



Designing and implementing a functional and full-scale Sim-Ex

Leo Loth



A photograph of two men sitting at a table, looking at a laptop. The man on the left is wearing glasses and a light-colored shirt, while the man on the right is wearing glasses and a dark shirt. They appear to be in a professional setting, possibly a meeting or a workshop. The background is a solid orange color with a large yellow circle on the left side.

Context & Constraints – Scenario Boundaries, Assumptions, Resources, Time, Confidentiality, Risks

Define what’s in-scope, what’s assumed, and how to manage limits and mitigations during the simulation

Scope	Key Assumptions	Known Constraints & Risks
Geographic, functional, and temporal boundaries	Availability of key personnel and data	Resource limits: staff, facilities, tech
Systems and processes in-play	Baseline system states (up/down)	Time limits
Stakeholders and audience roles	Legal and regulatory constraints assumed unchanged	Confidentiality: restrict real data exposure

Understanding Key Simulation Exercises in Veterinary Services

Compare formats by purpose, benefits, and challenges to optimize preparedness

Type	Description	Advantages	Disadvantages
Tabletop	Discussion-based sessions to clarify policies and procedures	Low cost; encourages policy understanding and communication	Limited realism; no operational task rehearsal
Drill	Rehearses specific operational tasks or procedures	Focuses on skill practice and task efficiency	Narrow scope; does not test full response system
Functional	Simulates multiple coordinated operations under time pressure	Tests overall response capability and coordination	Requires moderate planning; resource intensive
Full-scale	Realistic emergency simulation with multiple agencies and resource deployment	Provides comprehensive readiness assessment; highly realistic	Extensive planning, high cost, and resource demands



Tabletop: Policy review for zoonotic disease outbreak response



Drill: Practicing animal quarantine and sample collection procedures



Functional: Coordinated multi-unit response to a large-scale animal disease event



Full-scale: Multi-agency animal emergency exercise involving field operations and resource deployment

Understanding Key Simulation Exercises in Veterinary Services

Compare formats by purpose, benefits, and challenges to optimize preparedness

Type	Description	Advantages	Disadvantages
Tabletop	Discussion-based sessions to clarify policies and procedures	Low cost; encourages policy understanding and communication	Limited realism; no operational task rehearsal
Drill	Rehearses specific operational tasks or procedures	Focuses on skill practice and task efficiency	Narrow scope; does not test full response system
Functional	Simulates multiple coordinated operations under time pressure	Tests overall response capability and coordination	Requires moderate planning; resource intensive
Full-scale	Realistic emergency simulation with multiple agencies and resource deployment	Provides comprehensive readiness assessment; highly realistic	Extensive planning, high cost, and resource demands



Tabletop: Policy review for zoonotic disease outbreak response



Drill: Practicing animal quarantine and sample collection procedures



Functional: Coordinated multi-unit response to a large-scale animal disease event



Full-scale: Multi-agency animal emergency exercise involving field operations and resource deployment

Structured Progression of Sim Exercise Complexity and Capacity

Building expertise and organizational capacity through staged simulation exercises



Ladder of Exercise Complexity

Simulation exercises progress step-by-step from tabletop to full-scale formats, each demanding greater resources and realism.

This **ladder** metaphor illustrates how agencies sequentially advance to build skills and capacity without overextending resources.



Stepwise Capacity Building

Starting with foundational tabletop exercises allows participants to develop critical expertise before advancing to resource-intensive functional and full-scale drills, ensuring sustainable organizational growth.

Understanding Key Simulation Exercises in Veterinary Services

Compare formats by purpose, benefits, and challenges to optimize preparedness

Type	Description	Advantages	Disadvantages
Tabletop	Discussion-based sessions to clarify policies and procedures	Low cost; encourages policy understanding and communication	Limited realism; no operational task rehearsal
Drill	Rehearses specific operational tasks or procedures	Focuses on skill practice and task efficiency	Narrow scope; does not test full response system
Functional	Simulates multiple coordinated operations under time pressure	Tests overall response capability and coordination	Requires moderate planning; resource intensive
Full-scale	Realistic emergency simulation with multiple agencies and resource deployment	Provides comprehensive readiness assessment; highly realistic	Extensive planning, high cost, and resource demands



Tabletop: Policy review for zoonotic disease outbreak response



Drill: Practicing animal quarantine and sample collection procedures



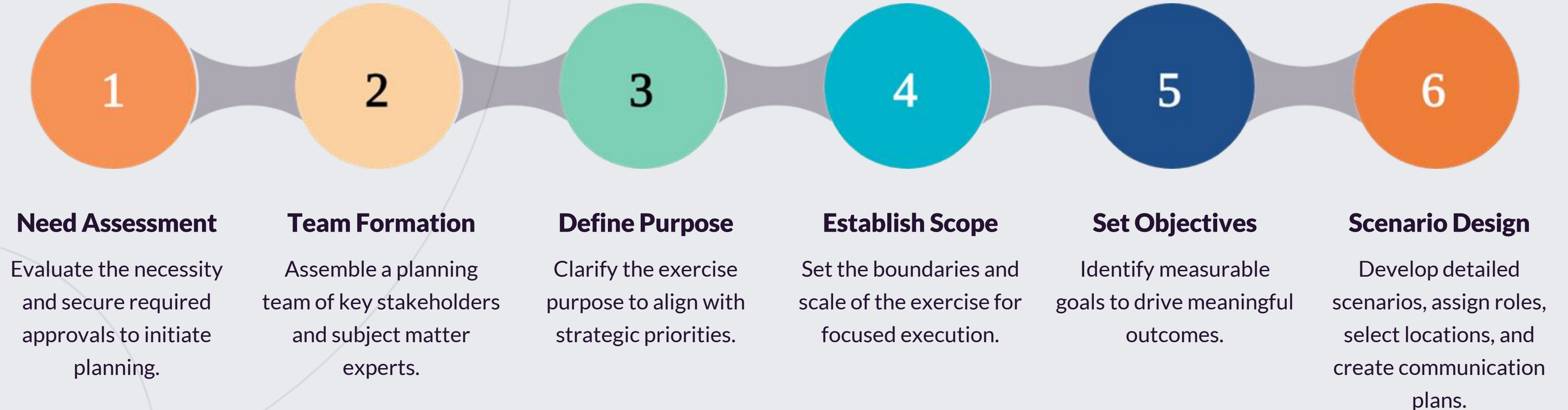
Functional: Coordinated multi-unit response to a large-scale animal disease event



Full-scale: Multi-agency animal emergency exercise involving field operations and resource deployment

Mastering Exercise Planning: Essential Steps

Build a strategic simulation by aligning goals, forming teams, and crafting detailed scenarios



Implementing a functional and full-scale Sim-Ex: From Objectives to After-Action

Clear, actionable stages to plan, run, and learn from realistic exercises



+ Plan

- + Set objectives, scope, budget, timeline; deliverable: exercise charter

+ Design Scenario

- + Create timeline, storyline, assumptions, inject map; deliverable: scenario script

+ Develop Injects & Decision-Points

- + Write injects, triggers and branching logic; deliverable: inject bank and decision-tree

+ Allocate Roles

- + Assign players, controllers, SMEs, observers with briefs and authority; deliverable: role packs

+ Prepare Facilitation & Tools

- + Set communications, adjudication rules, monitoring tools; deliverable: controller toolkit

+ Execute

- + Run exercise, manage flow and time, record evidence; deliverable: logs, recordings, observer notes

+ Debrief

- + Structured hot/warm/cold debriefs tied to objectives; deliverable: debrief notes

+ Evaluate & Report

- + Analyze metrics, produce AAR with recommendations and improvement plan; deliverable: AAR

Implementing a functional and full-scale Sim-Ex: From Objectives to After-Action

Clear, actionable stages to plan, run, and learn from realistic exercises

+ Plan

- + Set objectives, scope, budget, timeline; deliverable: exercise charter

+ Design Scenario

- + Create timeline, storyline, assumptions, inject map; deliverable: scenario script

+ Develop Injects & Decision-Points

- + Write injects, triggers and branching logic; deliverable: inject bank and decision-tree

+ Allocate Roles

- + Assign players, controllers, SMEs, observers with briefs and authority; deliverable: role packs

+ Prepare Facilitation & Tools

- + Set communications, adjudication rules, monitoring tools; deliverable: controller toolkit

+ Execute

- + Run exercise, manage flow and time, record evidence; deliverable: logs, recordings, observer notes

+ Debrief

- + Structured hot/warm/cold debriefs tied to objectives; deliverable: debrief notes

+ Evaluate & Report

- + Analyze metrics, produce AAR with recommendations and improvement plan; deliverable: AAR