

NATO CA2X2 Forum 2026

Beyond the Simulation Effect: Assessing the Contradictions and Limitations of Wargaming for Warfighting Readiness

Zurab Bezhanishvili



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- A digital display showing a list of "MISSION OBJECTIVES" with checkboxes. The objectives are: SEIZE KEY TERRAIN (checked), DISRUPT ENEMY C2 (checked), PROTECT LOGISTICS (unchecked), and MAINTAIN FREEDOM OF MANEUVER (checked).

Content

1. Importance
of Wargaming.



2. Features
of Wargaming.



3. Contradictions and
Limitations of Wargaming.



4. War of
Wargaming.



5. Prospects for
Wargaming.



Importance of Wargaming



Better Decisions • Informed Risk • Mission Success • Warfighting Readiness



1. Why is wargaming vital for military decisions and readiness?



2. How does it clarify complex, uncertain environments?



3. How does it help test and evaluate strategies?



4. How does it build learning, adaptation, and preparedness?



5. What evidence shows wargaming improves readiness?



AI / ANALYSIS SUPPORT

- Pattern Recognition
- Course Comparison
- Risk Assessment
- COA Recommender

COA COMPARISON

	COA 1	COA 2	COA 3
Mission Success	●	●●●	●
Risk	●	●	●
Resource Use	●	●	●
Time to Objective	●	●	●
Recommended: COA 2			

KEY INSIGHTS

- ✓ Understand Trade-offs
- ✓ Expose Vulnerabilities
- ✓ Identify Decision Points
- ✓ Build Shared Understanding



Importance of Wargaming

ANALYSIS



1. It provides a structured environment for decision makers to anticipate conflict, test assumptions, and rehearse responses under stress.



2. By simulating uncertainty, friction, and adversarial interaction, wargaming clarifies complex, multi-domain operational environments.



3. It exposes vulnerabilities, validates concepts, and allows strategies to be tested before real operations.



4. Through decision-consequence cycles and structured reflection, wargaming builds adaptability, organisational learning, and resilience.



5. Case studies: NATO's initiatives to challenge assumptions, RAND's structured comparison games, Ukraine's systematic wargaming improving mobilisation, contrasted with Georgia's lack of it in 2008 until now.



POST-GAME ASSESSMENT & AFTER-ACTION REVIEW

SCENARIO OUTCOME

COMPLETED

WARGAME STATUS
End State Reached

DURATION
4 Days / 12 Decision Cycles

PARTICIPANTS
Multi-Domain / Joint
Allied & Partner Forces

KEY FINDINGS

VALIDATED ASSUMPTIONS

12
Key Assumptions
Confirmed

EXPOSED VULNERABILITIES

7
Critical
Vulnerabilities

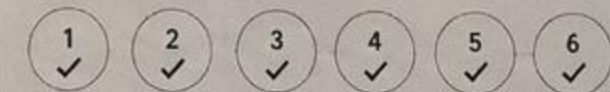
CONCEPTS VALIDATED

5
Concepts
Validated

RISK MITIGATION PRIORITIES

9
Priority Actions
Identified

DECISION CYCLE EFFECTIVENESS



Avg. Decision Quality: **HIGH**

Learning Trend: **IMPROVING**

COA COMPARISON

	COA 1	COA 2	COA 3
Mission Success	✓	✓	✓
Force Preservation	✓	✓	✓
Risk Exposure	✓	✓	✓
Time to Objective	✓	✓	✓
Resource Efficiency	✓	✓	✓

OVERALL ASSESSMENT

SUCCESS
Objectives Achieved

READINESS IMPACT

Improvement vs. Baseline



CONCLUSIONS

Wargaming improved decision quality, reduced uncertainty, and strengthened readiness.

RECOMMENDATION: Institutionalise wargaming across strategic, operational, and tactical levels.

NEXT STEPS

- Address priority vulnerabilities
- Refine concepts and plans
- Conduct follow-on wargames
- Track readiness improvement

LESSONS LEARNED

Documented **24** Lessons

Captured in
Knowledge Repository

The Specifics of Wargaming

MAIN TASKS

-  1 What characteristics distinguish wargaming from other forms of military training, exercises, and simulation?
-  2 What are the essential components and design principles of an effective wargame?
-  3 How do objectives, scenarios, rules, participants, adjudication, and data influence the outcomes of a wargame?
-  4 How should wargames represent uncertainty, human decision-making, and adversary adaptation?
-  5 Which types and methods of wargaming are most appropriate for different military decision-making and planning requirements?



CAMPAIGN OVERVIEW

STRATEGIC LEVEL

-  Friendly Lines of Effort
-  Adversary Lines of Effort
-  Logistics / Support
-  Strategic Influence
-  Key Objectives

OPERATIONAL VARIABLES

-  Time: ●●●●○
-  Information: ●●●●○
-  Force Balance: ●●●●○
-  Uncertainty: ●●●●○
-  Political Context: ●●●●○
-  Resilience: ●●●●○

PLANNING LAYERS

-  Political / Strategic
-  Operational
-  Environmental
-  Information
-  Infrastructure

DECISION FACTORS

-  Objectives & End State
-  Risk & Opportunities
-  Resources & Constraints
-  Stakeholders & Effects



COMMANDER'S INTENT



UNDERSTAND

Explore courses of action and their potential consequences.



DECIDE

Inform decisions with evidence, insight, and critical thinking.



PREPARE

Build readiness and adaptability for uncertainties ahead.



The Specifics of Wargaming

POST-GAME ANALYSIS

1 Distinguishing characteristics

Wargaming centers on human decision-making under uncertainty, unlike drills or simulations that focus on procedures or system behavior.

2 Essential components & design principles

Clear objectives, realistic scenarios, structured rules, active participants, credible adjudication, and meaningful data collection.

3 Influence of design elements

Objectives shape focus; scenarios set context; rules define limits; participants bring perspectives; adjudication ensures fairness; data enables analysis.

4 Representing uncertainty & adaptation

Effective wargames model incomplete information, friction, adversary responses, and human judgment to mirror real conflict dynamics.

5 Types & methods for requirements

- **Educational games:** build knowledge and skills.
- **Experiential games:** immerse leaders in stress and decision cycles.
- **Analytical games:** test doctrine, strategies, and plans.
- Choice depends on whether the goal is training, concept development, or strategic analysis.
- Additionally: COA analysis, matrix, seminar, computer-based wargames, etc.

END-STATE: STABILIZED THEATRE

OBJECTIVES ACHIEVED ✓



MAP LEGEND

- Friendly Axes of Effort
- Adversary Axes of Effort
- Front Line (Friendly)
- Front Line (Adversary)
- - - Logistics / Support Routes
- Key Objective (Achieved)
- ⚓ Major Port / Support Node

CAMPAIGN ASSESSMENT

🎯 Objectives Achieved	●●●●●
🕒 Operational Tempo	●●●●●
🛡️ Force Preservation	●●●●●
🌐 Strategic Influence	●●●●●
★ Mission Effectiveness	●●●●●

OPERATIONAL VARIABLES

🕒 Time	●●●●●
📊 Information	●●●●●
⚖️ Force Balance	●●●●●
❓ Uncertainty	●●●●●
🏛️ Political Context	●●●●●
🛡️ Resilience	●●●●●

PLANNING LAYERS

🏠 Political / Strategic
🏠 Operational
🏠 Environmental
🏠 Information
🏠 Infrastructure

WARGAME TYPES / METHOD SELECTION

📖 Educational
🎮 Experiential
📊 Analytical
🏠 COA Analysis
🏠 Matrix
🏠 Seminar
🏠 Computer-Based



COMMANDER'S ASSESSMENT



UNDERSTAND

Wargaming illuminates complex systems, driver relationships, and key uncertainties.



TEST

We tested courses of action, challenged assumptions, and exposed critical vulnerabilities.



DECIDE

Evidence-based decisions refined preferred options and clarified strategic trade-offs.



PREPARE

Insights strengthen plans, build readiness, and drive adaptive advantage in a changing environment.

Contradictions & Limitations of Wargaming

MAIN QUESTIONS



1

What are the principal limitations and contradictions of wargaming compared to real warfare?



2

How do assumptions, artificiality, and participant behavior affect the validity of wargame results?



3

How can wargaming both reduce uncertainty and create false confidence or misleading conclusions?



4

How does wargaming risk reinforcing existing biases while aiming to promote critical thinking?



5

How should contradictions and limitations shape the role of wargaming in military decision-making and readiness?

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★ Connect ★ Assess ★ Accelerate ★
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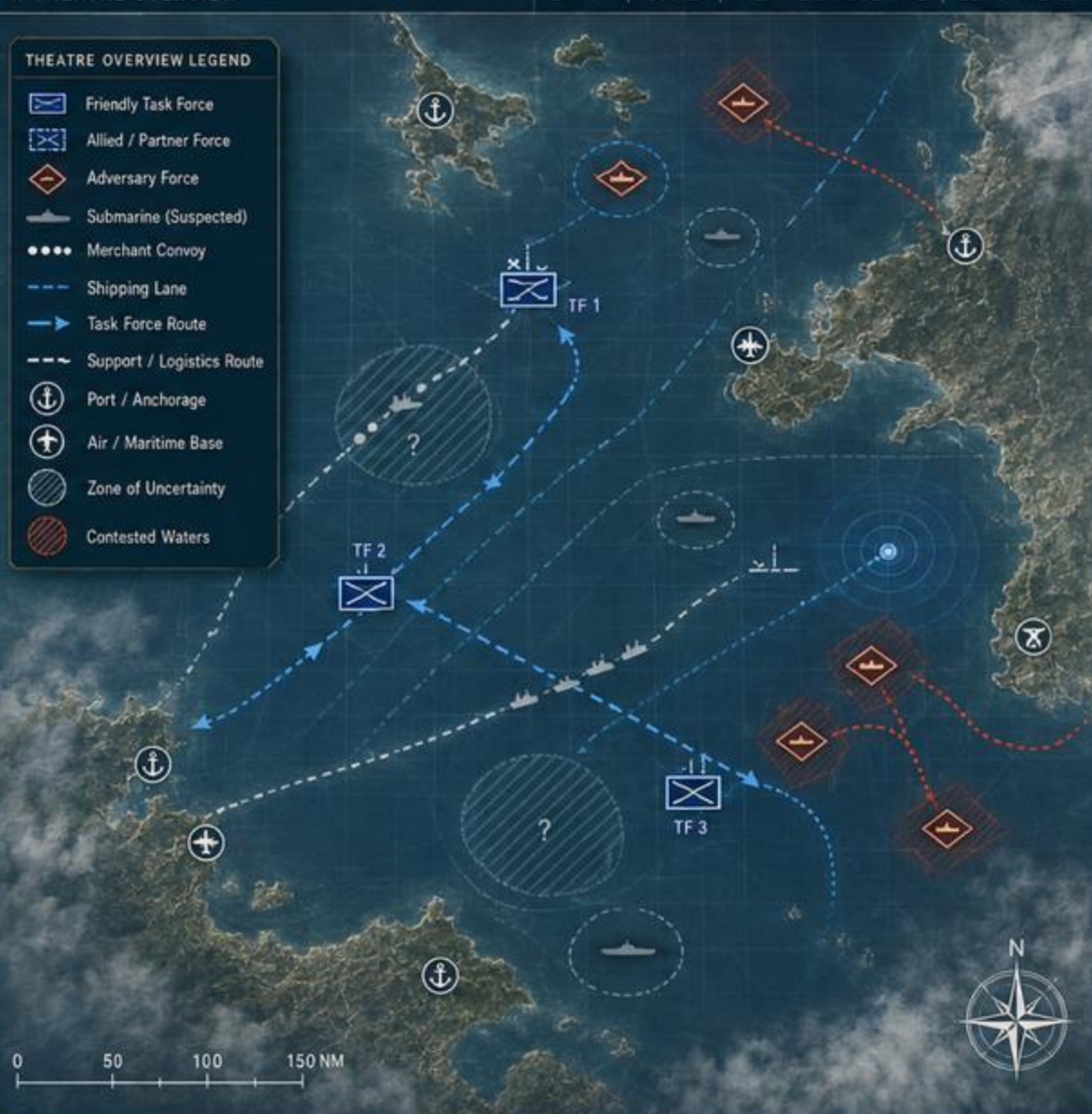


★ THEATRE OVERVIEW

DAY 01 | 0600Z | WEATHER: MODERATE | SEA STATE: 3/5

THEATRE OVERVIEW LEGEND

- Friendly Task Force
- Allied / Partner Force
- Adversary Force
- Submarine (Suspected)
- Merchant Convoy
- Shipping Lane
- Task Force Route
- Support / Logistics Route
- Port / Anchorage
- Air / Maritime Base
- Zone of Uncertainty
- Contested Waters



OPERATIONAL VARIABLES

- Uncertainty ●●●●○
- Information Quality ●●●●○
- Force Balance ●●●●○
- Sea Control ●●●●○
- Freedom of Action ●●●●○
- Escalation Risk ●●●●○

PLANNING FACTORS

- Weather & Environment ●●●○
- Sea State ●●●○
- Visibility ●●●○
- Logistics & Sustainment ●●●○
- Communications ●●●○
- Rules of Engagement ●●●○
- Political Constraints ●●●○
- Alliance Cohesion ●●●○

INITIAL CONDITIONS

Time	DAY 01 / 0600Z
Objective	UNDETERMINED
Forces Deployed	PARTIAL
Intel Posture	LIMITED
Political Guidance	PENDING
Escalation Level	LOW

PLANNING TOOLS

- Order of Battle >
- Intelligence Summary >
- Logistics Overview >
- Scenario Brief >
- Decision Support >

UNCERTAINTY



ASSUMPTIONS



BIAS



CRITICAL THINKING



READINESS



Contradictions & Limitations of Wargaming

POST-GAME ANALYSIS



1

Principal limitations vs. real warfare

Wargames simplify reality; they cannot fully capture chaos, emotions, or the unpredictability of combat.



2

Assumptions, artificiality & behavior

Outcomes depend on scenario design, rules, and participant choices — bias or artificial constraints can distort validity.



3

Reducing uncertainty vs. false confidence

Games clarify options but may create illusions of readiness if success in play is mistaken for real capability.



4

Bias vs. critical thinking

Wargames can challenge assumptions, but poorly designed ones risk reinforcing existing beliefs instead of questioning them.



5

Role in decision-making & readiness

Contradictions and limits mean wargaming should be used as a tool for insight, not as proof of effectiveness or guaranteed readiness.

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★ POST-GAME REVIEW

DAY 05 | END OF GAME

WEATHER: MODERATE

SEA STATE: 3/5

THEATRE ASSESSMENT LEGEND

- Blue Task Force (Actual Track)
- Red Task Force (Actual Track)
- ◆ Assessed Objective (Achieved)
- ◇ Assessed Objective (Partial)
- ◇ Objective Not Achieved
- ☀ Contact / Engagement (Resolved)
- ⚓ Submarine Contact (Resolved)
- ⊙ Assessed Uncertainty Zone
- ⊙ Contested Waters (Assessed)
- ⊙ Sea Control (Assessed)
- ⊙ Freedom of Action (Assessed)
- ✗ Loss / Attrition (Assessed)
- ★ Key Decision Point
- 💬 Analytical Note

GAME STATUS

✓ COMPLETED

All planned turns executed.
End-state reached.
Under review and analysis.

Deception actions
created uncertainty
and delayed response.

0 50 100 150 NM



CAMPAIGN ASSESSMENT

Mission Achievement	PARTIAL	●●
Freedom of Action	PARTIAL	●●
Sea Control	LIMITED	●●
Overall Assessment:	CAUTIOUSLY OPTIMISTIC ⚠	

VALIDITY FACTORS REVIEWED

Scenario Realism	MODERATE	●●
Rules Realism	MODERATE	●●
Behavior Realism (Players)	MODERATE/LOW	●●●
Data & Intelligence Quality	MODERATE	●●
Environmental Realism	MODERATE	●●
Overall Validity:	MODERATE ⚠	

ASSUMPTIONS REVIEWED

Key Assumptions Tested	15
Validated	6
Challenged	5
Invalidated	4
Impact on Outcomes:	SIGNIFICANT 

BIAS RISK



CONFIDENCE LEVEL



LESSONS IDENTIFIED (TOP 3)

- ★ Information gaps drove uncertainty and delay.
- ★ Subsurface threats had outsized impact.
- ★ Deception and EMS actions created outcome divergence.

IMPLICATIONS FOR READINESS

Gaps Identified	HIGH
Capability Improvements Needed	HIGH
Training Implications	MODERATE ●●
Readiness Impact	MODERATE LOW ●●
Bottom Line:	 INSIGHTFUL, NOT CONCLUSIVE

UNCERTAINTY



ASSUMPTIONS



FALSE CONFIDENCE



BIAS



READINESS



The War of Wargaming

MAJOR WARGAMING STYLES

1

UNITED STATES



ACTOR	United States
WARGAMING STYLE	High-tech, multi-domain simulations
KEY FEATURES	AI-driven, joint force exercises, cyber & space integration.
STRATEGIC PURPOSE	Train leaders for complex combined warfare; stress-test deterrence strategies.

2

RUSSIA



ACTOR	Russia
WARGAMING STYLE	Hybrid warfare simulations
KEY FEATURES	Blend of conventional, cyber, disinformation, and proxy tactics.
STRATEGIC PURPOSE	Prepare for irregular conflict, exploit ambiguity, test escalation control.

3

CHINA



ACTOR	China
WARGAMING STYLE	Strategic competition and long-term planning
KEY FEATURES	Emphasis on maritime, economic, and information warfare.
STRATEGIC PURPOSE	Model great power rivalry; reinforce doctrine of "system confrontation".

4

EUROPEAN NATO MEMBERS



ACTOR	European NATO members
WARGAMING STYLE	Collective defence exercises
KEY FEATURES	Multinational coordination, resilience testing, hybrid threat scenario.
STRATEGIC PURPOSE	Strengthen interoperability, country hybrid threats, reinforce deterrence.

5

MIDDLE EASTERN POWERS



ACTOR	Middle Eastern powers
WARGAMING STYLE	Proxy conflict simulations
KEY FEATURES	Focus on irregular warfare, militia coordination, urban combat.
STRATEGIC PURPOSE	Manage regional conflicts, project influence vis-a-vis non-state groups.

6

TERRORIST ORGANISATIONS



ACTOR	Terrorist organisations
WARGAMING STYLE	Improvised, adaptive wargaming
KEY FEATURES	Role-play attack, cyber drills, propaganda rehearsals.
STRATEGIC PURPOSE	Test asymmetric strategies; exploit vulnerabilities of liberal democratic states.

7

OTHER NON-STATE ACTORS



ACTOR	Other non-state actors
WARGAMING STYLE	Scenario and hybrid simulations
KEY FEATURES	Criminal networks, hacktivists, religious institutions.
STRATEGIC PURPOSE	Provide plausible deniability, low-cost influence operations, mercenarism.

THE WAR OF WARGAMING

CASE STUDIES. COMPARATIVE

MATRIX 1. U.S. VS CHINA

DIMENSION	 UNITED STATES	 CHINA
 CORE DOCTRINE	Joint force resilience, coalition warfare	Systems confrontation, system destruction warfare
 FOCUS OF WARGAMES	Multi-domain integration (land, sea, air, cyber, space)	Disruption of adversary networks (command, logistics, cyber, space)
 TECHNOLOGY USE	AI-driven simulations, advanced modeling, logistics stress tests	Cyber, electronic warfare, anti-satellite operations, precision missile salvos
 SCENARIO EMPHASIS	Indo-Pacific conflicts, Taiwan Strait, coalition defense	Taiwan Strait, South China Sea, long-term attrition of U.S. systems
 TRAINING OBJECTIVE	Prepare leaders for complex coalition operations under democratic constraints	Train commanders to paralyze adversary systems early in conflict
 STRATEGIC PECULIARITY	Emphasis on resilience and adaptability under pressure	Emphasis on preemptive disruption and paralysis of opponent's "nervous system"
 COMPETITION LENS	Stress-tests deterrence and alliance solidarity	Models how systemic disruption can neutralize U.S. technological superiority



THE WAR OF WARGAMING

CASE STUDIES. COMPARATIVE

MATRIX 2. RUSSIA VS NATO

DIMENSION	 RUSSIA	 NATO
 CORE DOCTRINE	Hybrid warfare, ambiguity, escalation control	Collective defense, resilience, multinational coordination
 FOCUS OF WARGAMES	Integration of conventional, cyber, disinformation, and proxy tactics	Crisis management, hybrid threat scenarios, cyber resilience
 TECHNOLOGY USE	Electronic warfare, cyber operations, disinformation campaigns	AI-assisted simulations, multinational cyber defense drills
 SCENARIO EMPHASIS	Zapad exercises simulate large-scale conflict with NATO, including irregular forces	CMX (Crisis Management Exercise) simulates hybrid threats, cyberattacks, disinformation
 TRAINING OBJECTIVE	Prepare commanders to exploit ambiguity, test escalation thresholds	Train leaders to coordinate across nations, reinforce legitimacy under democratic constraints
 STRATEGIC PECULIARITY	Heavy use of proxies and irregular forces; rehearses hybrid escalation	Emphasis on alliance solidarity, legitimacy, and resilience rather than decisive victory
 COMPETITION LENS	Stress NATO cohesion, probe vulnerabilities in open societies	Counter Russian hybrid strategies, strengthen deterrence and multinational response



The Evolution of Wargaming and Emerging Requirements for Decision-Makers

How Wargaming Will Evolve



1. Human-AI teaming: wargames will train commanders to work with AI support, challenge recommendations, and retain responsibility.



2. Operate when disconnected: games must rehearse command during cyber disruption, satellite loss, and communications denial.



3. Zero-trust decision-making: players must verify information, manage deception, and act despite uncertainty.



4. Whole-of-society resilience: wargaming will connect military, government, infrastructure, industry, and civil actors.



5. Adaptive teams and universal skills: leaders must replace broken links, shift roles, and sustain resistance with technology.

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Future wargaming will test not only plans, but the resilience of the entire decision ecosystem.

The Evolution of Wargaming and Emerging Requirements for Decision-Makers

Emerging Requirements for Decision-Makers



1. Technological literacy: leaders must understand AI, autonomy, cyber, space, and system vulnerabilities.



2. Decision tempo: commanders must decide faster while knowing when to automate, delegate, delay, or act.



3. Universal competence: leaders must integrate military, technical, logistical, civil, and information domains.



4. Operate in disruption: decision-makers must function during communications loss, degraded networks, and zero-trust conditions.



5. Cognitive resilience: leaders must verify information, resist deception, and maintain judgment under stress.



AI ASSISTANT



- Pattern Recognition
- Course of Action Analysis
- Risk & Opportunity Assessment
- Wargame Recommendation

Confidence: High

COA COMPARISON

	COA 1	COA 2	COA 3
Mission Success	Green	Green	Green
Risk	Green	Yellow	Yellow
Time to Effect	Yellow	Green	Red
Resource Demand	Yellow	Red	Red

Recommended: COA 2

SITUATIONAL AWARENESS



Future readiness depends on decision resilience, technological understanding, and adaptation under uncertainty.

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Thank You for Your Attention

From simulation to insight, from insight to readiness.

I hope this was not too boring an observation from a Caucasian highlander — and may your COAs be robust, your red teams honest, and your lessons learned before first contact.

Zurab Bezhanishvili

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