

# STRUCTURAL INTELLIGENCE BRIEF

## Information

NAICS 51 - Tier 2 Full Depth: Publishing, Broadcasting, Telecommunications, Data Processing, Internet Services, Software

THINNESS	PERMISSION	MANAGEMENT	ABSENCE
SEVERE	SEVERE	ELEVATED	SEVERE

## S.J. Bridger

Four Frequencies Framework

April 2026

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## Executive Summary

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The Information sector encompasses every operation where data is created, processed, transmitted, or distributed: publishing companies that produce newspapers, books, and periodicals; motion picture and sound recording studios; radio and television broadcasters; telecommunications carriers that maintain the physical network; data processing and hosting services that run the cloud; internet publishers, web search portals, and software publishers. NAICS 51 employs approximately 3.4 million workers across 162,000 establishments, with an average establishment size of roughly 21 employees. The sector generated approximately 2.2 trillion dollars in revenue in the 2022 Economic Census, making it one of the highest-revenue sectors in the American economy relative to its headcount.

The conventional assessment of this sector focuses on market capitalization, revenue growth, subscriber counts, ad impressions, and cloud adoption rates. Those metrics describe current market performance. They do not describe the structural conditions that determine whether the sector can absorb the next antitrust ruling that restructures platform economics, the next cybersecurity breach that exploits the 4.76 million unfilled positions, the next wave of layoffs that removes another 150,000 workers from an already thin institutional knowledge base, or the next year in which another 130 local newspapers close while two companies capture the advertising revenue that once funded local journalism.

The Four Frequencies framework examines a different layer. Where has the sector concentrated into corridors so narrow that two companies control the advertising model and three control the computing infrastructure? Where are regulatory frameworks being rewritten across multiple jurisdictions simultaneously while the companies subject to those frameworks continue operating under the prior rules? Where has the management information architecture produced AI capital expenditure projected to triple to 1.4 trillion dollars by 2027 while 40% of IT budgets remain consumed by legacy technical debt? And where has the sector failed to fund the cybersecurity workforce, the local journalism, the AI safety research, and the broadband access that its own infrastructure makes necessary?

Information is a Tier 2 data coverage sector in this assessment: 16 structural metrics across six federal data sources (BLS, FCC, FTC, Census, SEC, and DOJ). With 3.4 million workers across 162,000 establishments, the sector's structural conditions determine whether the American economy's communications infrastructure is maintained, its financial transactions are processed, its information ecosystem functions, and its digital services remain available. Concentration, regulatory upheaval, and systematic underinvestment produce cascading failures across the sectors that depend on it.

The Information sector is structurally configured as the infrastructure layer for the American economy while simultaneously being the most concentrated, the most actively regulated, and the most structurally underinvested in the functions its own infrastructure requires. The sector has concentrated its advertising revenue into a duopoly where Google and Meta together control over half of global digital ad spend, its computing infrastructure into an oligopoly where AWS, Azure, and Google Cloud control 67% of the market, and its telecom revenue into a triopoly where Verizon, AT&T, and T-Mobile capture over 95% (Thinness). It faces simultaneous antitrust proceedings against its four largest companies across U.S. and EU jurisdictions, 20 state privacy laws, the EU AI Act with penalties up to 7% of global turnover, copyright litigation over AI training data, and the first major platform fines under the Digital Services Act and Digital Markets Act (Permission). It has built an investment architecture where AI capital expenditure is projected to triple to 1.4 trillion dollars by 2027 while 40% of IT budgets remain consumed by technical debt, 75% of venture-backed companies never return cash to investors, and Big Tech employee tenure of 1.3 to 1.9 years prevents institutional knowledge from accumulating (Management). And it has allowed the cybersecurity workforce gap to reach 4.76 million, local news to collapse into 213 desert counties affecting 50 million Americans, the rural-urban broadband gap to persist at 72% versus 98%, AI safety spending to run at a 10,000-to-1 ratio against capability investment, and 82% of its workforce to report near-burnout conditions (Absence). The structural consequence: the sector that provides the infrastructure the entire economy depends on has concentrated the revenue in a handful of companies, triggered the regulatory response that concentration invites, and failed to fund the security, information, access, and human capacity its own infrastructure makes necessary.



- **MINIMAL.** No dangerous dependencies
- **MODERATE.** Visible but not load-bearing
- **ELEVATED.** Something finite absorbing extra load
- **SEVERE.** Damage spreads when something breaks
- **CRITICAL.** Multiple failures compounding

## Sector Structural Profile

The Information sector is structurally configured as the infrastructure layer for the American economy while simultaneously being the most concentrated, the most actively regulated, and the most structurally underinvested in the functions its own infrastructure requires. The sector has concentrated its advertising revenue into a duopoly, its computing infrastructure into an oligopoly, and its telecom revenue into a triopoly (Thinness). It faces simultaneous antitrust proceedings against its four largest companies across

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jurisdictions, 20 state privacy laws, the EU AI Act with penalties reaching 7% of global turnover, copyright litigation over AI training data, and major platform fines under the Digital Services Act and Digital Markets Act (Permission). It has built an investment architecture where AI capital expenditure is projected to triple to 1.4 trillion dollars by 2027 while 40% of IT budgets remain consumed by technical debt, 75% of venture-backed companies never return cash to investors, and Big Tech employee tenure of 1.3 to 1.9 years prevents institutional knowledge from accumulating (Management). And it has allowed the cybersecurity workforce gap to reach 4.76 million, local news to collapse into 213 desert counties, the rural-urban broadband gap to persist at 72% versus 98%, AI safety spending to run at a 10,000-to-1 ratio against capability investment, and 82% of its workforce to report near-burnout conditions (Absence). Each frequency's condition makes the others worse.

## Four Frequency Severity Assessment

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### T Thinness SEVERE

Where platform concentration has created structural dependency across the American economy while workforce instability, publishing collapse, and layoff cycles have eroded the sector's operational depth. The Information sector presents the most extreme concentration profile of any sector this assessment covers. The concentration is not merely market share. It is infrastructure dependency: the broader economy cannot function without the advertising distribution, computing infrastructure, and communications networks these concentrated players operate.

Google's advertising revenue exceeded 200 billion dollars in 2024, making it the first company to surpass that threshold. Meta generated over 160 billion dollars. Together with Amazon, these three companies captured over 51% of global advertising revenue. This is the revenue model that funds digital media, supports content creation, and subsidizes the information ecosystem. When three companies control the revenue mechanism, every downstream publisher, creator, and media organization operates at their structural discretion. The cloud concentration compounds the dependency: AWS holds 31% of cloud infrastructure, Microsoft Azure 25%, and Google Cloud 10% (a combined 67% of the market on which digital services, financial transactions, and government operations depend).

Infrastructure dependency differs from market share. Cloud became infrastructure when enterprises could not revert to on-premises deployment at parity cost or skill availability. The 67% concentration across three providers means the sector cannot distribute failure. It must absorb simultaneous outage across providers that share physical infrastructure regions and talent pools. Multi-cloud strategies provide theoretical redundancy until a shared dependency is tested. The Azure outages of 2024 demonstrated that organizations with multi-cloud architectures still waited for Azure to recover, because the workloads they had migrated could not failover at the speed the outage required.

The workforce layer beneath this concentration is structurally thin and getting thinner. In 2024, 152,922 tech workers were laid off across 551 companies. In 2025, 124,201 more across 271 companies, with AI cited as the driver for approximately 55,000 of those reductions. Big Tech employee tenure tells the

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institutional knowledge story: Meta averages 1.3 years, Amazon 1.5, Apple 1.7, Microsoft 1.8, Google 1.9. Annual turnover in tech runs 13.2%. This is not a sector that accumulates institutional depth. It is a sector that cycles through human capital at a rate that makes the platforms themselves the only persistent knowledge repositories.

The publishing subsector provides the starkest Thinness measurement. Newspaper employment has collapsed 82% since 1990 (from over 450,000 jobs to 78,800). Over 8,297 journalists have been laid off since 2022, representing 9% of the total workforce. The telecommunications subsector shows a different form of concentration: Verizon, AT&T, and T-Mobile capture over 95% of total telecom revenue from a 344 billion dollar market. H-1B visa dependency adds a structural pipeline dimension: 64% of all H-1B approvals go to computer-related occupations, with Meta self-designating as “H-1B dependent” (more than 15% of its U.S. workforce). The semiconductor industry faces 67,000 positions at risk of going unfilled by 2030. The sector that provides the economy’s computing infrastructure cannot fill the positions that maintain it.

**Federal data anchors:** Federal data anchors: Census Bureau (162,000 establishments, 3.4M employment, 21 avg per establishment, 2.2T sector revenue); BLS (78,800 newspaper jobs, 82% decline since 1990; tech layoffs 152,922 in 2024, 124,201 in 2025); Google ad revenue (200B+); cloud market share (AWS 31%, Azure 25%, GCP 10% = 67%); telecom revenue (344B, top 3 carriers 95%+); H-1B data (64% computer-related, Meta H-1B dependent); SIA semiconductor gap (67,000 unfilled by 2030).

## **P Permission SEVERE**

Where the regulatory framework governing the sector is being rewritten across multiple jurisdictions simultaneously, producing structural uncertainty about whether the commercial arrangements that generate the sector’s revenue will survive legal challenge. The Permission frequency in the Information sector measures whether authority structures (who can operate, under what rules, with what data, through what commercial arrangements) align with the sector’s actual structural position. The data describes a sector where those structures are being dismantled and rebuilt in real time.

The antitrust velocity is unprecedented. In August 2024, a federal court ruled that Google illegally maintained monopolies in general search and search advertising through exclusive default agreements. In March 2025, the DOJ proposed Chrome divestiture and bans on default search agreements. In September 2025, Judge Mehta rejected Chrome divestiture but imposed restrictions on exclusive default search deals and required Google to share search index data with competitors. This remedy restructures the commercial arrangements without breaking the company apart. In April 2025, Google was separately found to hold an illegal monopoly in the ad exchange and publisher ad server markets. The FTC won denial of Meta’s summary judgment motion in November 2024, with trial proceeding in April 2025. Amazon’s antitrust case was allowed to proceed in September 2024, with trial scheduled for June 2025. Apple’s illegal smartphone monopoly case survived a motion to dismiss in June 2025. Four of the sector’s largest companies face active antitrust proceedings simultaneously.

The EU regulatory framework has moved from legislation to enforcement. The Digital Services Act produced its first fine: 120 million euros against X for dark patterns and transparency failures, with a penalty cap of 6% of global annual turnover. The Digital Markets Act produced fines of 500 million euros against Apple for App Store steering violations and 200 million euros against Meta for data choice

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non-compliance, with penalty caps of 10–20% of global turnover. The EU AI Act entered into force in August 2024, with prohibitions on unacceptable-risk AI effective February 2025 and general-purpose AI rules plus penalty regime (up to 35 million euros or 7% of global turnover) effective August 2025. These are not proposed regulations. They are active enforcement regimes with penalties calibrated to the scale of the companies they govern.

Privacy regulation has fragmented into 20 state-level comprehensive privacy laws across the United States, with seven enacted in 2024 alone. The absence of federal privacy legislation means a company with national operations must navigate 20 distinct regulatory environments simultaneously. Copyright litigation adds another Permission vector: the *New York Times v. OpenAI* case survived a motion to dismiss in March 2025, with core copyright infringement claims proceeding and a preservation order covering 400 million ChatGPT users. Section 230 reform remains structurally incomplete. The TAKE IT DOWN Act (signed May 2025) criminalizes nonconsensual intimate images with a 48-hour removal mandate, but no comprehensive reform of platform liability has passed since the 2018 FOSTA carveout. The Permission architecture governing this sector is not stable. It is being reconstructed across every dimension simultaneously.

**Federal data anchors:** Federal data anchors: DOJ (Google search monopoly ruling Aug 2024; Chrome divestiture proposed March 2025, rejected Sept 2025 with search deal restrictions imposed; Google ad monopoly finding April 2025; Amazon case June 2025 trial); FTC (Meta trial April 2025; Apple monopoly case proceeding); EU Commission (DSA: 120M fine to X; DMA: 500M Apple, 200M Meta; AI Act penalties up to 7% turnover); state privacy laws (20 comprehensive); *NYT v. OpenAI* (copyright case proceeding, 400M user preservation order); Section 230 (TAKE IT DOWN Act signed May 2025).

## M Management ELEVATED

Where AI capital expenditure is tripling while technical debt consumes 40% of IT budgets, venture capital failure rates run 75%, employee tenure prevents institutional knowledge accumulation, and the sector's largest companies are restructuring simultaneously through M&A and layoffs. The Management frequency in the Information sector measures whether the sector's information architecture converts market signals, governance data, and investment outcomes into corrective action. The data describes a sector whose largest companies retain significant governance resources while the broader sector operates on structural assumptions that the data contradicts.

The capital allocation pattern reveals the Management frequency's central tension. AI infrastructure capital expenditure is projected to nearly triple to 1.4 trillion dollars by 2027, driven primarily by hyperscaler spending on data centers and computing capacity. In 2024 alone, private AI investment reached 252 billion dollars globally, with generative AI receiving 34 billion dollars. Meanwhile, 40% of IT budgets across the sector go to maintaining legacy systems. Forty-seven percent of IT leaders cite technical debt as a major contributor to overspending. Sixty percent say technical debt has increased materially over the past three years, with 10–20% of new product budgets diverted to debt resolution. The structural reading: the sector is simultaneously tripling its bet on AI infrastructure while failing to resolve the legacy burden that constrains its capacity to absorb what it is building.

Venture capital provides the broadest Management frequency measurement for the sector's startup ecosystem. Seventy-five percent of venture-backed companies never return cash to investors. Thirty to forty percent of cases result in investors losing their entire initial investment. The global startup failure rate

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is 90%, with 20% failing in year one and 70% between years two and five. First-time founders succeed 18% of the time; serial founders, 20%. These are not edge-case failure rates. They are the baseline operating condition for the sector's innovation pipeline: nine out of ten funded ventures fail, and three-quarters never generate a return.

M&A activity reveals how the sector's largest companies are restructuring their governance architecture. Alphabet acquired Wiz for 32 billion dollars in March 2025 (its largest acquisition ever). Synopsys acquired Ansys for 35 billion dollars with FTC-mandated asset divestitures. HPE completed its 14 billion dollar acquisition of Juniper Networks. ServiceNow acquired Moveworks for 2.85 billion dollars. The pattern is consolidation driven by AI capability acquisition, with regulatory conditions (FTC divestiture requirements, DOJ oversight) actively shaping which combinations are permitted. Big Tech employee tenure of 1.3 to 1.9 years means the companies executing these acquisitions cycle through their workforce faster than the integration timelines the deals require. Management registers as Elevated rather than Severe because the sector's largest companies retain substantial governance infrastructure, cash reserves, and strategic flexibility. The broader sector, however, operates under conditions where legacy debt, VC failure rates, and workforce instability produce persistent information architecture strain.

**Federal data anchors:** Federal data anchors: SEC (M&A filings: Alphabet-Wiz 32B, Synopsys-Ansys 35B, HPE-Juniper 14B); FTC (Synopsys-Ansys divestiture mandate); McKinsey/IEEE (AI capex projected 1.4T by 2027; 40% IT budgets on legacy; 60% report increased tech debt); HBS/VC data (75% never return cash, 90% startup failure, 18% first-time founder success); Big Tech tenure data (Meta 1.3yr, Amazon 1.5yr, Apple 1.7yr, Microsoft 1.8yr, Google 1.9yr).

## A Absence SEVERE

Where the cybersecurity workforce gap has reached 4.76 million, local news has collapsed into 213 desert counties, AI safety spending runs at a 10,000-to-1 ratio against capability investment, broadband access gaps persist along rural-urban lines, and 82% of the workforce reports near-burnout conditions. The Absence frequency in the Information sector measures where critical knowledge, capacity, or infrastructure has departed, concentrated, or failed to develop. The data describes a sector that has invested massively in capability while systematically underinvesting in the security, information integrity, workforce health, and equitable access its own infrastructure makes necessary.

The cybersecurity workforce gap is the most precisely measured Absence condition. The ISC2 2024 study found 4.76 million unfilled cybersecurity positions globally, a 19.1% increase from the prior year. Ninety percent of organizations report cybersecurity skills shortages. Fifty-eight percent say the shortage puts their organization at significant risk. The structural finding that reframes this as deliberate rather than accidental: for the first time in 2024, "lack of budget" replaced "lack of qualified talent" as the primary driver of the shortage. The people exist. The organizations are choosing not to fund the positions. In a sector where cyberattacks increased 30% year-over-year and data breaches averaged 4.88 million dollars per incident in 2024, this is not a talent market failure. It is a capital allocation decision that prioritizes AI capability investment over the security infrastructure that protects the data AI processes.

Local news collapse provides the information integrity dimension of Absence. Two hundred thirteen U.S. counties (6.8% of the total) now have no local news source at all. Another 1,524 counties have a single source. Fifty million Americans have limited or no access to local news, up from 37 million two decades

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ago. Over 130 newspapers close annually. The structural mechanism is direct: Google and Meta captured the advertising revenue that once funded local journalism, concentrating it into platforms that produce no original local reporting. The information infrastructure the economy depends on for accountability, civic participation, and local market intelligence is collapsing as a direct structural consequence of the same platform concentration that drives the sector's Thinness conditions.

AI safety spending reveals the sector's most asymmetric Absence condition. Hyperscaler AI capital expenditure exceeded 200 billion dollars in 2024. Private AI investment reached 252 billion dollars globally. Against this, the eleven leading U.S. AI safety organizations spent a combined 133.4 million dollars per year (less than major AI labs individually spend in a single day). Public sector AI safety research operates at approximately 10 million dollars, producing a capability-to-safety ratio that researchers estimate at 10,000 to 1. The sector is deploying transformative technology at a scale and velocity that its own safety research cannot evaluate, while the regulatory frameworks designed to govern it (EU AI Act, state-level AI bills) lag by years behind the capabilities they attempt to regulate.

The digital divide persists as physical infrastructure Absence. Rural broadband access at 100/20 Mbps stands at 72% versus 98% in urban areas. Rural fiber penetration is 25% versus 50% urban. Rural household broadband adoption runs 73% versus 77% urban and 86% suburban. The OECD broadband speed gap between metro and rural areas widened from 22 Mbps to 58 Mbps between 2019 and 2024. This is the sector that sells connectivity. Roughly a quarter of the rural population cannot access the infrastructure the sector provides at the speed threshold the modern economy requires. Meanwhile, 82% of UK tech workers report feeling close to burnout. Sixty-two percent of 32,644 tech professionals across 33 countries feel physically or emotionally drained. Seventy-two percent of tech founders report mental health impacts. The workforce that builds and maintains the sector's infrastructure is burning out at rates that compound every other Absence condition.

**Federal data anchors:** Federal data anchors: ISC2 (4.76M cybersecurity gap, 19.1% YoY increase, 90% report skills shortage, budget now #1 driver); Medill/Northwestern (213 news desert counties, 50M limited access, 130+ papers close annually); FCC (rural broadband 72% vs urban 98%; rural fiber 25% vs urban 50%); Future of Life Institute (AI safety 133.4M combined vs 200B+ capability capex; 10,000:1 ratio); tech burnout data (82% near-burnout, 62% drained, 72% founder mental health impacts).

**Revision conditions.** *This assessment reflects structural conditions measured as of April 2026 using the federal data sources cited above. Thinness would be revised from SEVERE to ELEVATED if platform advertising concentration declined below 40% market share for the top two players, or if Big Tech employee tenure exceeded 3.5 years on average for two consecutive measurement periods. Permission would be revised if the volume of active antitrust proceedings fell below one simultaneous case, or if federal privacy legislation created a single nationwide standard. Management would be revised if technical debt consuming IT budgets fell below 25%, or if venture-backed company success rates exceeded 40%. Absence would be revised if cybersecurity job gap fell below 2 million unfilled positions, news desert counties declined below 50, or tech worker burnout rates fell below 40%. Reassessment is recommended if any of these conditions change or after 18 months.*

## Federal Data Metrics

SOURCE	METRIC	READING
Census Bureau	Establishments (NAICS 51)	162,000
Census Bureau	Sector employment	3.4 million
Census Bureau	Average establishment size	~21 employees
Census Bureau	Sector revenue (2022 Economic Census)	2.2 trillion dollars
Company filings	Google annual advertising revenue	200 billion+ dollars
Company filings	Meta annual advertising revenue	160 billion+ dollars
Market data	Top 3 companies share of global ad revenue	51%+
Market data	AWS cloud infrastructure share	31%
Market data	Microsoft Azure cloud share	25%
Market data	Google Cloud cloud share	10%
Market data	Combined cloud concentration (Big 3)	67%
Telecom data	Telecom market revenue	344 billion dollars
Telecom data	Top 3 telecom carriers concentration	95%+
BLS	Newspaper employment (2026)	78,800
BLS	Newspaper employment decline since 1990	82%
BLS	Tech layoffs (2024)	152,922 workers
BLS	Tech layoffs (2025)	124,201 workers
BLS	AI-driven layoffs (2025)	~55,000
Company data	Meta employee tenure average	1.3 years
Company data	Amazon employee tenure average	1.5 years
Company data	Apple employee tenure average	1.7 years
Company data	Microsoft employee tenure average	1.8 years
Company data	Google employee tenure average	1.9 years
Industry data	Tech sector annual turnover rate	13.2%
H-1B data	H-1B approvals in computer-related jobs	64%
DOJ/Courts	Google search monopoly ruling	August 2024
DOJ/Courts	Chrome divestiture status	Rejected September 2025; search deal restrictions imposed
DOJ/Courts	Google ad monopoly finding	April 2025

SOURCE	METRIC	READING
Regulatory	Active antitrust proceedings (major companies)	4 simultaneous (Google, Meta, Amazon, Apple)
EU Commission	DSA fine to X	120 million euros
EU Commission	DMA fine to Apple	500 million euros
EU Commission	DMA fine to Meta	200 million euros
EU Commission	EU AI Act penalty cap	7% of global turnover
Privacy regulation	U.S. state comprehensive privacy laws	20
ISC2	Global cybersecurity workforce gap	4.76 million unfilled positions
ISC2	Cybersecurity gap YoY increase	19.1%
ISC2	Organizations reporting skills shortage	90%
ISC2	Orgs reporting significant risk from shortage	58%
ISC2	Primary driver of shortage (2024)	Lack of budget (not talent scarcity)
News research	U.S. counties with zero local news	213
News research	Americans with limited/no local news access	50 million
News research	Newspapers closing annually	130+
News research	Journalists laid off since 2022	8,297
FCC	Rural broadband access (100/20 Mbps)	72%
FCC	Urban broadband access (100/20 Mbps)	98%
FCC	Rural fiber penetration	25%
FCC	Urban fiber penetration	50%
AI investment	Hyperscaler AI capex (2024)	200 billion+ dollars
AI investment	Private AI investment (2024)	252 billion dollars
AI investment	AI safety organizations combined annual spending	133.4 million dollars
VC data	Venture-backed companies never returning cash	75%
VC data	Global startup failure rate	90%
VC data	First-time founder success rate	18%
M&A; data	Alphabet-Wiz acquisition	32 billion dollars (largest ever for Alphabet)
M&A; data	Synopsys-Ansys acquisition	35 billion dollars

SOURCE	METRIC	READING
M&A; data	HPE-Juniper Networks acquisition	14 billion dollars

This assessment draws on structural data from six primary federal sources. Information is a Tier 2 data coverage sector: 16 metrics across multiple agencies. BLS (Bureau of Labor Statistics): QCEW establishment data (162,000 establishments, 3.4M employment); OES wage data; JOLTS quits and separation data; union membership (9.3%); newspaper employment tracking (78,800 jobs, -82% since 1990); tech layoff tracking. FCC (Federal Communications Commission): Broadband deployment data (rural 72% vs urban 98% at 100/20 Mbps); telecommunications revenue (344B); spectrum allocation; net neutrality policy; broadband adoption rates. FTC (Federal Trade Commission): Antitrust enforcement (Meta trial April 2025; Apple monopoly case); consumer protection actions; merger review (Synopsys-Ansys divestiture mandate); platform competition oversight. Census Bureau: Establishment counts and size distribution (162,000 establishments, ~21 avg); Economic Census sector revenue (2.2T); County Business Patterns; Annual Business Survey workforce demographics. DOJ (Department of Justice): Antitrust Division enforcement (Google search monopoly ruling, Chrome divestiture proposed/rejected with search deal restrictions imposed, Google ad monopoly finding); Amazon antitrust case; criminal enforcement. SEC (Securities & Exchange Commission): Public company financial disclosures (tech company quarterly filings); M&A transaction filings (Alphabet-Wiz 32B, Synopsys-Ansys 35B); executive compensation and governance data. Additional data from: ISC2 Cybersecurity Workforce Study 2024–2025 (4.76M gap, budget as #1 driver); Medill/Northwestern news desert research (213 counties, 50M limited access); European Commission DSA/DMA/AI Act enforcement records (820M+ in platform fines); Crunchbase/Layoffs.fyi (tech layoff tracking 2024–2025); Future of Life Institute AI Safety Index (safety spending data); SIA semiconductor workforce study (67,000 gap by 2030); Pew Research (newsroom employment, H-1B statistics); USCIS (H-1B approval data FY2024).

## The 12 Public Dimensions

Twelve of the twenty Four Frequencies dimensions are measurable from publicly available federal data. These dimensions describe the structural environment every organization in Information inherits.

### T1 - Platform Concentration

Google+Meta control 50%+ global ad revenue. AWS+Azure+GCP = 67% cloud infrastructure. Verizon+AT&T+T-Mobile = 95%+ telecom.

### T2 - Workforce Instability

Big Tech tenure 1.3–1.9 years. 152K+ layoffs annually. 13.2% sector turnover. Workforce cycles faster than knowledge accumulates.

### T3 - Pipeline Dependency

64% H-1B approvals computer-related. Meta H-1B dependent (15%+ workforce). 67K semiconductor positions unfilled by 2030.

### T4 - Subsector Collapse

Newspaper jobs 78,800 (-82% since 1990). 8,297 journalists laid off since 2022. Market declining -1.3% CAGR.

### P1 - Antitrust Exposure

Google search monopoly, Chrome divestiture rejected with restrictions (Aug 2024–Sept 2025), ad monopoly finding (April 2025). Meta, Amazon, Apple cases active simultaneously.

### P2 - Cross-Jurisdictional Regulation

EU DSA: 120M fine to X. EU DMA: 500M Apple, 200M Meta. EU AI Act: up to 7% turnover penalties. 20 U.S. state privacy laws.

### P3 - IP and Data Rights

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NYT v. OpenAI copyright case proceeding (March 2025), 400M user preservation order. AI training data rights unresolved. Section 230 incomplete.

#### **P5 - Workforce Authority**

Union density 9.3% (concentrated in telecom/broadcast). Tech workers largely unrepresented. 55K AI-driven layoffs with minimal collective bargaining.

#### **M1 - Capital Allocation**

AI capex projected 1.4T by 2027. Private AI 252B (2024). But 40% IT budgets on legacy tech debt. 60% report increased debt materially.

#### **M2 - Innovation Pipeline**

75% VC-backed never return cash. 90% startup failure rate. 20% fail year 1, 70% years 2–5. First-time founder success 18%.

#### **M3 - Institutional Knowledge**

Big Tech tenure 1.3–1.9 years. 13.2% turnover. Replacement cost 50–60% salary. Cycles faster than integration timelines for 32B+ acquisitions.

#### **M5 - Consolidation Governance**

Alphabet-Wiz 32B (largest ever). Synopsys-Ansys 35B (FTC divestitures). HPE-Juniper 14B. Regulatory conditions shaping permitted combinations.

#### **A1 - Cybersecurity Gap**

4.76M unfilled positions (+19.1% YoY). 90% orgs report shortage. 58% say significant risk. Budget now #1 driver (not talent scarcity).

#### **A2 - Information Deserts**

213 counties zero local news. 1,524 with single source. 50M limited access. 130+ papers close annually. Platform concentration extracted journalism revenue.

#### **A3 - Safety Investment Gap**

AI safety 133.4M/year combined (11 leading orgs). Hyperscaler capex 200B+. Ratio ≈10,000:1 capability vs. safety.

#### **A4 - Infrastructure Access**

Rural broadband 100/20 Mbps: 72% vs urban 98%. Rural fiber: 25% vs urban 50%. Speed gap widened 22 to 58 Mbps (2019–2024).

## **The 8 Diagnostic-Only Dimensions**

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The following eight dimensions can only be scored through the Four Frequencies diagnostic engagement using behavioral intelligence data from inside the organization. Federal data reveals the sector-level structural conditions above. These dimensions reveal the organization-specific structural dynamics that determine whether your organization is absorbing compensatory load for the sector-level weaknesses, or compounding them.

#### **T5 - Platform Dependency Depth**

Whether your revenue, distribution, or computing infrastructure depends on a platform whose regulatory conditions could change via court ruling.

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#### **P4 - Compliance Architecture**

Whether your data handling, content moderation, and AI practices can absorb 20 state laws, EU AI Act, and antitrust remedies simultaneously.

#### **M4 - Technical Debt Conversion**

Whether you convert technical debt signals into resolution at a rate preventing legacy burden from consuming AI integration capacity.

#### **A5 - Security Posture Depth**

Whether your cybersecurity staffing, tooling, and response architecture match the threat environment (30% YoY attacks, 4.88M avg breach cost).

*The gap between what federal data reveals (16 dimensions) and what the diagnostic measures (all 20) is not a marketing device. It is the structural reality of organizational intelligence. Public data shows the sector-level weather. The diagnostic shows whether your roof leaks. In the Information sector, that distinction carries existential consequence.*

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## **Structural Risk Scenarios**

Structural conditions do not predict specific events. They define the envelope of probable outcomes. The following scenarios are structurally plausible given current conditions. They are not forecasts. They are the shapes that failure takes in a sector with this structural profile.

### **Platform Dependency Cascade**

When two companies control over half of global digital advertising revenue and three control two-thirds of computing infrastructure, the structural risk is not individual company failure. It is cascade: when regulatory restrictions on Google's default search agreements restructure the commercial model that fund billions of users' search experience and millions of publishers' advertising revenue, the cascade moves faster than individual organizations can respond. Your organization may depend on Google for search distribution, AWS for computing infrastructure, and Meta for user acquisition. Each platform faces simultaneous antitrust exposure across jurisdictions. When a court remedy changes one platform's commercial model, it does not affect your organization directly. But it changes the economics, the API contracts, the pricing structure, and the competitive position of every downstream business that platform touches. The structural risk is not platform failure. It is platform restructuring that your organization's revenue model was not designed to absorb.

### **Regulatory Fragmentation**

Your organization must navigate 20 state privacy laws with no federal standard, the EU AI Act with penalties up to 7% of global turnover, four simultaneous antitrust proceedings against your largest platform partners, and copyright litigation over AI training data with unresolved legal doctrine. The threshold risk is not that any single regulation will break you. It is that the simultaneous reconstruction of the regulatory

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framework across antitrust, privacy, AI governance, and platform liability creates structural uncertainty that exceeds your organization's compliance architecture. You built your compliance for a Permission environment defined by Section 230 and light-touch antitrust. That environment no longer exists. Your compliance infrastructure is reactive and fragmented. When the regulatory ground shifts across all dimensions simultaneously, reactive compliance becomes structural exposure.

## **Workforce Knowledge Departure**

In a sector where Big Tech tenure averages 1.3 to 1.9 years and the cybersecurity workforce gap has reached 4.76 million, the structural risk is not that skilled people are unavailable. It is that the organizations funding capability investment (AI, infrastructure, engineering) are systematically underinvesting in the security, safety, and operational knowledge that capability depends on. The most experienced security architects, the people who recognized patterns before monitoring tools detected them, the institutional knowledge carriers: they are departing at accelerating rates into a labor market where 90% of organizations report cybersecurity skills shortages but lack the budget to fund positions. Your organization may have capital for AI infrastructure. You do not have the security depth to evaluate whether that infrastructure is defensible. The structural consequence: capability investments outpace the knowledge infrastructure needed to deploy them safely.

## **Cross-Cutting Theme Connections**

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Three cross-cutting structural themes operate at elevated intensity in the Information sector.

### **Platform Concentration**

The defining structural condition of the Information sector is that its economic success and its structural fragility emerge from the same source: concentration. Google and Meta control the advertising model. AWS, Azure, and GCP control the computing infrastructure. Verizon, AT&T, and T-Mobile control the communications network. This concentration is simultaneously what makes the sector economically dominant, what makes it structurally fragile (any disruption cascades across the economy), and what triggers the regulatory response that creates Permission-frequency strain. Platform concentration is the mechanism through which all four frequencies interact in this sector.

### **Regulatory Reconstruction**

No other assessed sector faces the volume, velocity, and jurisdictional breadth of regulatory action that the Information sector currently experiences. U.S. antitrust proceedings against Google, Meta, Amazon, and Apple simultaneously. EU enforcement under three distinct frameworks (DSA, DMA, AI Act) producing fines and mandated changes. Twenty state privacy laws creating non-linear compliance scaling. Copyright litigation over AI training data without resolved legal doctrine. The structural consequence is not that any single regulation will break the sector. It is that simultaneous reconstruction of the regulatory framework across every dimension creates structural uncertainty that business models were not designed to absorb.

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## Structural Underinvestment

The Information sector spends more on AI capability development in a single quarter than the combined annual budgets of every cybersecurity research program, every local newsroom, every AI safety organization, and every rural broadband expansion initiative. This is not a funding gap from scarcity. It is a capital allocation architecture that systematically directs investment toward capability while underinvesting in security, information integrity, safety, and access that capability makes necessary. The cybersecurity gap exists because organizations choose not to fund positions, not because qualified people do not exist. Local news collapses because platform economics extract advertising revenue without producing replacement journalism. AI safety receives 1/10,000th of capability spending because markets reward deployment speed, not deployment safety.

## What This Means for Organizations in This Sector

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The structural conditions identified in this assessment are visible to anyone working in the Information sector. The platform dependency, the regulatory uncertainty, the cybersecurity pressure, the layoff cycles. These are the conditions technology, media, telecom, and software leaders navigate daily. What this assessment adds is the structural architecture: how these conditions interact, where they compound, and which conditions are within organizational control versus which are sector-level forces that no single company can resolve.

Three structural observations emerge from this analysis. But first, the interaction mechanism. These four frequencies do not merely coexist. They connect through specific structural pathways. Platform concentration (Thinness) creates the antitrust exposure that produces regulatory reconstruction (Permission). Regulatory reconstruction creates uncertainty about which commercial arrangements will survive legal challenge, which disrupts the capital allocation models that drive M&A and AI investment (Management). Capital allocation that prioritizes AI capability over security, safety, and access produces the structural gaps (cybersecurity, news deserts, broadband access, AI safety) that define the Absence frequency. Absence conditions (burnout, news collapse, security gaps) erode the workforce and information infrastructure that the sector needs to navigate the Thinness and Permission conditions. Each frequency's condition makes the others worse.

Platform concentration is simultaneously the sector's economic engine and its structural liability. The same concentration that generates the revenue, the market position, and the infrastructure utility that makes the Information sector essential to the American economy is what creates the antitrust exposure, the downstream dependency, and the single-point-of-failure risk that defines its structural fragility. For any organization in this sector, the diagnostic question is not "are we dependent on a platform?" but rather: given that the regulatory framework governing platform economics is being rewritten in real time, is your revenue model, your distribution architecture, and your computing infrastructure designed to absorb the specific restructuring that the Google, Meta, Amazon, or Apple proceedings could produce? Or are you assuming a commercial environment that a federal court ruling could change within months?

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The regulatory reconstruction creates structural uncertainty that the sector's business models were not designed to absorb. Companies that built their operations during two decades of Section 230 protection and light-touch antitrust are now operating under active enforcement across antitrust (four simultaneous proceedings), privacy (20 state laws, no federal standard), AI governance (EU AI Act with 7% turnover penalties), platform regulation (DSA and DMA enforcement), and intellectual property (AI training data copyright litigation). For any organization in this sector, the diagnostic question is: is your compliance architecture designed for the regulatory environment that exists today (one where the rules are being rewritten across every dimension simultaneously), or is it designed for the environment that existed three years ago?

Structural underinvestment in security, information integrity, and safety is a capital allocation choice, not a resource constraint. The sector generates 2.2 trillion dollars in revenue. It is not short of capital. The cybersecurity gap exists because organizations choose not to fund the positions. Local news collapses because the advertising revenue is captured by platforms that produce no local journalism. AI safety receives 1/10,000th of capability spending because the market rewards deployment speed, not deployment safety. For any organization in this sector, the diagnostic question is: are the functions you are underinvesting in (security, content integrity, safety evaluation, workforce sustainability) the same functions whose absence creates the structural exposure that your next crisis will exploit?

## Methodology

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The Four Frequencies framework measures structural resilience across four dimensions: Thinness (depth of critical capacity), Permission (distribution of decision authority), Management (leadership and operational effectiveness), and Absence (gaps in critical functions and their consequences). Each frequency is assessed across five dimensions, for a total of twenty structural measurements.

Sector-level assessments draw on federal data mapped to the twelve publicly-measurable dimensions. Organization-level diagnostics add behavioral intelligence from internal raters to score all twenty dimensions. The combination produces the Structural Resilience Index (SRI), a composite score calibrated to a five-band severity scale.

Severity terminology: MINIMAL (structural conditions within normal operating parameters, no dangerous dependencies), MODERATE (early structural conditions that merit monitoring, concentration visible but not yet load-bearing), ELEVATED (active structural conditions requiring attention, something finite is absorbing extra load), SEVERE (significant structural vulnerability with compounding risk, damage spreads when something breaks), CRITICAL (acute structural vulnerability requiring immediate intervention, multiple failures compounding).

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## What This Means for Your Organization

This brief describes the structural environment your organization operates inside. Whether these sector-level conditions are amplified or mitigated within your specific organization depends on your internal structural profile.

The Four Frequencies diagnostic measures all 20 dimensions for a single organization, producing a 40-page structural analysis with the Structural Resilience Index.

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## About S.J. Bridger

S.J. Bridger is a structural resilience diagnostics practice. We analyze the structural conditions that determine whether organizations hold together when key people leave, when systems fail, and when the relationships that carried institutional knowledge disappear. The Four Frequencies framework was developed through forensic analysis of organizational failures across multiple sectors and refined through diagnostic engagements that measure what traditional assessments miss.

Structural Intelligence Briefs are published assessments of sector-level conditions. They are updated quarterly as federal data sources release new information. The Information brief is the second in a series covering all 20 NAICS sectors.

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**DISCLAIMER:** This Structural Intelligence Brief is a sector-level structural assessment based on publicly available federal data and the Four Frequencies analytical framework. It does not constitute advice to any specific organization. It does not establish a consulting engagement, advisory relationship, or professional obligation between S.J. Bridger and any reader or recipient.

Sector-level structural conditions described in this brief may or may not apply to any individual organization within the Information sector. Organizational structural profiles vary based on internal conditions that are measurable only through diagnostic engagement. Decisions regarding organizational strategy, workforce planning, risk management, or any other operational matter should not be based solely on the sector-level findings in this document.

The severity scores, structural risk scenarios, and analytical observations in this brief reflect conditions as of the publication date. Federal data sources update at varying intervals. This brief will be updated quarterly. Prior versions should not be relied upon after a subsequent version has been published.

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