium




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KPI ID: Communication delivery _ bp 8	
Description	Audience-centered communication delivery
Definition	Percentage of target population groups reporting that communication reached them through their preferred or commonly used channels
Target value	≥80%
Reference	Relevance indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Observation checklist, post-exercise survey
Relevance with requirements	DoA
Priority	Medium

KPI ID: Positive and transparent communication _ bp 9	
Description	Positive, empathetic and transparent communication strategies
Definition	Percentage of target groups reporting messaging that is positive, empathetic, and transparent
Target value	≥80%
Reference	Relevance indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Post-exercise survey (Likert scale)
Relevance with requirements	DoA
Priority	High



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KPI ID: Multilingual communication_ bp 10	
Description	Culturally adapted communication in multiple languages
Definition	Number of languages into which the communication messages were translated
Target value	≥ 2 (local language + at least one extra one)
Reference	Relevance indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Observation checklist, self-reported survey (Likert scale)
Relevance with requirements	DoA
Priority	Medium

KPI ID: Visual aids_ bp 11	
Description	Communication of official messages using visual aids
Definition	Percentage of communication strategies incorporating visual aids
Target value	≥ 80% of communications
Reference	Relevance indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Observation checklist
Relevance with requirements	DoA
Priority	Low

KPI ID: Simple language _ bp 12



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Description	Clear and people-centered communication
Definition	Percentage of guidelines, protocols, and key instructions written in a simple language that is easy to understand
Target value	≥ 80% of communications
Reference	Relevance indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Post-exercise survey (Yes/No)
Relevance with requirements	DoA
Priority	High


KPI ID: Low health literacy support_ bp 13

Description	Trained community actors or volunteers served as intermediaries to help groups with low health literacy understand medical information
Definition	Percentage of vulnerable people satisfied with communication support received from volunteers or community actors
Target value	≥ 80% satisfaction
Reference	Relevance indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Post-exercise survey
Relevance with requirements	DoA
Priority	Medium

KPI ID: Digital health literacy_ bp 14




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Description	Access of citizens, including vulnerable groups, to digital tools for information and peer support
Definition	Percentage of citizens, including vulnerable groups, who can use digital tools, after the training, to stay updated on health measures
Target value	80%
Reference	Relevance indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Observation checklist, post-exercise survey (Yes/No)
Relevance with requirements	DoA
Priority	Medium

KPI ID: Training for emergency responders_ bp 15 a	
Description	Deployment and peer support by health-literate emergency responders
Definition	Percentage of emergency responders that demonstrate ability to communicate using plain language and visual/inclusive methods
Target value	≥ 80%
Reference	Relevance indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Observation checklist
Relevance with requirements	DoA
Priority	Low




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KPI ID: Training for emergency responders_ bp 15 b	
Description	Deployment and peer support by trained health-literate emergency responders
Definition	Percentage of emergency responders that provide peer support to colleagues during the exercise
Target value	≥ 80%
Reference	Relevance indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Post-exercise survey (Likert scale), observation checklist
Relevance with requirements	DoA
Priority	Medium

KPI ID: Surge capacity _ bp 16a	
Description	Alignment of repurposed health services with priority needs during a surge crisis
Definition	Percentage of observed surge response actions (e.g., ICU expansion, staff redeployment, triage adjustment) that correspond directly to the needs identified
Target value	≥ 80% of observed surge actions match assessed needs
Reference	Efficiency indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Observation checklist
Relevance with requirements	DoA
Priority	High



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KPI ID: Infection control_ bp 17	
Description	Infection control measures
Definition	Implementation of physical separation, infection control procedures, and patient space repurposing
Target value	100% compliance
Reference	Efficiency indicator <ul style="list-style-type: none"> OECD Criteria (Likert scale)
Verification	Observation checklist
Relevance with requirements	DoA
Priority	High

KPI ID: Continuity of care _ bp 18	
Description	Continuity of patient care through digital health solutions during crisis simulation
Definition	Percentage of vulnerable individuals who successfully understood the modality to access chronic and preventive care using digital health solutions or alternative modalities (telemedicine)
Target value	80%
Reference	Relevance indicator <ul style="list-style-type: none"> OECD Criteria
Verification	Observation checklist
Relevance with requirements	DoA
Priority	High

KPI ID: Quality of care _ bp 19



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Description	Provision of patient remote communication access
Definition	Extent to which staff follow the established protocol for allocating hospital-issued devices to maintain contact with patients' relatives
Target value	100% compliance
Reference	Feasibility indicator
Verification	Observation checklist
Relevance with requirements	DoA
Priority	Medium

KPI ID: Staff protocols _ bp 20	
Description	Clear and flexible staff protocols
Definition	Establishment of clear protocols with predefined roles and work schedules for health care staff during a surge crisis
Target value	100% compliance
Reference	Efficiency indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Observation checklist
Relevance with requirements	DoA
Priority	Medium

KPI ID: Staff redeployment _ bp 21	
Description	Staff redeployment during surge
Definition	Establishment of clear protocols for redeployment of staff with appropriate




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	competencies and verified skills after surge activation
Target value	100% compliance
Reference	Efficiency indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Observation checklist
Relevance with requirements	DoA
Priority	Medium

KPI ID: Staff mental health _ bp 22	
Description	Staff psychological support
Definition	Establishment of a mental health support mechanism for staff
Target value	At least $\geq 80\%$
Reference	Feasibility indicator
Verification	Post-exercise survey (Likert scale)
Relevance with requirements	DoA
Priority	Medium

KPI ID: Staff training _ bp 23	
Description	Health crisis training and upskilling
Definition	Percentage of health responders feeling satisfied with emergency upskilling and training during a crisis
Target value	$\geq 80\%$ satisfaction
Reference	Feasibility indicator
Verification	Post-exercise survey
Relevance with requirements	DoA




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Priority	Low
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KPI ID: Availability of resources _ bp 24	
Description	Effective coordination and allocation of limited resources during a crisis
Definition	Percentage of effective coordination and allocation of critical supplies and resources
Target value	≥ 80%
Reference	Feasibility indicator
Verification	Post-exercise survey
Relevance with requirements	DoA
Priority	High

KPI ID: Distribution of supplies _ bp 25	
Description	Prioritization of supply distribution
Definition	Time taken to coordinate and prioritize distribution of supplies to critical areas
Target value	Target ≤ x (tbd based on the new storybook)
Reference	Efficiency indicator <ul style="list-style-type: none"> • OECD Criteria
Verification	Observation checklist <ul style="list-style-type: none"> • Recorded time (minutes) from crisis onset to activation
Relevance with requirements	DoA
Priority	High



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KPIs process

KPI ID: Training before simulation_pro	
Description	Usefulness of the training
Definition	Percentage of participants reporting that the training improved their understanding of best practices and exercise objectives
Target value	≥80% of participants reporting it
Reference	Relevance indicator
Verification	Post-exercise survey
Relevance with requirements	Derived from DoA
Priority	High

KPI ID: Learning objectives_pro	
Description	Alignment between pilot and project objectives
Definition	Degree of alignment between pilot exercise objectives and the overarching project goals
Target value	90% alignment between objectives
Reference	-
Verification	Observation checklist
Relevance with requirements	Derived from DoA
Priority	High

KPI ID: Participant engagement_pro	
Description	Participant contribution
Definition	Level of active participation and contribution during the exercise (e.g., providing input, engaging in discussions, interacting with other participants)
Target value	≥80% of participants actively contributed



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Reference	-
Verification	Observation checklist Post-exercise survey
Relevance with requirements	Derived from DoA
Priority	High

KPI ID: Participant knowledge_pro	
Description	Acquired knowledge
Definition	Percentage of participants (both from vulnerable groups and crisis management team) who report they have acquired new knowledge or awareness
Target value	≥80% of participants reporting it
Reference	-
Verification	Post-exercise survey
Relevance with requirements	Derived from DoA
Priority	High

KPI ID: Participant satisfaction_pro	
Description	Participant satisfaction with the conduct of the program
Definition	Percentage of participants reporting satisfaction with the whole process
Target value	≥80% of participants reporting it
Reference	-
Verification	Post-exercise survey
Relevance with requirements	Derived from DoA
Priority	High

KPI ID: Vulnerable population engagement_pro	
Description	Participation of vulnerable groups




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Definition	Level of active participation and contribution during the exercise (e.g., providing input, engaging in discussions, interacting with other participants)
Target value	≥80% of participants actively contributed
Reference	-
Verification	Observation checklist Post-exercise survey
Relevance with requirements	Derived from DoA
Priority	High

KPI ID: Debriefing session 1_pro	
Description	Usefulness of the debriefing session
Definition	Extent to which debriefing sessions helped identify areas of improvement
Target value	≥75% of participants finding debriefing session useful
Reference	Relevance indicator
Verification	Observation checklist Post-exercise survey
Relevance with requirements	Derived from DoA
Priority	Medium

KPI ID: Debriefing session 2_pro	
Description	Improvement of the best practices
Definition	Extent to which debriefing sessions helped extract other best practices
Target value	≥3 extra best practices per exercise
Reference	Post-exercise debriefing
Verification	Observation checklist
Relevance with requirements	Derived from DoA
Priority	High




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KPI ID: Debriefing session 3_pro	
Description	Compliance of storybook and supporting material with predefined criteria
Definition	Extent to which the storybook and additional material were appropriate
Target value	100% compliance
Reference	Post-exercise debriefing
Verification	Observation checklist
Relevance with requirements	Derived from DoA
Priority	High

KPI ID: Debriefing session 4_pro	
Description	Execution of TTE
Definition	Extent to which the duration of the TTE was adequate
Target value	80% participant satisfaction
Reference	Post-exercise debriefing
Verification	Observation checklist Post-exercise survey
Relevance with requirements	Derived from DoA
Priority	High

KPI ID: Debriefing session 5_pro	
Description	Number of participants
Definition	Extent to which the number of participants was adequate
Target value	100% compliance
Reference	Post-exercise debriefing



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Verification	Observation checklist
Relevance with requirements	Derived from DoA
Priority	High


KPIs process (with the use of digital tools)

KPI ID: Platform clarity	
Description	Clarity of the platform
Definition	Percentage of participants declaring clarity of the platform
Target value	80% participant satisfaction
Reference	
Verification	Observation checklist Post-exercise survey
Relevance with requirements	Derived from DoA
Priority	High

KPI ID: Platform usability	
Description	User friendly platform
Definition	Percentage of participants declaring usability of the platform
Target value	80% participant satisfaction
Reference	
Verification	Observation checklist Post-exercise survey
Relevance with requirements	Derived from DoA
Priority	High

KPI ID: Mobile app clarity	
Description	Clarity of the mobile app



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Definition	Percentage of participants declaring clarity of the mobile app
Target value	80% participant satisfaction
Reference	
Verification	Observation checklist Post-exercise survey
Relevance with requirements	Derived from DoA
Priority	High

KPI ID: App usability	
Description	User friendly app
Definition	Percentage of participants declaring usability of the app
Target value	80% participant satisfaction
Reference	
Verification	Observation checklist Post-exercise survey
Relevance with requirements	Derived from DoA
Priority	High

Post-exercise survey (Vulnerable group and market group)


1. Did you understand your role and responsibilities within the coordination structure (e.g. tasks, roles, processes or persons that are coordinated with each other) during the crisis response?

1 – Not at all

2 – Slightly

3 – Moderately



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4 – Significantly

5 – Fully

2. Did you feel that you were meaningfully involved in the coordination (e.g., tasks, roles, processes or persons that are coordinated with each other) and decision-making processes during the crisis response?

1 – Not at all involved

2 – Slightly involved

3 – Moderately involved

4 – Very involved

5 – Fully involved

3. Did you feel your input (or your group’s input) influenced the decisions made during the crisis response?

1 – Not at all

2 – Slightly

3 – Moderately

4 – Significantly

5 – Fully


4. How clear, and accessible are the health guidelines received from the crisis management team?

1 – Not at all

2 – Slightly

3 – Moderately



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4 – Significantly

5 – Fully

5. How useful are the health guidelines from the crisis management team for you personally ?

1 – Not at all

2 – Slightly

3 – Moderately

4 – Significantly

5 – Fully

6. Did you feel that the communication of the health guidelines during the exercise was positive, empathetic, and transparent?

1 – Not at all

2 – Slightly

3 – Moderately

4 – Significantly

5 – Fully

7. Was the information received clear in the language familiar to you?

1 – Not at all


2 – Slightly

3 – Moderately

4 – Significantly

5 – Fully



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8. Was the communication of the health guidelines during the exercise clear and understandable to you?

- 1 – Not at all
- 2 – Slightly
- 3 – Moderately
- 4 – Significantly
- 5 – Fully


9. How satisfied are you with the communication support (assistance in getting and sharing information) you received from citizens or community actors (local helpers) during the exercise?

- 1 – Not at all
- 2 – Slightly
- 3 – Moderately
- 4 – Significantly
- 5 – Fully

10. How satisfied are you with your level of engagement during the exercise? (e.g. interaction with other participants, ability to share experiences and ideas)

- 1 – Not at all
- 2 – Slightly
- 3 – Moderately
- 4 – Significantly
- 5 – Fully



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11. Did you feel you acquired new knowledge during the exercise? (e.g., experiencing how crisis management works, how it is managed...)

- 1 – Not at all
- 2 – Slightly
- 3 – Moderately
- 4 – Significantly
- 5 – Fully


12. Do you agree with the statement: “The exercise showed me both what I can do well and what I still need to improve in understanding the response system of crisis management”?

- 1 – Strongly disagree
- 2 – Disagree
- 3 – Neither agree nor disagree
- 4 – Agree
- 5 – Strongly agree

13. Do you feel that you and the other participants will be better prepared for a future health emergency and understand how decisions are made?

- 1 – Strongly disagree
- 2 – Disagree
- 3 – Neither agree nor disagree
- 4 – Agree
- 5 – Strongly agree



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14. Do you feel satisfied with the whole exercise process? (e.g., flow of activities, realism of the scenario, timing, guidance during the exercise)

- 1 – Not at all
- 2 – Slightly
- 3 – Moderately
- 4 – Significantly
- 5 – Fully


15. Do you feel satisfied with the debriefing session? (e.g., opportunity to share your views, moderation, etc.).

- 1 – Not at all
- 2 – Slightly
- 3 – Moderately
- 4 – Significantly
- 5 – Fully

16. Do you feel satisfied with the duration of the exercise? (e.g., not too long, not too short)

- 1 – Not at all
- 2 – Slightly
- 3 – Moderately
- 4 – Significantly
- 5 – Fully



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Post-exercise survey (CMT)

(referred to bp 1c)

1. To what extent did you understand your role and responsibilities within the coordination structure during the crisis response?

- 1 – Not at all
- 2 – Slightly
- 3 – Moderately
- 4 – Significantly
- 5 – Fully

(referred to bp16)


2. To what extent do you feel actions to increase surge capacity consistent with the needs identified during the crisis?

- 1 – Not at all
- 2 – Slightly
- 3 – Moderately
- 4 – Significantly
- 5 – Fully

3. To what extent were non-essential services repurposed appropriately without undermining other critical functions?

- 1 – Not at all
- 2 – Slightly
- 3 – Moderately



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4 – Significantly

5 – Fully

PROCESS

(referred to Training)

4. To what extent did you feel the training was useful in understanding the best practices?

1 – Not at all

2 – Slightly

3 – Moderately

4 – Significantly

5 – Fully

(referred to Participant Knowledge)

5. To what extent did you feel you acquired new knowledge during the exercise? (e.g., communication strategies, adapting protocols in a rapidly evolving health crisis, managing limited resources, communication between different actors, etc.)

1 – Not at all

2 – Slightly


3 – Moderately

4 – Significantly

5 – Fully

6. To what extent do you agree with the statement: “The exercise helped me identify some of my strengths as well as some of the gaps in my understanding of the response systems, plans and procedures.”?



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- 1 – Strongly disagree
- 2 – Disagree
- 3 – Neither agree nor disagree
- 4 – Agree
- 5 – Strongly agree

7. To what extent do you feel that you and the other participants are better prepared for a future health emergency after the exercise?

- 1 – Strongly disagree
- 2 – Disagree
- 3 – Neither agree nor disagree
- 4 – Agree
- 5 – Strongly agree


(referred to Participant satisfaction)

8. To what extent do you feel satisfied with the whole exercise process? (e.g., flow of activities, realism of the scenario, timing, guidance during the exercise)

- 1 – Not at all
- 2 – Slightly
- 3 – Moderately
- 4 – Significantly
- 5 – Fully

(referred to Debriefing session 1)



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9. To what extent do you feel satisfied with the debriefing session? (e.g., opportunity to share your views, moderation, etc.).

- 1 – Not at all
- 2 – Slightly
- 3 – Moderately
- 4 – Significantly
- 5 – Fully

(referred to Debriefing question 4)

10. To what extent do you feel satisfied with the duration of the exercise?

- 1 – Not at all
- 2 – Slightly
- 3 – Moderately
- 4 – Significantly
- 5 – Fully


PROCESS WITH THE DIGITAL TOOLS

(referred to Platform clarity)

11. To what extent do you feel the platform was clear and easy to understand? (e.g., easy to move between screens, buttons, or steps without getting lost? Were the words simple and familiar, not too technical? Did icons or pictures help you know what to do?

- 1 – Strongly disagree
- 2 – Disagree
- 3 – Neither agree nor disagree



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4 – Agree

5 – Strongly agree

(referred to Platform usability)

12. To what extent do you feel the platform was user-friendly?

1 – Strongly disagree

2 – Disagree

3 – Neither agree nor disagree

4 – Agree

5 – Strongly agree

(referred to Application clarity)

13. To what extent do you feel the app was clear and easy to understand? (e.g., easy to move between screens, buttons, or steps without getting lost? Were the words simple and familiar, not too technical? Did icons or pictures help you know what to do?

1 – Strongly disagree

2 – Disagree

3 – Neither agree nor disagree

4 – Agree


5 – Strongly agree

(referred to Application usability)

14. To what extent do you feel the app was user-friendly?

1 – Strongly disagree



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- 2 – Disagree
- 3 – Neither agree nor disagree
- 4 – Agree
- 5 – Strongly agree

Observation checklist

To facilitate the evaluation process, the items in the observation checklist are organized according to the sequence of injects presented in the TTE storybook. This structure enables evaluators to follow the flow of the exercise in real time, recording observations as each inject or event unfolds.

Color code:

OBSERVATION CHECKLIST - Best practices


OBSERVATION CHECKLIST - Digital tools

OBSERVATION CHECKLIST- Process

KPI ID: Central coordination _ bp 1a				
	Yes	Partially	No	N/A
Was the centralized coordination structure activated?				
Was the centralized coordination structure activated?				
Comments				

KPI ID: Local coordination _ bp 1b				
	Yes	Partially	No	N/A



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Was the local coordination structure activated?				
Were the local actors included in the coordination structure within 30 minutes from the start of the exercise?				
Comments				

KPI ID: Local coordination _ bp 1d				
	Yes	Partially	No	N/A
Were local actors formally included in the coordination structure?				
Comments				

KPI ID: Inclusive coordination _ bp 3a				
	Yes	Partially	No	N/A
Were civil society organizations included in decision making?				
Were vulnerable groups included in decision making?				
Were any decisions formally reviewed or modified based on inputs from these representatives?				
How many of these decisions were reviewed or modified based on inputs from these representatives? <i>(please specify the number)</i>				
Comments				

KPI ID: Digitalization of the system _ bp 2				
	Yes	Partially	No	N/A




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Were updates (e.g., guidelines and protocols) uploaded to the digital platform?				
Were updates (e.g., guidelines and protocols) visible and easy to locate in the digital platform?				
Were notifications of updates digitally sent to focal points/facilities (e.g., regional health institutions and emergency medicine departments)?				
How many communications were sent to focal points/ facilities (e.g., regional health institutions and emergency medicine departments)? <i>(please specify the number)</i>				
Comments				

KPI ID: Data collection Digitalization _ bp 4				
	Yes	Partially	No	N/A
Were relevant crisis-related data collected in the digital platform?				
How much crisis-related data were collected on the digital platform? <i>(please specify the number)</i>				
Comments				

KPI ID: Trained spokespeople _ bp 6a				
	Yes	Partially	No	N/A




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Were official risk communication messages disseminated by trained spokespersons?				
How many messages were disseminated by trained spokespersons? <i>(please specify the number)</i>				
Comments				

KPI ID: Communication templates _ bp 6b				
	Yes	Partially	No	N/A
Were official risk communication messages formulated using pre-tested templates?				
How many messages were formulated using pre-tested templates? <i>(please specify the number)</i>				
Comments				

KPI ID: Surge capacity _ bp 16a				
	Yes	Partially	No	N/A
Were any services repurposed, or was any surge action taken in response to the identified needs?				
How many services were repurposed or how many surge actions were taken in response to the identified needs? <i>(please specify the number)</i>				
Comments				




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KPI ID: Communication facilitators _ bp 7				
	Yes	Partially	No	N/A
Were messages to vulnerable groups communicated by civil society organizations channels or community facilitators?				
How many communication messages directed at vulnerable people are communicated by civil society organizations channels or community facilitators? <i>(please specify the number)</i>				
Comments				

KPI ID: Communication delivery _ bp 8				
	Yes	Partially	No	N/A
Were multiple channels activated (social media, radio/TV, print, community outreach)?				
Was content tailored to diverse groups (e.g., vulnerable groups, age, language)?				
Comments				

KPI ID: Multilingual communication _ bp 10				
	Yes	Partially	No	N/A



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Were the communication messages translated in multiple languages?				
How many communication messages were translated in different languages? <i>(please specify the number and the language)</i>				
Comments				

KPI ID: Visual aids_bp 11				
	Yes	Partially	No	N/A
Did any of the communication messages incorporate visual aids?				
How many communication messages incorporated visual aids? <i>(please specify the number)</i>				
Comments				

KPI ID: Simple language _ bp 12				
	Yes	Partially	No	N/A
Were the communication messages formulated using a simple language?				
Comments				

KPI ID: Visual aids_bp 17				
	Yes	Partially	No	N/A
Were physical separation, infection control procedures, and patient space repurposing activated?				
Comments				



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KPI ID: Data protection_bp 5				
	Yes	Partially	No	N/A
Were data protection procedures activated before the data collection procedures?				
Were the citizens informed about what type of data was collected, why, and for how long?				
Comments				

KPI ID: Digital health literacy_bp 14				
	Yes	Partially	No	N/A
Did citizens, including those from the vulnerable groups, demonstrate ability to receive updates on health measures and safety protocols through these tools?				
Comments				

KPI ID: Continuity of care_bp 18				
	Yes	Partially	No	N/A
Were patients able to understand how to maintain access to care through digital health solutions and alternatives?				
Comments				

KPI ID: Quality of care _ bp 19				
	Yes	Partially	No	N/A
Did staff follow the established protocol for allocating hospital-				



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issued devices to maintain contact with and update patients' relatives on their conditions?				
Comments				

KPI ID: Quality of care_bp 20				
	Yes	Partially	No	N/A
Were clear protocols with predefined roles and work schedules for health care staff during a surge established?				
Comments				


KPI ID: Availability of resources _ bp 24				
	Yes	Partially	No	N/A
Was clear, correct coordination and allocation of critical supplies and resources put into place ?				
Comments				

KPI ID: Staff redeployment _ bp 21				
	Yes	Partially	No	N/A
Were clear protocols for redeployment of staff with appropriate competencies and verified skills after surge activation established?				
Comments				

KPI ID: Learning objectives_pro				
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	Yes	Partially	No	N/A
Were the stated exercise objectives clearly communicated at the beginning?				
Did the activities align with the overall project goals?				
Comments				

KPI ID: Participant engagement_pro				
	Yes	Partially	No	N/A
Were participants (other than the crisis management team) equally encouraged and supported to participate?				
How many participants (other than the crisis management team) actively contributed <i>to the exercise</i> (please specify the number)?				
Comments				

KPI ID: Vulnerable population engagement_pro				
	Yes	Partially	No	N/A
Were members from the vulnerable groups equally encouraged and supported to participate?				
How many people part of the vulnerable groups actively contributed <i>to the exercise</i> (please specify the number)?				
Comments				



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KPI ID: Debriefing session 1_pro				
	Yes	Partially	No	N/A
Did the debriefing sessions help identify areas of improvement?				
Comments				


KPI ID: Debriefing session 2_pro				
	Yes	Partially	No	N/A
Did the debriefing sessions help to identify additional best practices?				
How many additional best practices were identified (<i>please specify the number</i>)?				
Comments				

KPI ID: Debriefing session 3_pro				
	Yes	Partially	No	N/A
Were the storybook and materials appropriate and understandable?				
Comments				

KPI ID: Debriefing session 4_pro				
	Yes	Partially	No	N/A
Was the duration of the adequate?				
Comments				

KPI ID: Debriefing session 5_pro				
	Yes	Partially	No	N/A




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Was the number of participants sufficient for the intended exercise?				
Comments				

KPI ID: Platform clarity				
	Yes	Partially	No	N/A
Did participants navigate menus or dashboards without visible confusion?				
Did participants ask clarifying questions about terminology or instructions?				
Was guidance clear enough that participants could continue without facilitator intervention?				
Comments				

KPI ID: Platform usability				
	Yes	Partially	No	N/A
Could participants complete key tasks (e.g., logging in, submitting input, retrieving information) without external help?				
Did participants use the main functions of the platform smoothly (e.g., few clicks, logical steps)?				
Were participants able to switch between different functions (e.g., maps, reports, chat) without difficulty?				




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Were there any observable delays, technical breakdowns, or frustrations that hindered task completion?				
Comments				

KPI ID: Application clarity				
	Yes	Partially	No	N/A
Did participants seem to understand the purpose of each feature of the app (e.g., dashboard, alerts, input forms) without repeated explanation?				
Did participants navigate the app without visible confusion?				
Did participants ask facilitators for clarification about icons, labels, or instructions?				
Did participants interpret app notifications/messages correctly?				
Comments				

KPI ID: Application usability				
	Yes	Partially	No	N/A
Could participants download, install, and log in without external help?				
Did participants complete required tasks on the app (e.g., submit data, read alerts) smoothly?				



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Did the app run stably during the exercise (no crashes, minimal delays, responsive interactions)?				
Comments				


GENERAL OBSERVATIONS/COMMENTS

First application of the Evaluation framework: the TTE in Hamburg

Tabletop in Hamburg

As outlined in the methodology, the Hamburg TTE involved two distinct groups of experts: the CMT and the Market Group. The CMT was responsible for making strategic decisions, while the Market Group provided feedback and reactions to those decisions. Before the exercise began, a member of the University of Cologne team briefed all participants on the structure and procedure of the TTE. Communication between the two groups was facilitated by a designated CMT member, who acted as the liaison, while a representative from a civil society organization supported internal communication within the Market Group. The two groups were not physically separated, which enabled smoother interaction and contributed to the dynamic nature of the exercise. This setup provides important context for interpreting the results presented below.

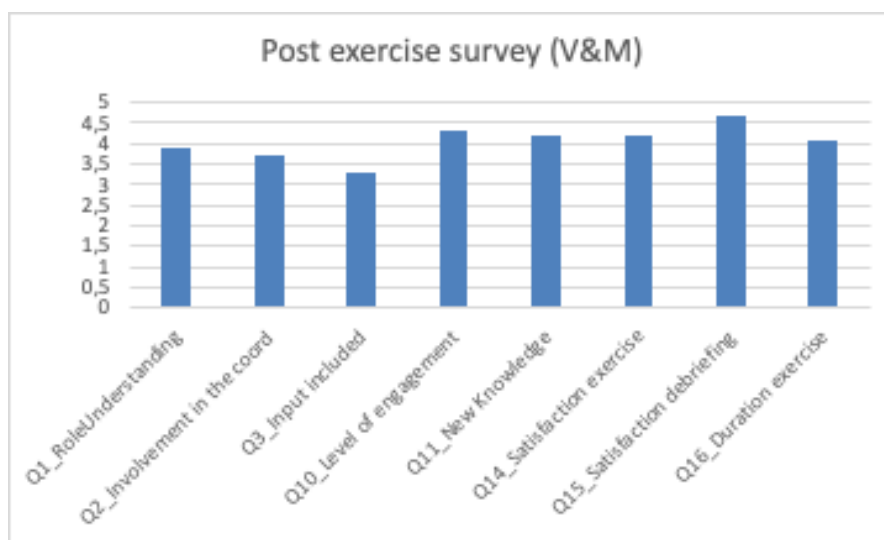


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Results from the post-exercise survey

The post-exercise survey was successfully implemented across all participant groups, confirming the feasibility and reliability of the evaluation instruments. The survey provided interpretable data across different stakeholder categories, supporting the Framework’s internal consistency.


The overview of the results from the first application of the Evaluation Framework is limited to the process-related questions in the post-exercise surveys, focusing on how the exercise was conducted rather than on the application of the best practices.



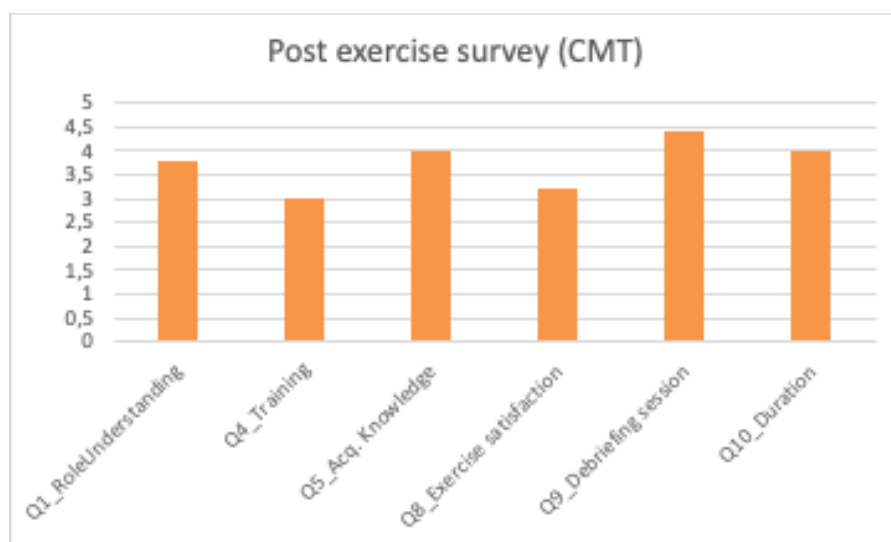
Graph 1: Results from the post-exercise survey (vulnerable & market group)

Graph 1 shows the results for the Market Group, highlighting generally positive feedback across all process-related dimensions. Participants reported a good understanding of their roles (average scores above 4) and high satisfaction with both the exercise and the debriefing sessions. The slightly lower scores for “input included” and “involvement in the coordination” indicate



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areas where participants perceived limited space for contribution, suggesting potential for greater involvement in future exercises.




Graph 2: Results from the post-exercise survey (CMT group)

Graph 2 presents the results from the CMT group. Similarly, the feedback was overall positive, particularly for the debriefing session (average score around 4.4) and the duration of the exercise. Slightly lower ratings in “training” and “exercise satisfaction” suggest that these aspects could be refined to better match participants’ expectations and operational needs but also highlighting the need for better preparation prior to the TTE.

Methodological insights

The first TTE in Hamburg represented a crucial step in the iterative evaluation of the framework and of the pilots. This process is conceived as a continuous loop of testing, feedback, and refinement, ensuring that the framework evolves in response to practical experience. The Hamburg TTE revealed several methodological considerations influencing




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both the exercise and the Framework’s application. The reflections presented here concern both the application of the Evaluation Framework within the TTE and the assessment of the framework itself, as part of a learning process aimed at improving its structure and use in future exercises.

The Evaluation Framework was applied for the first time during the first PREPSHIELD TTE, held in Hamburg in the Steilshoop neighborhood, on the premises of the Martin Luther King Parish. Despite the exercise storybook being specifically designed to test the best practices, this TTE provided only a partial opportunity to do so, contrary to the intended objectives. Instead of engaging with entirely novel pandemic scenarios, participants primarily reflected on their personal experiences from the COVID-19 pandemic. This tendency was largely due to similarities in terms of pathogens transmission and the associated restrictive measures between H1N1 (e.g., the pathogen used in the scenario) and SARS-CoV-2 (i.e., the COVID-19 pandemic). Participants, especially from the vulnerable and market group, extensively commented on the measures proposed during the exercise, linking them to their previous pandemic experiences. As a consequence, some of the planned rounds of the TTE, which included scenario injects, decision-making tasks, and iterative discussions, were not completed, resulting in fewer iterations than originally intended. As a result, the best practices received less attention and were used less than originally planned, and their testing and validation were not conducted in a fully structured or explicit manner.

The observation checklist, which was intended to assess the application of best practices, is not reported here because the exercise did not allow for its full use or meaningful interpretation. Specifically, within the Hamburg context, the observations were carried out by an expert evaluator identified by the Hamburg pilot team. As this evaluator was selected by the local team, language did not pose any barrier, and the observation process, including



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the completion of the observation checklist, was conducted smoothly and without the need for translation.

The expert was solely responsible for conducting the observations and completing the checklist, ensuring consistency in data collection. However, while the observation checklist could not be fully applied due to the modified exercise flow, its structure and indicators proved conceptually robust, demonstrating potential for use in future pilots under more controlled conditions.

Although the Evaluation Framework has not yet been fully tested in its entirety, this iterative approach has already proven valuable. The Hamburg exercise demonstrated the framework’s practical utility in identifying real-world challenges, such as time constraints, uneven participation, and limited use of digital tools, and in capturing how these factors influenced the conduct of the exercise. By systematically documenting these aspects, the Framework generated actionable insights to strengthen future TTE design and facilitation.


Moreover, its flexible and modular structure enabled evaluators to collect consistent, meaningful data even under non-ideal conditions. This adaptability reinforces the framework’s resilience and internal validity, confirming its suitability for evaluation in complex pandemic preparedness exercises, encompassing both tabletop and online formats.

Lesson learned and adaptation for future pilots

Despite the limitations highlighted above, these results suggest that the TTE effectively supported reflection and learning among participants, while also providing actionable insights for further improving the structure and delivery of the TTE in subsequent pilot phases.

Notably, during the Consortium Meeting in Hamburg, after the TTE, an informal debriefing among all the project partners completed the structured evaluation process. Although not



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envisioned in the formal Evaluation Framework, this debriefing provided an opportunity to examine the exercise procedure and gather valuable insights through dialogue among partners. This informal debriefing led to an iterative evaluation of the TTE itself and proved essential in identifying strengths and areas for improvement.

Key adaptation and lessons for upcoming pilots include:

- Revision of the methodology to increase realism of scenario by introducing novel conditions to encourage authentic decision-making.
- Spatial rearrangements to simulate real-world communication dynamics (e.g., separating vulnerable groups and CMT which in real life would not have direct communicated with the CMT, considering the introduction of an intermediary person walking between the vulnerable group’s room and the CMT’s room);
- Streamlining the number of scenario rounds to focus on critical decision points because the actual planned rounds require excessive time to complete;
- Strengthening pre-exercise training for all groups while maintaining realism. This approach can improve preparedness, but it should be carefully considered to not compromise the realism of the exercise, as actors involved in the response to real crises would typically not receive detailed instructions on crisis management;
- Enhancing the functionalities of the PREPSHIELD platform following user feedback gathered during an informal consultation with the CMT, who were able to review a preliminary version immediately after the TTE.

Thus, the Hamburg TTE initiated a co-creative process of evaluation, integrating formal assessment tools (e.g., the observation checklist and the post-exercises survey), with informal debriefing.



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