BE S²ECURE
Built Environment Safer in Slow and Emergency Conditions through behavioUral assessed/designed Resilient solutions
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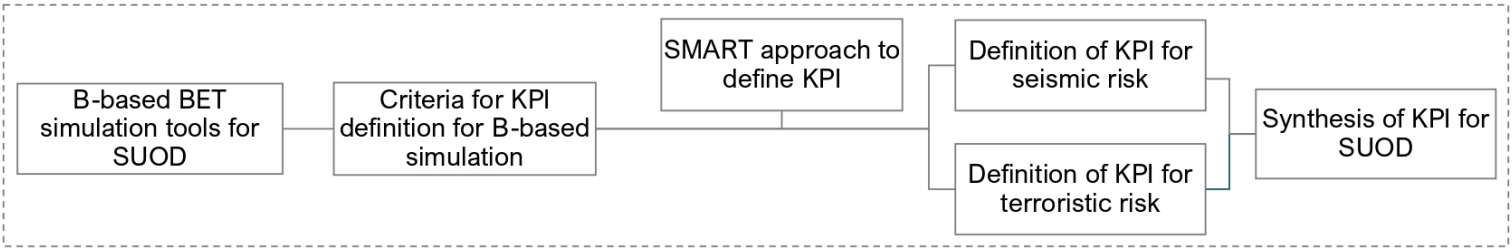
WP 4: Human factors simulation in BETs and definition of a related behavioral-based (B-based) resilience metric

T4.2 - Simulators application to selected BETs in their current state and by applying current SUOD/SLOD standards mitigation strategies. Interferences assessment between selected SUOD/SLOD through simulation-based approach, with possible overlap of effects and related amplifications. Definition of a set of KPIs for overall resilience evaluation of BE and criteria for their correlation.

D4.2.2 – SUOD KPIs for determining B-based resilience of BETs

Theoretical basis for KPI definition

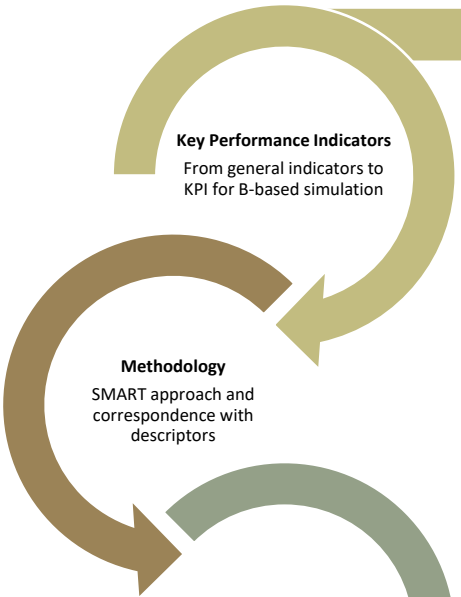


The need of quantitative metrics to evaluate the disaster resilience and safety of users in BE open spaces goes through the definition of Key Performance Indicators (KPI). This deliverable aims to define a system of KPIs for users' resilience and safety to SUOD, in particular to seismic and terrorist risk. The KPIs are selected through the analysis of 30 PIs selected through a careful literature review, paying particular attention to those B-based simulation.

To define objectives and key performance indicators (KPIs) it is crucial to consider meaningful goals. Objectives and KPIs are tools and like any tool they must be designed and used purposefully and one of the best ways to define objectives and KPIs is to use SMART criteria. SMART goals are used to define precise and easy-to-communicate KPIs, i.e. they must be specific, measurable, recognised, realistic and time-bound; hence the acronym SMART.

The elaborated KPIs have been then tested on idealized Built Environment Typologies (BET) to compare different risk scenarios, highlighting similarities and diversity, and to optimize the design of mitigation solutions. The results show the possibility of using the same KPIs to quantify the safety and resilience of users with respect to different behaviors due to different types of disasters, constituting a necessary step towards an overall metric for resilience to SUODs in open spaces within the built environment.

KPIs DEFINITION



S Specific _ target a specific risk or risk combination for BE

M Measurable _ quantify/indicator for improvement

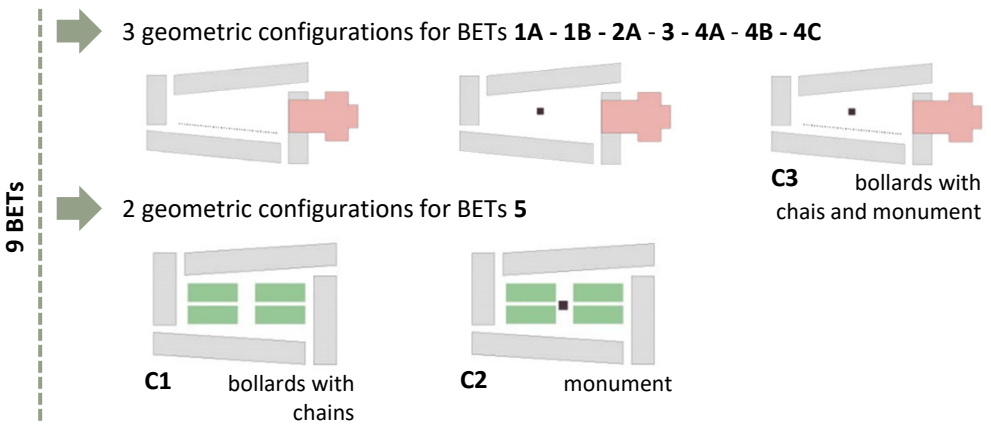
A Assignable _ to one or more risk-prone element of the BE

R Realistic _ objectives that can be achieved with available resources

T Time related _ for SUODs specific investigation, linked to evacuation times

SMART approach: SMART philosophy elaborated and adapted to behavioural-based simulation of BE

KPIs SIMULATION



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