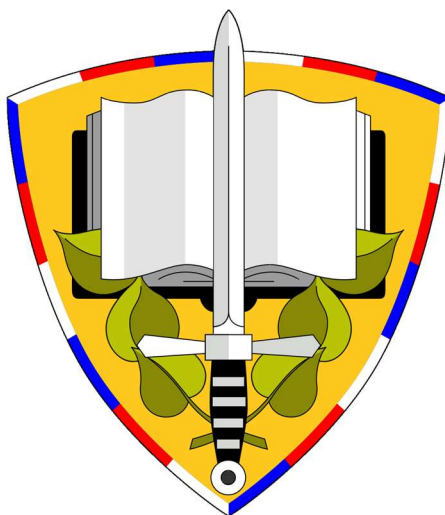


**UNIVERSITY OF DEFENCE / CZECH REPUBLIC
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**20th PhD Conference Proceedings
20. doktorandská konference**

**New Approaches to State Security Assurance
Nové přístupy k zajištění bezpečnosti státu**

**Published by University of Defence
Brno 2026**

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ISBN 978-80-7582-687-9

Vážené čtenářky, vážení čtenáři,

tento sborník z 20. mezinárodní doktorandské konference pořádané Fakultou vojenského leadershipu Univerzity obrany je věnován tématu **Nové přístupy k zajištění bezpečnosti státu (New Approaches to State Defence Assurance)**.

Konference se uskutečnila dne 19. března 2026 pod záštitou děkana fakulty, plukovníka gšt. Ing. Jana Drozda, Ph.D., za účasti doktorandů a akademických pracovníků z České republiky a Maďarska.

Úvodní vystoupení přednesl velitel 4. brigády rychlého nasazení **brigádní generál Ing. Jiří Líbal**, který se věnoval vysoce aktuální problematice Multidomain Operations. Následně vystoupil děkan fakulty s příspěvkem zaměřeným na kvantifikaci operačních schopností s využitím nástrojů konstruktivní simulace. Zahraniční účastníci z Ludovika University of Public Service prezentovali témata partnerství v obranném průmyslu v kontextu Evropy a České republiky, včetně případové studie společnosti Embraer, a dále otázky rozvoje kulturní inteligence prostřednictvím institucionální správy.

Na tyto příspěvky navázaly prezentace širokého penza doktorandů, které se soustředily zejména na problematiku vedení současných operací, reflexi zkušeností z aktuálních konfliktů a další aspekty vojenského prostředí. Další část konference byla věnována otázkám získávání a zpracování informací, řešení logistických výzev v resortu obrany a technologickým postupům v oblasti ochrany proti zbraním hromadného ničení.

Prezentovaná témata jednoznačně potvrdila komplexnost současných bezpečnostních výzev a potřebu jejich řešení prostřednictvím multidisciplinárního přístupu. Příspěvky účastníků z různých zemí i odborných oblastí přinesly nové perspektivy, podpořily odborný dialog a vytvořily předpoklady pro další rozvoj výzkumné spolupráce.

Hlavním cílem konference bylo vytvořit prostor pro prezentaci výsledků výzkumu studentů doktorských studijních programů v oblasti bezpečnosti a obrany. Diskutovaná témata zahrnovala zejména vojenský leadership, řízení obrany státu, logistické zabezpečení, ochranu obyvatelstva a další související oblasti odpovídající zaměření konference. Neméně významný byl i její edukační přínos, spočívající v rozvoji prezentačních dovedností, schopnosti odborné argumentace a kultivaci vědecké diskuse.

Sborník obsahuje plná znění příspěvků studentů doktorských studijních programů z tuzemských i zahraničních vysokých škol a vzdělávacích institucí. Všechny příspěvky prošly vnitřním recenzním řízením za účasti odborníků z Univerzity obrany i dalších institucí.

Dovolte mi na závěr vyjádřit přesvědčení, že tato konference i její výstupy přispějí k dalšímu rozvoji bezpečnostních studií a že se setkáme i na jejích dalších úspěšných ročnících.

podplukovník Ing. Luděk RAK, Ph.D.
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STABILIZING CULTURAL INTELLIGENCE THROUGH GOVERNANCE: MODELING CULTURAL SIGNAL PROCESSING

Zoltán BODÓ¹

Abstract

Hybrid operations unfold in cultural–cognitive environments where legitimacy and narrative dynamics shape outcomes. Despite doctrinal recognition, Cultural Intelligence (CULTINT) remains weakly embedded within Intelligence, Surveillance, and Reconnaissance (ISR) processes. This paper conceptualizes CULTINT as an eight-stage cultural signal-processing architecture governed through five control points: tasking, ownership, validation, retention, and decision coupling. Comparison of coalition operations in Afghanistan and Iraq with corporate competitive intelligence (CI) examples demonstrates that divergence in performance reflects governance maturity rather than data availability. Military configurations exhibited signal degradation and interpretive fragmentation, whereas corporate systems stabilized weak cultural indicators and enabled cumulative learning.

Keywords:

Cultural Intelligence; Cultural Signal Processing; Competitive Intelligence; Intelligence Governance; Governance Maturity; Hybrid Operations; ISR Architecture.

INTRODUCTION

McFate, in discussing cultural intelligence (CULTINT), argued that intelligence errors often arise from structural tendencies within intelligence institutions a failure “to recognize the significance of data and to understand what information means in its original context” [1, p. 16]. Contemporary scholarship further identifies a persistent gap between cultural anthropology and intelligence studies, with CULTINT remaining weakly integrated despite its operational relevance [2]. The problem intensifies in hybrid and cognitively contested environments [3,4]. Doctrinal recognition exists but has not translated into institutionalized Intelligence, Surveillance, and Reconnaissance (ISR) governance [5,6].

Empirical research on coalition operations in Afghanistan and Iraq reinforces this diagnosis. Practitioner accounts and scholarly analyses indicate that early attempts of CULTINT was frequently confined to specialist initiatives, such as the Human Terrain System (HTS), and lacked durable integration across tasking, validation, and retention processes [7,8,9]. Ethical controversies and civil–military coordination deficits further complicated institutionalization [10,11]. As a result, cultural knowledge often remained personality-dependent and rotationally fragile rather than cumulative.

Interestingly, analogous governance challenges appear in corporate competitive intelligence (CI)² environments, where misinterpretation of cultural meaning structures produces measurable strategic and financial consequences [12]. Competitive pressure discourages intuition-based judgment and incentivizes institutionalization of disciplined sensing and validation mechanisms [13–17]. This paper does not advocate transferring commercial objectives into military practice, it examines whether shared organizational sensing challenges under uncertainty reveal governance principles relevant to CULTINT stabilization.

The central argument is that divergence in CULTINT performance reflects governance maturity across critical control points rather than variation in data availability or environmental complexity. Conceptualizing CULTINT as an organizational signal-processing architecture situates the analysis within broader debates on ISR integration, cognitive resilience, and institutional learning.

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² Here, competitive intelligence (CI) denotes structured, ethically compliant organizational sensing supporting strategic and operational decisions, including market intelligence, regulatory monitoring, innovation scanning, and early warning [13].

1. CULTURAL INTELLIGENCE AS AN INSTITUTIONAL CAPABILITY

In this study, CULTINT is defined as an institutionalized intelligence capability concerned with systematic sensing, validation, retention, and operational reuse of culturally embedded signals relevant to strategic and operational decision-making. This conceptualization departs from models emphasizing individual cultural competence [18] or cross-cultural skills [19] and from early human-terrain approaches centered on field-level expertise [8]. It also moves beyond declarative doctrinal recognition of culture's significance without specifying workflow integration [20].

CULTINT operates in domains where meaning, identity, symbolic legitimacy, and narrative credibility influence actor behavior. Hybrid warfare analysis increasingly treats culture as a domain shaping population alignment and strategic interaction [3,4]. A growing body of work argues for the integration of culture alongside traditional operational domains [4]. In densely populated operational environments, culturally embedded signals have been shown to structure escalation dynamics and coalition cohesion [6].

The central challenge lies not in collecting cultural information but in transforming weak and ambiguous signals—such as shifts in symbolic behavior, narrative framing, or identity markers—into reliable, decision-relevant knowledge. Intelligence scholarship highlights the structural necessity of integrating social-science perspectives into intelligence processes to manage human-domain uncertainty [21]. Yet mechanisms to stabilize such integration remain underdeveloped.

Military education literature argues that cultural capability cannot be improvised but must be institutionalized through professional development and leadership training [22]. Intelligence reform scholarship similarly emphasizes that structural redesign without cultural change leaves core dysfunction intact, particularly where “need-to-know culture” inhibit knowledge sharing [23, p.162]. This persistent divide further highlights the necessity of structured governance mechanisms [2,24].

Within this perspective, CULTINT is examined not as descriptive cultural knowledge but as a governance problem: whether culturally salient indicators are formally tasked; whether interpretive ownership is institutionally anchored; whether validation processes include structured dissent; whether institutional memory preserves insights beyond personnel turnover; and whether validated interpretations influence planning and operational behavior.

2. MODELING CULTURAL SIGNAL PROCESSING AND GOVERNANCE

To enable structured comparison across heterogeneous contexts, the paper conceptualizes CULTINT as an eight-stage organizational signal-processing architecture. Cultural signals emerge continuously in operational environments through narrative shifts, symbolic practices, identity realignments, and collective expectations. Tasking and prioritization determine whether such signals become formal intelligence requirements. Collection mechanisms capture and document indicators. Interpretation contextualizes meaning. Validation tests coherence and reliability. Retention preserves insights beyond individuals. Decision coupling links validated assessments to action. Feedback and refresh ensure iterative reassessment.

Although these stages describe the full architecture, analytical variance concentrates at five governance- critical control points: tasking, ownership, validation, retention, and decision coupling. These dimensions determine whether weak signals stabilize into cumulative institutional knowledge or dissipate through interpretive fragmentation.

Signal emergence and collection are treated as environmental conditions shaped by access and complexity, whereas governance operates primarily within interpretive and decision stages. The framework translates ISR/TCPED³ logic [25] into a culturally sensitive organizational model.

³ TCPED cycle—Tasking, Collection, Processing, Exploitation, and Dissemination.

Measurability refers not to quantifying culture but to defining ownership, review cycles, validation procedures, and retention mechanisms in auditable terms.

Cognitive bias literature underscores the vulnerability of cultural interpretation to confirmation bias and premature coherence [15,26]. Intelligence studies document repeated failures arising from insufficient institutional challenge to dominant explanatory frameworks [9]. Heuer's analysis of intelligence psychology emphasizes structured analytic techniques to mitigate bias [27]. Contrarian cognition⁴, including red teaming and competing-hypothesis frameworks, functions as a stabilizing governance mechanism rather than as individual skepticism.

In hybrid environments where adversaries manipulate narratives to induce cognitive closure [3,5], structured contrarian validation becomes operationally decisive. Russian intelligence failures in Ukraine have similarly been analyzed through the lens of hierarchical culture suppressing dissent [28]. Governance maturity thus directly influences interpretive robustness.

3. COALITION OPERATIONS IN AFGHANISTAN & IRAQ

Coalition stabilization and counterinsurgency operations (COIN) in Afghanistan unfolded within a socio-cultural environment shaped by tribal authority systems, honor-based legitimacy structures, religious norms, and historical distrust of foreign intervention. Cultural signals were abundant. However, governance across the signal-processing architecture remained fragmented.

Davies' analysis of Afghanistan and Iraq highlights the episodic and uneven institutionalization of CULTINT capabilities, noting their limited structural integration within conventional force frameworks [7]. The HTS sought to generate operationally relevant socio-cultural knowledge [29], yet it did not institutionalize governance continuity across tasking, validation, and retention stages [9]. Ethical controversy and academic resistance further complicated legitimacy and integration [10,11,30].

Culturally salient indicators—such as shifts in tribal alignment or narrative framing—were often not formalized as enduring intelligence requirements [31]. Interpretive authority remained diffuse across advisors and rotating units, generating variability across deployments [9]. Structured contrarian mechanisms were inconsistently applied, and tempo pressures favored simplified descriptive reporting [29]. Rotation cycles undermined institutional memory, embedding knowledge in individuals rather than repositories [9]. Even when insights were recognized, their influence on planning and communication was inconsistent [31].

These patterns align with broader critiques that cultural elements in NATO doctrine often remain declarative rather than operationalized [32]. Similar dynamics appear in intelligence failures where organizational culture discourages dissent [28]. Across the full architecture, cultural signals degraded not due to scarcity but due to governance immaturity.

4. CORPORATE COMPETITIVE INTELLIGENCE SYSTEMS

Market entry is inherently challenging for corporations due to both structural and contextual differences across environments. Consumer goods firms entering post-communist Central and Eastern European markets confronted rapid socio-economic transformation and symbolic identity reconstruction within volatile and unstable contexts. In such environments, cultural misinterpretation produces immediate competitive risk. Market-entry failures such as Walmart's unsuccessful expansion into Germany⁵ illustrate the cost of insufficient contextual validation and weak governance of culturally embedded signals [36]. In these cases, lack of proper governance did not managed stabilized weak signals across the processing chain [14]. CI literature therefore emphasizes disciplined sensing and structured governance in turbulent market environments [13,16].

⁴ The "Tenth Man Rule," popularized in *World War z* (2013), portrays mandated dissent within intelligence analysis. Though fictionalized, it reflects established practices aimed at countering groupthink and analytic convergence.

⁵ Walmart's failed expansion into Germany (1997–2006) is commonly linked to poor adaptation to local retail culture and institutions, and is often cited as a case of inadequate contextual sensing in strategic market entry.

By contrast, the market leading companies⁶, within their corporate competitive intelligence and analytics frameworks, treat culturally embedded signals—identity markers, consumption patterns, trust dynamics, and lifestyle indicators—as sources of strategic market intelligence informing positioning, risk assessment, and adaptive strategy [17,34,36]. Analytical ownership is clearly defined, and interpretation follows standardized protocols, including triangulation and peer review. Insights are preserved and operationalized through centralized data infrastructures and cumulative analytics platforms [33]. Structured contextual immersion is institutionally endorsed to inform decision-making across tactical, operational, and strategic levels, with accumulated insights retained and circulated through integrated knowledge systems [35,36].

5. MULTIDISCIPLINARY CULTURAL TREND DETECTION SYSTEM

In the late 2000s, a regional consultancy developed a longitudinal trend-detection system designed for corporate clients. The system integrated longitudinal survey datasets, lifestyle studies, cultural- consumption time series, media content and discourse analysis, and socio-demographic indicators. Its objective was to identify emerging shifts in identity, values, norms, and lifestyle patterns prior to institutional consolidation.

The system detected an organic gradual increase in nationally framed symbolic cultural content consumption across multiple datasets, a trajectory that later coincided with the emergence of a new right-wing political party in the subsequent period. Individually ambiguous cultural signals formed a coherent pattern when governed through structured tasking, multidisciplinary ownership, mixed-method validation, and contrarian review. Insights were codified in centralized repositories and periodically reassessed. Decision coupling occurred when validated trajectories informed strategic communication and positioning strategies.

This case demonstrates that predictive capacity derived from governance discipline rather than data volume. Weak cultural signals, stabilized through institutionalized processing, revealed structural identity dynamics before overt political manifestation.

6. COMPARATIVE GOVERNANCE ANALYSIS

Across the illustrations discussed in the previous sections, culturally meaningful signals were abundant. Divergence in performance reflected governance architecture rather than environmental complexity. In Afghanistan and Iraq, inconsistent tasking, diffuse ownership, weak validation, rotation-induced retention loss, and irregular decision coupling generated interpretive instability. In corporate configurations, by contrast, explicit tasking, accountable ownership, institutionalized contrarian validation, cumulative retention, and enforced linkage to strategy stabilized interpretation.

These findings resonate with intelligence reform scholarship emphasizing governance maturity [23] and with organizational learning theory highlighting knowledge retention mechanisms [34]. They also align with sensemaking theory, which underscores the importance of structured interpretation under uncertainty [14]. Competitive civilian market environments appear to have incentivized earlier and more explicit formalization of governance mechanisms than observed in the military configuration examined here.

CULTINT failure therefore reflects governance immaturity within the signal-processing chain rather than cultural unknowability. Table 1 synthesizes the comparative governance configurations across eight- stage cultural signal-processing framework.

⁶ Procter & Gamble institutionalized in-home and in-market immersion practices, mandating systematic observation of consumption behaviors. Leadership embedded contextual validation directly into routine decision-making processes.

Tab. 1 Comparative Governance Configurations Across the 8-Stage Cultural Signal-Processing Model

#	Stage	Governance Type	Governance Control	Military Example	CI Example	Emergent System Effect
1	SIGNAL EMERGENCE	Environmental Condition	N/A	High exposure to cultural signals; uneven recognition	High exposure; systematically monitored weak signals	<u>Military</u> : Signal noise without prioritization. <u>Corporate</u> : Early detection opportunity structured.
2	TASKING & PRIORITIZATION	Governance Control Point	Tasking	Cultural indicators rarely formalized as intelligence requirements	Explicit insight mandates analogous to intelligence requirements	<u>Military</u> : Inconsistent signal entry into ISR workflow. <u>Corporate</u> : Stable signal integration into system.
3	COLLECTION	Environmental / Access-Constrained Condition	N/A	Collection incidental, engagement-driven, uneven documentation	Multi-source structured collection (ethnography, behavioral, media tracking)	<u>Military</u> : Patchy datasets and low comparability. <u>Corporate</u> : High-resolution multi-source capture.
4	INTERPRETATION	Governance Control Point	Ownership	Personality-dependent interpretation; fragmented accountability	Dedicated analytical teams with defined ownership	<u>Military</u> : Interpretive drift across units and rotations. <u>Corporate</u> : Stabilized analytical outputs.
5	VALIDATION	Governance Control Point	Validation	Limited structured challenge; weak contrarian mechanisms	Institutionalized peer review, triangulation, protected dissent	<u>Military</u> : Premature convergence and narrative lock-in. <u>Corporate</u> : Reduced bias and delayed closure.
6	RETENTION	Governance Control Point	Retention	Knowledge embedded in individuals; rotation-induced loss	Centralized repositories; version control; cumulative learning	<u>Military</u> : Recurrent relearning cycles and knowledge decay. <u>Corporate</u> : Cumulative institutional learning.
7	DECISION COUPLING	Governance Control Point	Decision Coupling	Inconsistent influence on planning and operations	Mandatory linkage between insight and strategic decisions	<u>Military</u> : Insight weakly alters behavior. <u>Corporate</u> : Insight consistently shapes action.
8	FEEDBACK & REFRESH	Environmental Condition (Governance-Enabled)	N/A	Weak structured reassessment; episodic adaptation	Continuous reassessment via performance indicators and trend tracking	<u>Military</u> : Slow adaptation and repeated misalignment. <u>Corporate</u> : Iterative refinement and anticipatory adjustment.

Source: Author's synthesis based on comparative case analysis and ISR modeling abstraction.

In the military configuration, reliance on individual expertise without sustained institutional reinforcement allowed signals to fragment across rotations and decision levels. The result was instability in situational awareness and delayed adaptation.

Governance weaknesses in the military case appeared at multiple points. Cultural signals were inconsistently formalized as intelligence requirements; interpretive ownership remained diffuse; validation lacked structured challenge; retention was undermined by rotation cycles; and decision coupling was irregular. Doctrinal simplification and civil–military coordination constraints further amplified distortion and limited cumulative learning. While corporate configurations demonstrate that alternative governance designs can stabilize weak signals under uncertainty, the military case highlights the structural difficulty of institutionalizing such mechanisms in rotational environments.

The findings suggest that CULTINT failure in Afghanistan and Iraq resulted primarily from insufficient institutionalization at governance-critical stages rather than from cultural unknowability. These conclusions should be interpreted cautiously, as military and corporate intelligence environments differ in mandates, ethical constraints, accountability structures, and time horizons. The analysis does not advocate direct transfer of corporate practices but highlights shared organizational sensing challenges under uncertainty. While corporate competitive intelligence institutionalized certain governance mechanisms earlier due to market pressures, military organizations possess distinct adaptive strengths, particularly in mission-oriented integration and operational coherence. The comparison therefore indicates opportunities for reciprocal learning. Further research is required to assess boundary conditions, contextual variation, and scalability across operational contexts.

7. IMPLICATIONS FOR ISR AND MODELING

Integrating CULTINT into ISR architectures requires embedding governance mechanisms within existing processing chains rather than treating cultural awareness as advisory augmentation. Cultural indicators must be formalized as intelligence requirements, interpretive ownership must be institutionally anchored, validation cycles must incorporate structured dissent, retention mechanisms must survive rotation cycles, and validated insights must influence planning decisions.

For smaller military forces, governed CULTINT can function as a structural compensatory mechanism enhancing strategic discrimination and adaptive responsiveness. From a modeling perspective, governance dimensions can be parameterized as measurable variables, including degree of tasking formalization, validation frequency, retention depth, and strength of decision coupling. Simulation-based experimentation can evaluate how variations in governance maturity affect resilience under hybrid threat conditions.

CONCLUSION

This study reframed CULTINT as a governable organizational sensing discipline embedded within ISR architecture. Comparative analysis showed that divergence reflects governance design rather than signal availability. Military configurations exhibited signal degradation due to weak institutionalization at governance-critical stages. Corporate systems stabilized weak cultural indicators through explicit tasking, structured contrarian validation, cumulative retention, and enforced decision linkage.

The principal contribution lies in conceptualizing CULTINT governance as a parameterizable dimension of intelligence architecture, enabling systematic evaluation through simulation and empirical research. Advancing CULTINT from episodic expertise toward structurally embedded capability strengthens cognitive resilience in hybrid and culturally contested environments.

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