Cognitive Wars: The AI Industrialization of Influence

November 06, 2025

Recent signals identify three explicit ML detection gaps—Udrive by download detection, Naive Bayes mixed-performance issues, and

Title and Abstract

- Title: Cognitive Wars: The AI Industrialization of Influence
- Abstract: This theory-first thesis argues that industrialization—understood as technological and organizational change at scale—systematically reshaped the means, scope, and targets of political and strategic influence, producing a distinct form of contest we term "cognitive wars." Cognitive wars are strategic contests aimed primarily at beliefs, attention, memory, and decision-making rather than exclusively at material assets. The project develops a mechanism-rich account that links industrial infrastructure, organizational specialization, and mediated authority to scalable influence operations. It derives testable propositions, specifies an evidence strategy combining process-tracing with comparative

Executive Summary

- Industrialization altered how influence is produced, packaged, and distributed. The central claim: the industrialization of information-production and distribution created routinized, scalable channels for targeting cognition and decision-making at mass and elite levels. The institutionalization of expertise (press bureaus, PR, intelligence analysis, social media platforms, AI-driven content farms) and the expansion of transmission infrastructure lowered marginal costs of influence and increased systemic vulnerabilities. Contemporary digital amplification and algorithmic mediation are continuations of these industrial dynamics rather than categorical novelties: they accelerate feedback loops, provide new proxies for attention, and create automated curation that amplifies both benign and adversarial cognitive operations [A6][A7]

Theoretical Framework: Cognitive Wars

- Definition: Cognitive wars are organized, strategic contests where the primary object of harm or advantage is human cognition and decision-making (beliefs, attention, memory, heuristics), and success is measured by changes in choices, allegiance, or perception rather than strictly by territorial control or kinetic effects.
- Theory-first orientation: I prioritize causal mechanisms (how industrial organization, communicative infrastructures, and professionalized knowledge production generate scalable influence capability) over purely descriptive or periodized narratives. Cognitive wars are positioned as a distinct mode of conflict within broader conflict theory: they intersect with information warfare, propaganda, and psychological operations but are analytically distinct because their

Historical Context: Industrialization and Warfare

- Industrialization reshaped conflict along three axes: scale, speed, and social penetration. Mass production and bureaucratic organization increased the capacity for sustained campaigns; mass communications expanded reach into everyday life; and urbanization aggregated audiences that could be addressed collectively. These changes made possible mass-targeted influence campaigns (e.g., print-era nation-building), total-war propaganda in the early 20th century, and Cold War cognitive campaigns that institutionalized psychological operations. Each industrial phase reconfigured who could be targeted (elite vs. mass), which channels mattered (pamphlets → radio/press → broadcast → networked platforms), and which organizational forms emerged to exploit those channels (state propaganda bureaus, PR firms, intelligence analyst corps, platform

Conceptual Clarifications and Definitions

- - Industrialization: technological and organizational change at scale that reduces unit costs of production and distribution and enables routinized mass operations.
- - Influence: deliberate efforts to alter cognition or behavior via message construction, distribution, and amplification.
- - Cognitive: pertaining to belief, attention, memory, heuristic inference, and decision-making.
- Distinctions: Cognitive wars overlap with propaganda, PSYOP, and information warfare but differ in primary intent and measurement. Propaganda is a technique; cognitive wars are a strategic mode where such techniques are organized at scale to reshape decision environments. Information warfare may include denial, deception, or

Mechanisms: How Industrialization Influences Cognitive Wars

- This section articulates distinct mechanisms through which industrialization enables and shapes cognitive wars. The mechanisms below are presented as causal levers linking structural change to observable patterns of cognitive conflict.
- 1. Expanded transmission infrastructure
- - Mechanism: Railways, telegraph, broadcast, and broadband reduce latency and increase reach, making synchronous and asynchronous mass targeting feasible. Low-latency networks enable cascading attention shifts that are exploitable by coordinated messaging campaigns.
- 2. Lowered marginal cost of mass persuasion
- - Mechanism: Mass printing, broadcast advertising, and automated

Applications (Parameterized Vignettes)

- Overview: The following vignettes operationalize the theory in two contemporary operational settings. Each vignette is parameterized (environmental variables and capability variables), specifies metrics (Mean Time To Acknowledge/Adapt — MTTA, probability of mission failure), and enumerates primary failure modes and diagnostics.
- Vignette A — Disaster Response Under Intermittent Communications
- Scenario: A mixed civil-military response to a major flood in a semi-urban region with intermittent cellular and ad-hoc mesh communications. An influence campaign seeks to redirect evacuation flows and sow mistrust in official instructions.
- Parameters:
- - Comms availability (p_online): proportion of time nodes have

Propositions and Hypotheses

- P1 (Institutional Capacity): Higher levels of industrialization correlate positively with institutional capacity for coordinated cognitive operations (measured via number/size of dedicated influence units, budget, and technological reach).
- P2 (Media Concentration Vulnerability): Industrialization-induced media concentration increases susceptibility of publics to centralized influence campaigns by reducing diversity of information sources and increasing per-channel reach.
- P3 (Phase-Dependent Form): The form of cognitive wars evolves across industrial phases: print-age tactics emphasize symbolic framing and elite persuasion; broadcast-era tactics emphasize mass narratives and emotional appeals; digital-era tactics emphasize microtargeting, algorithmic amplification, and scalable disinformation. These shifts

Methodology and Evidence Strategy

- Mixed methods: process-tracing to link institutional changes to demonstrable campaign capability; archival analysis of organizational records (propaganda bureaus, PR firms, intelligence archives); time-series and cross-sectional analysis linking industrialization indicators (urbanization rates, communications infrastructure density, media ownership concentration) to proxies for cognitive campaign capacity (budgetary outlays, frequency of coordinated messaging, content homogeneity measures). Where available, public opinion time series and behavioral outcomes (turnout shifts, compliance rates) are used for impact estimation.
- Data triangulation strategy: state archives and declassified records for historical cases; content analysis and network diffusion metrics for

Foundations: Anchors and Evidence Selection

- Why these anchors?
- A rigorous, theory-first social science project requires anchor sources that are peer-reviewed, non-preprint, and methodologically transparent. Anchor documents provide durable, citable measurement strategies and validated empirical findings. They are preferred because they (1) have passed disciplinary peer review, giving confidence in internal validity and methodological choices; (2) usually provide detailed datasets or reproducible methods; and (3) situate the argument within established literatures (communication studies, conflict studies, political psychology). In the current working corpus there are zero anchor (peer-reviewed, non-preprint) sources provided. The available materials (preprints, technical reports, and public

Case Studies and Comparative Analysis

- Planned cases: 19th-century print-era nation-building (e.g., conscription and press campaigns), early 20th-century mass propaganda (World War I & II state propaganda bureaus), mid-20th-century Cold War psychological campaigns (radio broadcasts, covert information operations), and early digital-era precursors (botnets, market-driven PR campaigns, platform-enabled misinformation). Comparative dimension: industrialized democracies vs. less-industrialized states; state-directed vs. market-driven influence industries. Cases will be used to refine boundary conditions (literacy rates, media plurality, regulatory institutions) and to test whether the mechanisms outlined above explain cross-case variation.
- ---

Limits & Open Questions

- ### Operational Assumptions & Diagnostics
- **Bounded-Rationality Assumption**: Agents operate with cognitive limits and incomplete information. Trigger: When decision complexity exceeds agent capacity or information gaps persist. Delegation policy: Escalate to higher-level agents or human operators when uncertainty thresholds exceed pre-defined bounds.
- **Adversarial Comms Model**: Communication channels may be compromised, delayed, or jammed. Trigger: When comms latency exceeds deadlines or suspicious patterns detected. Delegation policy: Switch to local consensus protocols, degrade gracefully to autonomous operation, alert human supervisors.
- **Human-in-the-Loop Posture**: Human operators provide oversight

Implications for Policy and Theory

- Policy implications
- - Emphasize institutional architectures: resilience strategies should focus on media plurality, verification infrastructures, and public epistemic literacy rather than solely on tactical content takedowns.
- - Regulatory focus: regulate industrialized vectors (platform recommendation economics, credentialing systems) that lower costs of mass influence and create systemic single points of failure [^6][^7].
- - Operational guidance: incorporate explicit delegation policies, diagnostic triggers, and conservative default behaviors into autonomous systems used in high-consequence decision contexts.
- Theoretical implications

Conclusion and Future Research

- This thesis advances a mechanism-rich, theory-first account linking industrialization to the rise and transformation of cognitive wars. It shows how infrastructural scale, professionalization, institutionalized authority, and algorithmic mediation create routinized capacities for mass influence, while also producing characteristic vulnerabilities. Future empirical work should (1) integrate peer-reviewed anchor studies from communication and conflict literatures, (2) build cross-national longitudinal datasets connecting industrial indicators to influence-capacity proxies, and (3) run controlled field or lab experiments to estimate MTTA and P_fail under parametrized conditions. Operationalizing the diagnostic triggers and delegation policies proposed here will require domain-specific validation and ethical oversight.

Synthesis

- Industrialization does two things to influence: it amplifies capability and routinizes vulnerability. Amplification arises because scale economies and professional specialization lower the cost of producing and distributing persuasive messages; routinization appears because industrial processes create standardized channels and authorities whose compromise cascades broadly. Contemporary AI and platform-mediated amplification accelerate both tendencies by automating production and optimizing for engagement; they therefore magnify systemic fragilities identified in historical precedents. The policy takeaway is not simply more censorship or more automation: resilience requires changing institutional architectures (diversifying epistemic authorities, improving verification

Assumptions Ledger

- | Assumption | Rationale | Observable | Trigger | Fallback/Delegation | Scope |
- |-----------|----------|-----------|--------|--------------------|------|
- | Industrialization (technological and organizational scale-up) materially lowered the marginal cost of producing and distributing influence, enabling routinized, saturating mass persuasion. | Historical transitions (print, radio, broadcast, digital automation) repeatedly reduced per-recipient costs and enabled repetition and broad reach; contemporary content pipelines and programmatic delivery make mass distribution cheaper and faster than before. | Rising volume and frequency of similar messages per unit budget (impressions per dollar), high repetition rates in attention channels, evidence of programmatic/orchestrated dissemination (ad buys, bot networks,

Notation

- | Symbol | Meaning | Units / Domain |
- |---|---|---|
- | \(n\) | number of agents | \(\mathbb{N}\) |
- | \(G_t=(V,E_t)\) | time-varying communication/interaction graph | — |
- | \(\lambda_2(G)\) | algebraic connectivity (Fiedler value) | — |

Claim-Evidence-Method (CEM) Grid

- | Claim (C) | Evidence (E) | Method (M) | Status | Risk | TestID |
- |----------|-------------|-----------|--------|------|--------|
- | Primary: Industrialization (technological + organizational scaling) systematically created routinized, scalable channels for targeting cognition — lowering marginal costs of influence and increasing systemic vulnerabilities. | [7] [6] | Comparative historical process-tracing + cross-era quantitative indicators (content-volume, cost-per-recipient) and organizational records; supplement with econometric tests linking infrastructure adoption to measured influence activity. | E cited; M pending (process-tracing & econometric tests planned) | If false, the central framing that industrial-scale change explains contemporary cognitive conflict is undermined;