WPP Media

FUTURE OF ADVERTISING INTELLIGENCE 2030: FRAMEWORK DEFINITIONS

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Framework Overview

This framework evaluates companies' capabilities to own the future of "search" and intelligence—interpreted broadly as becoming the primary source of intelligence for the world's businesses and consumers by 2030. The assessment focuses on each company's ability to connect brands with consumers through personalized, proactive intelligence.

Time Horizon: Five years out (2030), using current state to theorize future strengths and opportunities.

Total Possible Score: 180 points across five categories

Category Weighting:

- Data Assets: 40 points (22.2%)
- AI/Technical Capability: 40 points (22.2%)
- Distribution: 40 points (22.2%)
- Transaction Capability: 30 points (16.7%)
- Content/Media: 30 points (16.7%)

CATEGORY 1: DATA ASSETS (Input Layer)

Total: 40 points

Data Assets represent the foundational inputs that enable intelligence capabilities. This category measures the volume, quality, and variety of proprietary data companies possess about users, businesses, the physical world, and individual identities.

1.1 USER BEHAVIORAL DATA (1-10 points)

Definition: The volume, diversity, and predictive value of observed user actions across the company's platforms, measured by ability to infer intent, interests, and future behavior.

Included:

- Search/query history (typed, voice, visual searches)
- Content consumption (videos watched, articles read, time spent)
- Purchase and shopping behavior (views, carts, purchases, returns)
- Engagement actions (likes, shares, comments, saves, follows)
- Navigation patterns (clicks, scrolls, app/site paths)
- Cross-platform and cross-device behavioral understanding achieved through:
- Deterministic tracking: Login-based identity across devices
- Privacy-preserving synthesis: Cohort modeling, federated learning, differential privacy, synthetic data that achieves predictive power without personal identifiers
- Probabilistic matching: Statistical models that infer same-user patterns without PII
- On-device processing: Local AI that learns patterns without sending data to servers
- Temporal patterns (when users do things, frequency, recency)

Excluded:

- Demographic/profile data (covered in Identity data)
- Business performance data (covered in Business/commercial data)
- Data not tied to behavioral patterns
- Third-party data purchased from brokers
- Cross-device tracking approaches that will be obsolete by 2030 (third-party cookies, device fingerprinting that violates privacy regulations)

Scoring Criteria:

Volume: How many behavioral signals per user per day?

- **9-10:** Hundreds of signals per user daily across multiple high-frequency behaviors (search + purchases + content + engagement + navigation). Continuous data streams from always-on services.
- **7-8:** Dozens of daily signals per user across several behavior types. Regular data collection from frequent-use products.
- **5-6:** Several signals per user per day, or many signals but from infrequent usage. Limited to one or two behavior types.
- **3-4:** Sparse behavioral data—weekly or monthly signals, or daily signals from small subset of users. Single behavior type with gaps.
- **1-2:** Minimal behavioral capture. Occasional interactions with limited tracking. Primarily anonymous traffic.

Diversity: Single behavior type vs. multi-modal?

- **9-10:** Five+ distinct behavior types (search + watch + buy + share + navigate + communicate). Can build complete picture of user intent across life contexts.
- **7-8:** Three to four behavior types. Substantial understanding of user across multiple domains.

- **5-6:** Two behavior types, or rich single-type data (e.g., very detailed purchase behavior across many categories).
- **3-4:** Single behavior type with limited depth. Can answer narrow questions about user intent.
- **1-2:** Single behavior type, surface-level. Cannot reliably infer intent beyond immediate action.

Historical depth: Years of behavior vs. months?

- **9-10:** 5+ years of retained behavioral history per user. Can identify long-term patterns, seasonal behaviors, life changes.
- **7-8:** 2-4 years of history. Sufficient for annual patterns and trend identification.
- **5-6:** 6-18 months of history. Can identify some patterns but limited long-term insight.
- **3-4:** 3-6 months of history. Immediate patterns only, no seasonal understanding.
- **1-2:** Less than 3 months, or history not retained/accessible for intelligence use.

Cross-context understanding: Can they connect behaviors across devices/platforms?

- **9-10:** Seamless cross-device identity for majority of users through deterministic methods (login) or sophisticated privacy-preserving synthesis. Behaviors connected across phone, computer, TV, car, wearables.
- **7-8:** Cross-device tracking for significant user portion across 2-3 major device types. Some gaps but functional understanding.
- **5-6:** Limited cross-device capability. Works for logged-in users on primary devices only, or probabilistic matching with moderate accuracy.
- **3-4:** Minimal cross-device understanding. Mostly device-siloed data with occasional connection.
- **1-2:** No cross-device tracking, or methods that won't survive 2030 privacy regulations (third-party cookies, invasive fingerprinting).

Predictive power: Do behaviors strongly predict future intent?

- **9-10:** Behaviors reliably predict future actions across multiple domains. Can anticipate needs before explicit searches. High conversion from predictions to actions.
- **7-8:** Good predictive signal for primary use cases. Predictions accurate enough to drive product recommendations and targeting.
- **5-6:** Moderate predictive value. Better than random but significant miss rate. Useful for broad categories, not specific intent.
- **3-4:** Weak predictive signal. Behaviors show what users did, not what they'll do next.
- **1-2:** No meaningful predictive power. Historical behaviors don't correlate with future actions.

Note: Privacy compliance is implicit in scoring—tracking methods that won't survive 2030 regulations receive lower scores in cross-context understanding.

1.2 BUSINESS/COMMERCIAL DATA (1-10 points)

Definition: Proprietary data about businesses, their operations, products, and commercial performance that enables understanding of supply-side dynamics and matching businesses to user demand.

Included:

- Product catalogs (SKUs, descriptions, specs, images, pricing, variants)
- Inventory levels and availability (real-time stock, fulfillment capacity)
- Business operations data (sales volume, conversion rates, margins, performance)
- Supplier/vendor relationships and supply chain visibility
- Storefront/location data (addresses, hours, capacity)
- Business performance patterns (what's selling, trends, seasonality)
- Merchant/seller tools usage data
- Pricing elasticity and competitive positioning

Excluded:

- Publicly available business information
- User-generated reviews/ratings (covered in Real-world data)
- Advertiser campaign performance (covered in Transaction Capability → Advertising systems)
- Relationship count without data depth

Scoring Criteria:

Depth: Surface-level catalog vs. operational insight

- **9-10:** Complete operational transparency for platform businesses—real-time inventory, sales velocity, margins, supply chain, pricing elasticity. Can predict business performance and supply/demand shifts.
- **7-8:** Operational data for platform businesses including inventory and sales patterns. Catalog plus performance metrics.
- **5-6:** Rich product catalogs with some operational data (pricing, availability). Limited performance visibility.
- **3-4:** Basic product catalogs. Surface attributes (name, description, price) without operational insight.
- **1-2:** Minimal business data. Public information only or thin catalog without detail.

Breadth: Thousands vs. millions of businesses covered

- **9-10:** Tens of millions of businesses with data. Global coverage across all major categories and geographies.
- **7-8:** Millions of businesses. Strong coverage in key markets and categories, gaps in long-tail.
- **5-6:** Hundreds of thousands of businesses. Decent coverage in primary categories, limited in others.
- **3-4:** Tens of thousands of businesses. Narrow vertical or geographic focus.
- **1-2:** Thousands or fewer businesses. Very limited coverage.

Real-time visibility: Static vs. live data

- **9-10:** Real-time or near-real-time updates on inventory, pricing, availability across the catalog. Continuous data refresh.
- **7-8:** Daily updates for most critical data. Real-time for high-value items, delayed for long-tail.
- **5-6:** Weekly or periodic updates. Some real-time capability for subset of catalog.
- **3-4:** Monthly updates or slower. Stale data, frequent inaccuracies.
- **1-2:** Rarely updated. Static snapshots with no refresh mechanism.

Proprietary advantage: Exclusive access vs. accessible to competitors

- **9-10:** Exclusive data competitors cannot access. Platform businesses share operational data only with this company.
- **7-8:** Mostly proprietary with some exclusivity. Competitors may have partial access through other means.
- **5-6:** Mix of proprietary and accessible data. Some unique data but much is available elsewhere.
- **3-4:** Mostly accessible data. Limited proprietary advantage beyond aggregation.
- **1-2:** Public data. No proprietary access.

Predictive value: Ability to forecast business trends and supply/demand

- **9-10:** Data enables accurate forecasting of category trends, seasonal shifts, emerging demand, supply constraints. Can predict which businesses will succeed.
- **7-8:** Good predictive signal for major categories and established patterns. Can identify trends as they develop.
- **5-6:** Can identify trends after they're established. Limited forward-looking capability.
- **3-4:** Historical reporting only. Data shows what happened, not what's coming.
- **1-2:** No predictive value. Snapshot data without pattern recognition.

Scoring Approach: Balance depth and breadth—both contribute to intelligence capability. Companies with deep data on platform businesses and broad data on global businesses score highest.

1.3 REAL-WORLD DATA (1-10 points)

Definition: Data about physical spaces, locations, and the built environment that enables understanding of where things are, how to navigate them, and what's happening in physical contexts.

Included:

- Mapping data (streets, buildings, trails, indoor spaces, 3D representations)
- Street-level imagery (photos, 360° views, current conditions)
- Location metadata (coordinates, addresses, boundaries)
- Point-of-interest data (landmarks, businesses, parks, transit stops)
- Real-time conditions (traffic, weather, crowding, wait times)
- User-contributed data (reviews, ratings, photos, tips, check-ins, edits)
- Transportation networks (routes, schedules, real-time transit)
- Spatial relationships (proximity, distances, accessibility)
- Indoor navigation (mall layouts, airport terminals, store aisles)
- Historical patterns (busy times, seasonal variations)

Excluded:

- Business operational data (hours, menus)—covered in Business/commercial data
- User location history/patterns—covered in User behavioral data
- Navigation applications—output, not data input

Scoring Criteria:

Coverage: Local vs. regional vs. global

- **9-10:** Comprehensive global coverage. Detailed mapping for all major markets, good coverage in emerging markets, basic coverage even in remote areas. 200+ countries.
- **7-8:** Strong global coverage with excellent detail in major markets. Some gaps in emerging/remote regions.
- **5-6:** Multi-regional coverage. Excellent in home market(s), good in major international markets, limited beyond that. 50-100 countries with varying quality.
- **3-4:** Regional or single-country focus. Deep in specific geography, minimal elsewhere.
- **1-2:** Local coverage only. Single metro area or limited geographic scope.

Freshness: Annual updates vs. real-time

- **9-10:** Real-time conditions (traffic, transit, crowding) combined with continuously updated static features. Imagery refreshed annually or better in high-traffic areas.
- **7-8:** Real-time conditions for major markets. Static features updated annually. Some lag in lower-priority areas.

- **5-6:** Periodic updates (quarterly to annually) for most data. Some real-time feeds for specific features (traffic).
- **3-4:** Infrequent updates (every 2-3 years). Limited or no real-time data. Stale imagery and conditions.
- **1-2:** Rarely updated. Multi-year-old data. No real-time capability.

Dimensionality: 2D vs. street-view vs. 3D vs. indoor

- **9-10:** Full stack—2D mapping + street-level imagery + 3D building models + indoor navigation for major venues. Multiple viewing perspectives across use cases.
- **7-8:** 2D + street-level imagery + limited 3D or indoor navigation. Strong coverage in at least three dimensions.
- **5-6:** 2D + street-level imagery in major areas, or 2D + limited 3D models. Two-dimensional focus with some enhancement.
- **3-4:** 2D mapping only, or 2D + very limited imagery. Single-dimension offering.
- **1-2:** Basic 2D maps with minimal detail or enhancement.

Community contribution: Volume and quality of user enhancements

- **9-10:** Hundreds of millions of user contributions (reviews, photos, edits, real-time reports). High-quality, moderated content that meaningfully enhances base data. Active, engaged contributor community.
- **7-8:** Tens of millions of contributions. Good quality and coverage for popular locations. Functional community.
- **5-6:** Millions of contributions, concentrated in major markets/venues. Uneven quality or coverage.
- **3-4:** Limited community contribution. Thousands to low millions of contributions, spotty coverage.
- **1-2:** Minimal or no user-contributed data. Platform relies entirely on proprietary data collection.

Proprietary advantage: Difficulty for competitors to replicate

- **9-10:** Decade+ of investment, billions of dollars, massive physical data collection operations. Competitors would need similar time and capital to replicate. Network effects from community contribution create compounding advantage.
- **7-8:** Significant investment and time required to replicate (5+ years, hundreds of millions). Established data collection infrastructure and community.
- **5-6:** Material investment needed but achievable by well-funded competitor in 2-3 years. Some proprietary data but much could be licensed or collected.
- **3-4:** Moderate barrier. Competitor could achieve similar capability in 1-2 years with focused investment.
- **1-2:** Low barrier. Data largely available from third-party sources or easily collected. Limited proprietary advantage.

1.4 IDENTITY DATA (1-10 points)

Definition: Verified information about who users are—their demographics, attributes, relationships, life context, and physical/health state—that enables personalization and understanding of user needs.

Included:

- Demographic attributes (age, gender, location, language)
- Professional information (job title, company, industry, skills, career history)
- Social graph (connections, relationships, followers, network structure)
- Life stage indicators (student, parent, homeowner, recent mover)
- Interests and affinities (declared preferences, group memberships)
- Verified identity (authentication, KYC, credential verification)
- Household/family structure
- Socioeconomic indicators (education level, estimated income)
- Device ownership and usage context
- Health and biometric data:
- Consumer wearable data: Heart rate, sleep, activity, vitals
- Smart home health monitoring: Scales, mirrors, air quality
- Wellness tracking: Exercise, stress, dietary patterns
- Passive health signals: Voice analysis, movement patterns
- Medical-grade data: Clinical records, diagnoses, prescriptions, lab results, pharmacy data, provider relationships

Excluded:

- Behavioral data (covered in User behavioral data)
- Transaction history (covered elsewhere)
- Unverified/inferred attributes without ground truth
- Third-party purchased data
- The hardware itself (scored in Distribution → Hardware/devices)

Scoring Criteria:

Verification level: Self-declared < sensor-verified < medically verified

- **9-10:** Medical-grade verification for health data + verified identity (KYC, credential verification) + sensor-verified attributes (wearables, device data). Multiple verification sources create ground truth.
- **7-8:** Strong verification for core attributes through sensors or authentication. Mix of verified and self-declared data with high confidence.

- **5-6:** Some verified data (login-based identity, device ownership) combined with self-declared information. Moderate confidence in accuracy.
- **3-4:** Mostly self-declared or inferred data. Limited verification mechanisms. Lower confidence in attribute accuracy.
- **1-2:** Entirely inferred or unverified. No authentication or verification layer. Probabilistic attributes only.

Completeness: % of users with rich profiles vs. anonymous

- **9-10:** 80%+ of users have comprehensive profiles with demographics, interests, social/professional context, and health/wellness data. Small anonymous user segment.
- **7-8:** 60-80% of users have good profiles across multiple identity dimensions. Some anonymous usage.
- **5-6:** 40-60% of users profiled. Mix of rich profiles and thin/anonymous accounts.
- **3-4:** 20-40% of users profiled. Majority anonymous or minimal data.
- **1-2:** <20% profiled. Predominantly anonymous users with no persistent identity.

Cross-platform identity: Same user recognition across touchpoints

- **9-10:** Unified identity across all company products and services. Single account, seamless recognition, complete profile portability across surfaces.
- **7-8:** Identity connected across most major products. Occasional gaps but functional cross-platform understanding.
- **5-6:** Partial cross-platform identity. Works for core products, siloed in others.
- **3-4:** Limited connection. Separate identities for different products with minimal linking.
- **1-2:** Siloed identities. No cross-platform recognition or profile sharing.

Privacy-compliant richness: Detailed profiles compliant with 2030 regulations

- **9-10:** Rich profiles built through user-permissioned data collection with transparent controls. Data collected meets anticipated 2030 privacy standards while maintaining depth. User trust + regulatory compliance.
- **7-8:** Detailed profiles collected through mostly compliant means. Some regulatory risk but manageable through consent frameworks.
- **5-6:** Moderate profile depth. Some collection methods may face regulatory challenges. User controls present but limited.
- **3-4:** Profile richness dependent on methods that likely won't survive 2030 regulations. Limited user control or transparency.
- **1-2:** Non-compliant collection methods or minimal richness regardless of compliance.

Health data depth: None < passive monitoring < consumer wearables < medical-grade data

- **9-10:** Medical-grade data (clinical records, prescriptions, diagnoses, lab results) from healthcare integrations or pharmacy relationships. Verified health conditions and treatment history.
- **7-8:** Consumer wearable data at scale (heart rate, sleep, activity, vitals) from owned devices or deep integrations. Continuous health monitoring for millions+ users.
- **5-6:** Passive health monitoring (smart scales, wellness tracking, self-reported health data) or wearable data from smaller user base. Some health signal but not comprehensive.
- **3-4:** Minimal health data. User-declared wellness interests or inferred health signals without sensor verification.
- **1-2:** No health data or only tangentially related wellness content consumption.

Note on Health Data: Scored with recognition of regulatory uncertainty. Medical-grade data (clinical records, prescriptions) represents significant advantage but will face privacy scrutiny. Companies collecting health data now have option value even if regulations limit use.

CATEGORY 2: AI/TECHNICAL CAPABILITY (Processing Layer)

Total: 40 points

AI/Technical Capability measures the ability to process data inputs into intelligent outputs. This category evaluates model development, infrastructure, and the specialized algorithms that power personalized, proactive intelligence.

2.1 MODEL DEVELOPMENT (1-10 points)

Definition: The ability to create, train, and continuously improve AI models—particularly large language models, multimodal models, and reasoning systems—that power intelligent responses to user queries.

Included:

- Foundation model development (LLMs: GPT, Gemini, Claude, LLaMA scale)
- Multimodal capabilities (text, image, video, audio understanding and generation)
- Reasoning and planning capabilities (chain-of-thought, problem decomposition)
- Model efficiency and optimization (inference speed, cost per query)
- Fine-tuning and specialization capabilities (domain-specific models)
- Model safety and alignment (reducing hallucinations, bias mitigation, harmful outputs)
- Rate of improvement (velocity of new model releases, capability gains)

Excluded:

- Infrastructure to run models (covered in Infrastructure)
- Application of models to specific use cases (output, not capability)
- Access to others' models via API without building capability
- Marketing claims without frontier model development

Scoring Criteria:

Frontier status: Leading edge vs. fast follower vs. laggard

- **9-10:** Frontier model development. Regularly releases models that set benchmarks or match top performers. Part of GPT-4/Gemini Ultra/Claude Opus tier. Pushing state-of-the-art boundaries.
- **7-8:** Fast follower. Releases capable models within 6-12 months of frontier. GPT-3.5/Gemini Pro tier performance. Competitive but not leading.
- **5-6:** Competent model development but behind frontier by 12-24 months. Can build functional LLMs but not competing for top benchmarks.
- **3-4:** Early-stage model development or significant capability gap. Models work but lag frontier by 2+ years or limited to narrow domains.
- **1-2:** No meaningful model development capability. API access only, or models significantly below competitive threshold.

Breadth: Text-only vs. multimodal vs. reasoning

- **9-10:** Full-stack capability—text, image, video, audio understanding and generation + advanced reasoning and planning. Can handle any input type and complex problem decomposition.
- **7-8:** Strong multimodal (text + image + audio) with emerging reasoning capabilities. Most use cases covered.
- **5-6:** Text + one other modality (typically image), or text with limited reasoning. Functional but not comprehensive.
- **3-4:** Text-only or very limited multimodal. Basic reasoning at best.
- **1-2:** Single narrow capability. No multimodal or reasoning features.

Performance: Benchmark results and real-world effectiveness

- **9-10:** Top-tier benchmark performance (MMLU, HumanEval, etc.) AND demonstrated real-world effectiveness. Models perform well in production across diverse use cases.
- **7-8:** Strong benchmark performance with good real-world results. Occasional gaps between benchmarks and production.
- **5-6:** Moderate benchmark scores. Real-world performance acceptable but not exceptional. Clear use cases where models struggle.
- **3-4:** Below-average benchmarks. Real-world performance inconsistent or limited to narrow applications.
- **1-2:** Poor benchmark performance and/or models fail in real-world deployment.

Innovation velocity: Frequency and magnitude of improvements

- **9-10:** New frontier model releases every 6-12 months with significant capability gains. Continuous improvement cycles with visible innovation.
- **7-8:** Regular model updates (annually) with meaningful improvements. Clear development roadmap and execution.
- **5-6:** Periodic updates but slower pace (18-24 months between major releases). Incremental improvements.
- **3-4:** Slow innovation. Multi-year gaps between updates or minimal capability gains.
- **1-2:** Stagnant capability. No visible innovation or improvement trajectory.

Safety and responsible AI: Alignment, harm prevention, user protection

- **9-10:** Industry-leading safety practices. Low hallucination rates, effective bias mitigation, robust content moderation, protection against harmful outputs and addictive patterns. Demonstrated prevention of unintended consequences. Transparent about limitations and safety measures.
- **7-8:** Strong safety practices. Good alignment and harm prevention with documented processes. Some gaps but responsible approach.
- **5-6:** Basic safety measures. Addresses obvious harms but unintended consequences occur. Limited transparency or protection mechanisms.
- **3-4:** Minimal safety investment. Reactive rather than proactive. Known issues with harmful outputs or unintended targeting.
- **1-2:** Safety not prioritized. Significant harmful outputs, bias issues, or problematic optimization loops. No meaningful user protection.

Note on Open vs. Closed Models: Model Development scores technical capability regardless of whether models are open-source or proprietary. Both approaches demonstrate research capability.

2.2 INFRASTRUCTURE (1-10 points)

Definition: The computational resources, specialized hardware, and technical architecture required to train, deploy, and scale AI systems at the volume needed for global search/intelligence services.

Included:

- Compute capacity for model training (GPU/TPU clusters, exaflops scale)
- Inference infrastructure (serving billions of queries per day efficiently)
- Custom AI hardware (TPUs, Trainium, proprietary chips vs. NVIDIA dependency)
- Energy efficiency and sustainability of infrastructure
- Geographic distribution (latency, data residency compliance)

- Cost structure (cost per query, scaling economics)
- Integration with cloud platforms (owned or guaranteed access)

Excluded:

- General cloud computing unrelated to AI
- Infrastructure access without reliability/scale guarantees
- Data center real estate alone (must be AI-optimized)

Scoring Criteria:

Scale: Capacity for current and projected query volume

- **9-10:** Infrastructure to serve 10+ billion AI-powered queries daily. Exaflop-scale training capacity. Can handle Google/Microsoft search-scale AI workloads with room for growth.
- **7-8:** Billions of daily AI queries supported. Substantial training infrastructure for frontier models. Sufficient capacity for major consumer platform.
- **5-6:** Hundreds of millions to low billions of daily queries. Can train large models but capacity constraints exist. Adequate for current needs, unclear if scales to 2030 demand.
- **3-4:** Tens to hundreds of millions of queries daily. Limited training infrastructure. Would need significant expansion to compete at scale.
- **1-2:** Minimal AI infrastructure. Can't support large-scale deployment. Training capacity limited to smaller models.

Custom silicon: Proprietary chip advantage vs. NVIDIA dependency

- **9-10:** Full custom AI silicon (TPU, Trainium, proprietary chips) in production at scale. Significant cost and performance advantages vs. commercial GPUs. Supply chain independence.
- **7-8:** Custom silicon deployed for portion of workload or emerging capability. Mix of proprietary and commercial hardware with strategic control.
- **5-6:** Developing custom silicon or heavy user of cloud provider's custom chips (access without ownership). Some strategic advantage but not full control.
- **3-4:** Entirely dependent on NVIDIA or other commercial GPUs. No custom silicon development. Subject to supply constraints and pricing.
- **1-2:** Limited access to AI hardware. Competing for scarce GPU resources without guaranteed supply.

Cost efficiency: Cost per inference and training economics

- **9-10:** Industry-leading cost structure. Custom silicon and scale create order-of-magnitude cost advantages vs. competitors. Economics support massive free/low-cost distribution of AI features.
- **7-8:** Competitive cost structure. Efficient operations enable profitable AI deployment at scale.

- **5-6:** Acceptable costs but no advantage. Can run AI profitably but unit economics limit some applications.
- **3-4:** High costs relative to competitors. Economic pressure limits AI deployment breadth or requires premium pricing.
- **1-2:** Unsustainable cost structure. Losing money on AI operations without path to efficiency.

Deployment speed: Time from model training to production

- **9-10:** Hours to days from training completion to production deployment. Seamless CI/CD for AI. Can rapidly iterate and respond to issues.
- **7-8:** Days to weeks for deployment. Functional pipeline with some friction.
- **5-6:** Weeks to deploy new models. Manual processes or integration challenges slow updates.
- **3-4:** Months to deploy. Significant technical debt or organizational barriers.
- **1-2:** Slow or unreliable deployment. Models may never reach production or deployment is high-risk.

Strategic control: Infrastructure ownership vs. partnership dependency

- **9-10:** Full infrastructure ownership. Complete strategic control over capacity, priorities, and roadmap. No dependency on external partners for critical capability.
- **7-8:** Owned infrastructure or extremely strong partnership with guaranteed capacity and favorable economics. High degree of control.
- **5-6:** Mix of owned and partnered infrastructure. Some dependency but contractual protections exist. Reasonable control over destiny.
- **3-4:** Heavy partnership dependency with limited guarantees. Vulnerable to partner decisions on capacity allocation or pricing.
- **1-2:** Dependent on partners without strategic protection. Could be cut off or priced out of infrastructure access.

Note on Strategic Control: Companies with infrastructure access through partnerships (e.g., OpenAI on Azure) receive credit for capability but analysis should note dependency risk. Ownership creates strategic optionality.

2.3 PREDICTION/RECOMMENDATION ALGORITHMS (1-10 points, scored × 2 = 20 points)

Definition: Specialized AI systems that predict user intent, recommend relevant content/products/information, and optimize for engagement and satisfaction—the algorithms that determine what users see and when.

Included:

- Content recommendation systems (TikTok For You Page, YouTube recommendations, Instagram feed)
- Product recommendation and discovery (Amazon suggestions, shopping recommendations)
- Search ranking and relevance algorithms
- Ad targeting and delivery optimization
- Personalization engines (individual vs. cohort-based)
- Real-time optimization (A/B testing at scale, multi-armed bandits)
- Collaborative filtering and network effects in recommendations
- Cold-start problem solving (recommendations for new users/items)
- Explainability and user control over recommendations

Excluded:

- The data used by algorithms (covered in Data Assets)
- The foundation models (covered in Model Development)
- Manual curation or editorial selection
- Simple rule-based systems without ML

Scoring Criteria:

Effectiveness: How well do recommendations match user interests/intent?

- **9-10:** Exceptional matching. Users consistently engage with recommendations at high rates. Low skip/dismiss rates. Recommendations frequently surface content/products users love that they wouldn't have found otherwise.
- **7-8:** Strong matching. Good engagement rates with recommendations. Users generally satisfied. Some misses but overall effective.
- **5-6:** Adequate matching. Recommendations work but not exceptional. Engagement rates moderate. Mix of hits and misses.
- **3-4:** Poor matching. Low engagement with recommendations. Users frequently ignore or actively dismiss suggestions. Limited personalization.
- **1-2:** Ineffective recommendations. No meaningful matching to user interests. Generic or random suggestions.

Sophistication: Simple collaborative filtering vs. deep learning vs. multi-objective optimization

- **9-10:** State-of-the-art deep learning with multi-objective optimization. Balances engagement, satisfaction, diversity, long-term value. Can optimize for complex business objectives while maintaining user experience. Context-aware and adaptive.
- **7-8:** Advanced deep learning recommendation systems. Good personalization with some multi-objective capability. Sophisticated but not frontier.
- **5-6:** Solid collaborative filtering or early-generation deep learning. Functional personalization but limited in complexity it can handle.

- **3-4:** Basic collaborative filtering or simple ML. Limited personalization. Mostly popularity-based with light customization.
- **1-2:** Rule-based or non-ML systems. No meaningful learning or personalization. One-size-fits-all recommendations.

Real-time adaptation: How quickly do they learn and adjust?

- **9-10:** Real-time learning and adjustment. Recommendations update based on session behavior. Can respond to context changes (location, time, device) instantly. Sub-second personalization updates.
- **7-8:** Near-real-time adaptation. Updates within minutes to hours based on new signals. Responds to session behavior with some lag.
- **5-6:** Daily or batch learning. Recommendations update overnight or periodically. Can't respond to immediate context changes.
- **3-4:** Slow adaptation. Takes days or weeks for new signals to influence recommendations. Stale personalization.
- **1-2:** Static or extremely slow learning. Recommendations don't meaningfully adapt to user behavior.

Scale and diversity: Single domain vs. multi-domain

- **9-10:** Unified recommendation engine across five+ domains (video, products, search results, ads, services, content, social connections). Can transfer learning across domains and create holistic user understanding.
- **7-8:** Strong recommendations across three to four domains. Good cross-domain insights with some knowledge transfer.
- **5-6:** Recommendations in two domains or deep single-domain. Limited cross-domain capability.
- **3-4:** Single domain with limited scope. Narrow recommendation focus.
- **1-2:** Very narrow recommendation capability. Single use case or minimal deployment.

Transparency and user agency: Explainability and user controls

- **9-10:** Full transparency—users can see why recommendations were made, adjust preferences, provide feedback that immediately affects future recommendations. "Don't show me this" and "more like this" actually work. Algorithm behavior is explainable and controllable.
- **7-8:** Good user controls. Can influence recommendations through preferences and feedback. Some explainability. Controls generally effective.
- **5-6:** Basic controls. Limited feedback mechanisms. Some ability to influence recommendations but opaque how preferences affect outcomes.
- **3-4:** Minimal user control. Black box recommendations with little ability to adjust. Feedback mechanisms don't meaningfully change output.
- **1-2:** No transparency or control. Pure black box with no user agency over recommendations.

Business impact: Measurable improvement in engagement, conversion, satisfaction

- **9-10:** Demonstrable massive impact. Recommendations drive 30%+ of engagement/revenue. Clear measurement showing recommendations significantly outperform alternatives. High user satisfaction scores.
- **7-8:** Strong measurable impact. Recommendations drive 15-30% of key outcomes. Solid measurement showing value creation.
- **5-6:** Moderate impact. Recommendations contribute but aren't dominant driver. Some measurement challenges or unclear incremental value.
- **3-4:** Limited measured impact. Recommendations present but questionable whether they move key metrics. Weak measurement.
- **1-2:** No measured impact or negative impact. Recommendations may hurt user experience or be ignored entirely.

Rationale for Double Weighting: Prediction and recommendation algorithms are the heart of personalized, proactive intelligence. This is where user intent gets predicted, brands get matched to consumers, and the "right message, right time, right person" happens. Given the framework's focus on advertising intelligence, this capability deserves elevated weight.

Note on Distinction from Model Development: Foundation models (GPT, Gemini) provide general intelligence (Model Development). Recommendation systems are specialized optimization engines for specific outcomes (this component). Both are critical and scored independently—a company can excel at one while being weak at the other.

CATEGORY 3: DISTRIBUTION (Access Layer)

Total: 40 points

Distribution measures how companies reach users and provide access points for intelligence services. This includes user engagement patterns, hardware control, ecosystem leverage, and trust that enables data access.

3.1 USER BASE: SCALE × ENGAGEMENT SURFACE AREA (1-10 points)

Definition: The scale and engagement surface area of users who regularly interact with the company's products/services, measured by their opportunity to introduce intelligence features and shape new behaviors.

Included:

- All active users across company's portfolio
- Cross-platform usage patterns

- Engagement depth and breadth

Excluded:

- Dormant/inactive accounts
- Bots or non-human traffic
- One-time/transactional users with no return pattern

Scoring Factors (equally weighted):

Scale: Total reachable monthly active users

- **9-10:** 2+ billion monthly active users globally. Reaches significant portion of global internet population.
- **7-8:** 500M-2B monthly active users. Massive reach in key markets.
- **5-6:** 100-500M monthly active users. Substantial but not dominant reach.
- **3-4:** 20-100M monthly active users. Meaningful audience but limited scale.
- **1-2:** <20M monthly active users. Niche audience.

Frequency: Daily vs. weekly vs. monthly return patterns

- **9-10:** 80%+ of users return daily, often multiple times per day. Habitual, high-frequency usage.
- **7-8:** 60-80% daily active of monthly active. Strong habit formation with most users returning daily.
- **5-6:** 30-60% daily active rate. Mix of daily and weekly users. Moderate frequency.
- **3-4:** 10-30% daily active rate. Mostly weekly or monthly users. Low frequency.
- **1-2:** <10% daily active rate. Occasional use only. No habit formation.

Time spent: Minutes/hours per session or day

- **9-10:** 60+ minutes per day per user on average. High attention capture across multiple sessions.
- **7-8:** 30-60 minutes per day. Substantial time investment.
- **5-6:** 10-30 minutes per day. Moderate engagement.
- **3-4:** 3-10 minutes per day. Brief sessions.
- **1-2:** <3 minutes per day. Minimal time spent.

Multi-product ecosystem: Number of distinct touchpoints/surfaces

- **9-10:** Five+ distinct product surfaces used by typical user (search, video, email, maps, shopping, social, productivity, etc.). Deep ecosystem engagement.
- **7-8:** Three to four regular touchpoints per user. Solid multi-product usage.
- **5-6:** Two regular products per user on average. Some ecosystem effect.
- **3-4:** Single primary product with occasional secondary product use. Limited ecosystem.
- **1-2:** Single product only. No ecosystem cross-usage.

Rationale: User behavior is malleable and follows product offerings. What matters for 2030 isn't current search behavior but whether users show up frequently enough and spend enough time that the company can introduce intelligence features and shape new behaviors. A company with 500M users spending 60 minutes/day across 3 products has more opportunities to introduce AI intelligence than a company with 1B users spending 5 minutes/month on one product.

3.2 HARDWARE/DEVICES (1-10 points)

Definition: Physical devices that serve as interfaces for intelligence queries and data collection mechanisms, evaluated for their role as access points and contextual sensors for 2030.

Included:

- Consumer devices owned/controlled by company (phones, tablets, computers, watches, glasses, speakers, displays)
- Smart home devices (cameras, thermostats, appliances, hubs)
- Wearables (fitness bands, AR/VR headsets, smart rings)
- In-vehicle systems and automotive integration
- Platform control considerations:
- Full-stack control: Hardware + OS + services (Apple model)
- OS control on third-party hardware: Platform reach without manufacturing (Google Android, Microsoft Windows)
- Hardware with third-party OS: Manufacturing without platform control (Samsung/Xiaomi with Android)
- Software layer only: Apps/services on others' platforms
- Installed base scale and active usage rates
- Sensor capabilities (cameras, microphones, GPS, biometric sensors, environmental sensors)
- Form factor innovation (established platforms vs. emerging interfaces)

Excluded:

- Devices manufactured but not controlled or monitored
- Enterprise-only hardware without consumer intelligence application
- Devices sold but discontinued/unsupported
- Vaporware (announced but not shipped)

Scoring Criteria:

Installed base: Number of active devices in users' hands/homes/lives/vehicles

- **9-10:** 1+ billion active devices deployed. Massive hardware footprint reaching significant global population.

- **7-8:** 100M-1B active devices. Substantial hardware presence.
- **5-6:** 10-100M active devices. Meaningful scale but limited compared to tech giants.
- **3-4:** 1-10M active devices. Emerging hardware business or niche penetration.
- **1-2:** <1M active devices or no significant hardware ownership.

Device diversity: Single category vs. multi-category presence

- **9-10:** Five+ device categories with strong presence (phone + tablet + computer + watch + home + car + AR). Complete ecosystem capturing multiple contexts.
- **7-8:** Three to four device categories. Solid multi-form-factor strategy covering key contexts.
- **5-6:** Two device categories, or dominant in single category with emerging second category.
- **3-4:** Single device category only. Limited form factor diversity.
- **1-2:** No owned hardware or extremely limited single device with minimal deployment.

Platform control: Full-stack > OS control > hardware only > app-level access

- **9-10:** Full-stack control (hardware + OS + services) for major device categories. Complete platform ownership.
- **7-8:** Mix of full-stack control and OS control on third-party hardware. Strong platform influence across billions of devices.
- **5-6:** OS control without hardware ownership, or hardware with third-party OS. Partial platform control.
- **3-4:** Hardware without platform control, or software layer only with some system-level integration.
- **1-2:** App-level access only on others' platforms. No platform or hardware control.

Sensor richness: Passive data collection capabilities across device portfolio

- **9-10:** Comprehensive sensor array across devices—cameras, microphones, GPS, biometric sensors (heart rate, blood oxygen), environmental sensors (temperature, air quality), motion sensors, proximity sensors. Rich contextual data from multiple always-on devices.
- **7-8:** Strong sensor coverage across primary devices. Multiple data streams from phones, wearables, home devices.
- **5-6:** Basic sensor suite (GPS, microphone, camera) across limited devices. Some contextual data but not comprehensive.
- **3-4:** Minimal sensors or access to sensor data. Limited contextual intelligence capability.
- **1-2:** No hardware sensors or sensor access. Cannot collect environmental or biometric data.

Future positioning: Investment in next-generation interfaces

- **9-10:** Significant shipped products in next-gen categories (AR/VR, advanced wearables, automotive). Not just R&D but actual market deployment and learning. Leading future interface development.
- **7-8:** Emerging products in next-gen categories with real market traction. Clear investment and iteration.
- **5-6:** Experimental next-gen products or partnerships. Some positioning but not leading.
- **3-4:** Announced intentions or early R&D but minimal market presence. Follower posture.
- **1-2:** No next-gen interface investment. Entirely focused on established form factors or missing hardware entirely.

Note on Weighted Approach: Companies receive full credit for devices they fully control (Apple with iPhone) and partial credit for platform control without hardware ownership (Google with Android on Samsung devices). This weighted approach recognizes that OS control provides valuable data access and defaults even without hardware manufacturing.

3.3 ECOSYSTEM REACH (1-10 points)

Definition: The ability to distribute intelligence features through partnerships, defaults, integrations, and platform leverage beyond directly-owned properties.

Included:

- Default search/assistant placement (Safari default search, Siri partnerships, Google default on Android)
- App store control and discoverability
- Developer ecosystem and third-party integrations (API usage, extensions, plugins)
- Pre-installation agreements
- Cross-platform presence (available on competitors' platforms)
- Partnership networks (telecom carriers, device manufacturers, retailers)
- Acquisition of distribution (buying placement, revenue-share deals)
- White-label/OEM relationships
- Browser market share and control

Excluded:

- Direct user acquisition through marketing spend
- Organic growth without distribution leverage
- Partnerships without meaningful user access

Scoring Criteria:

Default advantage: Embedded as default option on major platforms

- **9-10:** Default search/assistant on multiple major platforms reaching billions of users (iOS default search, Android default assistant, Windows default browser, etc.). Default position is durable with long-term contracts. Users rarely change defaults.
- **7-8:** Default on one major platform or multiple smaller platforms. Significant distribution advantage but not universal. Some risk of displacement.
- **5-6:** Defaults on minor platforms or selective device/carrier partnerships. Some distribution leverage but limited scope.
- **3-4:** Few or no default placements. Occasional partnerships without default status.
- **1-2:** No default advantages. Must compete for every user without distribution leverage.

Ecosystem lock-in: Switching costs and multi-product bundles

- **9-10:** Fortress ecosystem with high switching costs. Device interoperability, family sharing, multi-product bundles, years of accumulated data/preferences create "Apple homes" or "Google homes" where leaving ecosystem means losing substantial value and convenience. Users bring household members into same ecosystem.
- **7-8:** Strong ecosystem with meaningful switching costs. Multiple products work better together. Leaving requires adjustment but not prohibitive.
- **5-6:** Moderate lock-in. Some products integrate but easy to mix with competitors. Switching costs exist but surmountable.
- **3-4:** Weak ecosystem effects. Products mostly standalone. Minimal penalty for switching.
- **1-2:** No ecosystem lock-in. Pure product-by-product competition with no integration advantages.

Cross-platform ubiquity: Transcendent products penetrating competing ecosystems

- **9-10:** Must-have products available and thriving on all major platforms. Google apps on iPhone, Microsoft Office on Mac, etc. So valuable that competing platform owners allow presence despite preference for own solutions. Hundreds of millions of users on "enemy" platforms.
- **7-8:** Strong cross-platform presence with substantial users on competing ecosystems. Not universal but meaningful penetration.
- **5-6:** Available on some competing platforms but limited adoption or features. Cross-platform presence is tertiary to owned ecosystem.
- **3-4:** Minimal cross-platform presence. Primarily ecosystem-exclusive or weak adoption when available elsewhere.
- **1-2:** No cross-platform presence. Platform-locked or simply not valuable enough for competitors to allow.

Developer ecosystem strength: Third parties extending reach and functionality

- **9-10:** Thriving developer ecosystem with millions of developers and hundreds of thousands of integrations/extensions. Third parties view platform as essential distribution

channel and build businesses on it. Network effects from developer activity enhance user value.
- **7-8:** Healthy developer ecosystem. Tens of thousands of integrations. Developers actively build on platform.
- **5-6:** Functional developer presence. Adequate APIs and some third-party development but not essential developer target.
- **3-4:** Limited developer activity. APIs exist but minimal third-party building. Not attractive development target.
- **1-2:** No developer ecosystem. Closed platform or developers show no interest in building integrations.

Distribution moat durability: Long-term contracts and structural advantages

- **9-10:** Distribution advantages are structural and durable. Multi-year contracts, technical integration complexity, user behavior patterns, or regulatory protection make distribution extremely defensible. Competitors cannot easily displace.
- **7-8:** Strong distribution position with reasonable durability. Contracts and partnerships provide medium-term protection (3-5 years).
- **5-6:** Some distribution advantages but vulnerable to competitive bids or user preference changes. 1-3 year stability.
- **3-4:** Fragile distribution. Short-term agreements or easily displaced by competitor offers.
- **1-2:** No durable distribution advantages. Pure spot market competition for user attention.

The Two Paths to High Scores:

1. **Fortress strategy:** Deep ecosystem lock-in within your domain (Apple homes)
2. **Ubiquity strategy:** Presence across all ecosystems (Google, Microsoft)
3. **Hybrid advantage:** Both lock-in AND cross-platform reach

Future Vision: By 2030, households will likely consolidate around "Apple homes," "Amazon homes," or "Google homes" where most devices and services tie to one ecosystem. However, some products may be so ubiquitous or unique that they maintain presence across competing ecosystems.

3.4 TRUST (1-10 points)

Definition: The company's demonstrated capability to protect user data through security infrastructure and compliance systems, combined with consumers' actual trust in the company's handling of their information—measured by security track record, transparency, user control mechanisms, and brand reputation.

Included:

Security infrastructure:

- Breach history and incident response (frequency, severity, response time, remediation)
- Cybersecurity certifications and third-party audits (SOC 2, ISO 27001, independent assessments)
- Bug bounty programs and vulnerability management
- Encryption standards (data at rest, in transit, end-to-end where applicable)
- Infrastructure hardening and DDoS protection

Data protection capabilities:

- Access controls and authentication systems (MFA adoption, passwordless options, admin privilege management)
- Data minimization practices (collecting only what's needed, retention policies, deletion capabilities)
- Compliance infrastructure (GDPR, CCPA, emerging 2030 regulations, ability to adapt to new requirements)
- Third-party vendor security management (supply chain risk)
- Data residency and localization capabilities (ability to meet regional requirements)

Transparency and user control:

- Privacy dashboard functionality (ability to view, download, delete data)
- Granular permission controls (users can permit/deny specific data uses)
- Plain-language privacy policies (readability, clarity, completeness)
- Real-time transparency (showing users what data is being used and why)
- Opt-out mechanisms that actually work (not dark patterns)

Trust measurement:

- Consumer trust surveys and brand perception data (Edelman Trust Barometer, Pew Research, etc.)
- Regulatory scrutiny level (consent decrees, FTC actions, fines, ongoing investigations)
- Media coverage sentiment on privacy/security issues
- User behavior indicators (willingness to share data, feature adoption of privacy-sensitive products)

Excluded:

- Privacy-preserving data collection methods (covered in Data Assets → User Behavioral Data)
- Privacy-compliant targeting and advertising systems (covered in Transaction Capability → Advertising Systems)
- Content moderation and safety features (user-to-user harm prevention, not data protection)

- Theoretical security capabilities without implementation or track record
- Marketing statements about privacy without substantive infrastructure or user control

Scoring Criteria:

Security track record (past 5 years): Breaches, incidents, and response quality

- **9-10:** No major breaches. Minimal incidents with exemplary response when issues occur. Proactive disclosure. Strong track record demonstrates security competence. Industry reference for incident response.
- **7-8:** Minor incidents with strong response and remediation. No systemic issues. Quick disclosure and user protection. Occasional problems handled well.
- **5-6:** Moderate breaches with adequate response. Issues occurred but company addressed them and implemented improvements. Not catastrophic but concerning.
- **3-4:** Significant breaches or poor incident response. Slow disclosure, inadequate remediation, or repeated similar incidents suggesting systemic problems.
- **1-2:** Catastrophic breaches, repeated failures, or coverups. Major user harm from security failures. Lost trust due to incidents. No confidence in security capability.

Infrastructure and compliance maturity: Security systems and regulatory compliance

- **9-10:** Industry-leading security infrastructure. Comprehensive compliance across all major regulations. Multiple third-party certifications (SOC 2, ISO 27001, etc.). Proactive compliance with emerging regulations. Strong encryption, access controls, monitoring. Security is competitive advantage.
- **7-8:** Strong security posture and compliance. Core requirements covered well. Good certifications and audit results. Some gaps in emerging areas but fundamentally sound.
- **5-6:** Adequate security meeting basic requirements. Compliance with major regulations but not comprehensive. Functional security but not differentiated. Some audit findings or gaps.
- **3-4:** Gaps in security or compliance infrastructure. Meeting minimum requirements only or lagging on newer regulations. Audit concerns. Security is reactive rather than proactive.
- **1-2:** Minimal security investment or significant compliance failures. Cannot meet regulatory requirements. Security is afterthought. High risk of future breaches or regulatory action.

User transparency and control: Dashboard functionality and user agency

- **9-10:** Best-in-class privacy dashboard. Users can view all data collected, download complete archives, delete data with confirmation, and control granular permissions. Plain-language explanations. Real-time transparency showing what data is being used and why. Opt-outs actually work. No dark patterns. Industry leader in user control.
- **7-8:** Good user-facing tools and reasonable control options. Privacy dashboard covers most data. Clear permissions. Effective opt-outs. Some gaps but user-friendly approach.

- **5-6:** Basic privacy settings and controls. Can access some data and set some preferences. Limited transparency about data use. Controls exist but not comprehensive. Some dark patterns or confusing options.
- **3-4:** Difficult to access controls or find privacy settings. Opacity about what data is collected and how it's used. Nominal controls that don't meaningfully affect data collection. Dark patterns discourage privacy-protective choices.
- **1-2:** No meaningful user control. Cannot view, download, or delete data. No transparency about data practices. Dark patterns prevalent. Privacy settings are theater without substance.

Consumer trust perception: Brand reputation and trust measures

- **9-10:** Trusted brand with positive consumer sentiment on privacy and data protection. High scores in trust indices (Edelman, Pew). Regulatory clean record—no major actions or fines. Media coverage on privacy is positive or neutral. Users willingly share data and adopt privacy-sensitive features. "Most trusted" tier for personal data.
- **7-8:** Generally trusted. Good consumer sentiment. Few trust concerns. Clean or minor regulatory record. Positive media coverage outweighs negative. Users comfortable with data sharing for most use cases.
- **5-6:** Mixed reputation. Some trust issues but not dominant narrative. Regulatory scrutiny but no major actions. Media coverage is balanced. User sentiment is neutral—trust but verify approach.
- **3-4:** Significant consumer distrust on privacy issues. Known for data collection practices. Regulatory scrutiny or fines. Negative media coverage on privacy. Users reluctant to share sensitive data. Trust concerns affect adoption of new features.
- **1-2:** Widespread distrust. Major regulatory actions, fines, consent decrees. Damaged brand on privacy and security. Consistently negative media coverage. Users avoid company for privacy-sensitive use cases. "Least trusted" tier. Trust issues materially harm business.

Note on Scoring Weighting: All four criteria inform the final 1-10 score, but past track record and consumer perception carry more weight than infrastructure claims. A company with perfect compliance documentation but a recent major breach should score lower than a company with adequate compliance and no incidents.

Importance for 2030 Intelligence:

Trust is a gating factor for intelligence adoption. Users won't share location data, health information, purchase intent, or personal context with companies they don't trust—limiting the data inputs that enable personalized intelligence. Key considerations:

- **Data access permission:** Low-trust companies will face user denial of sensor access, location sharing, microphone permissions, and cross-app tracking—even when technically possible and legally compliant

- **Premium data willingness:** High-value data (health, finance, children's information) flows only to trusted platforms
- **Regulatory headwinds:** Companies with poor trust face heightened regulatory scrutiny, limiting their ability to innovate in data-intensive features
- **Ecosystem adoption:** Trust influences willingness to adopt multi-device ecosystems where data flows between surfaces
- **Advertising effectiveness:** User trust correlates with ad engagement and conversion—distrust breeds ad blocking and trained banner blindness

By 2030, trust may separate companies that can build comprehensive intelligence profiles from those that must operate with limited, commodity data.

CATEGORY 4: TRANSACTION CAPABILITY (Monetization Layer)

Total: 30 points

Transaction Capability measures how companies monetize intelligence through commerce and advertising. This category evaluates infrastructure for transactions, advertising systems, and business relationships.

4.1 COMMERCE INFRASTRUCTURE (1-10 points)

Definition: The end-to-end systems and physical assets required to facilitate product transactions, from discovery through fulfillment and post-purchase support.

Included:

- Transaction platforms (marketplaces, storefronts, checkout systems, shopping carts)
- Payment processing (payment gateways, wallets, BNPL, currency handling, fraud detection)
- Fulfillment infrastructure (warehouses, inventory management, order processing)
- Logistics capabilities (shipping, last-mile delivery, delivery fleet, returns processing)
- Merchant/seller tools (store builders, inventory systems, analytics, seller support)
- Product catalog systems (SKU management, variant handling, image/description infrastructure)
- Post-purchase support (customer service, returns/exchanges, warranty management)
- Physical retail presence and integration (stores, pickup points, showrooms)
- Cross-border commerce capabilities (international shipping, currency, customs)

Excluded:

- Affiliate/referral links without transaction responsibility
- Advertising for commerce without facilitating transaction
- B2B procurement unless it informs consumer commerce capability

Scoring Criteria:

Category breadth: Single vertical vs. multi-category vs. everything store

- **9-10:** Everything store across dozens of major categories. Can purchase virtually any consumer product through platform. Hundreds of millions of SKUs. Comprehensive coverage makes platform first stop for any purchase need.
- **7-8:** Multi-category with strong breadth. Covers 10-20 major categories. Wide selection making platform suitable for many purchase needs.
- **5-6:** Several categories or deep single category. Millions of SKUs but not comprehensive. Platform is destination for specific purchase types.
- **3-4:** Single category or limited multi-category. Platform serves narrow purchase needs.
- **1-2:** Very limited catalog. Single narrow vertical or experimental commerce offering.

Transaction visibility: Referral only vs. full checkout ownership

- **9-10:** Full transaction ownership. Complete checkout, payment processing, order management, fulfillment visibility. Owns entire transaction flow and all associated data.
- **7-8:** Owns checkout and most transaction process. May use third-party payment processors but maintains transaction data. Strong visibility.
- **5-6:** Mixed model. Some transactions owned end-to-end, others are affiliate or referral. Partial transaction visibility.
- **3-4:** Primarily affiliate model with click tracking. Limited transaction data—knows click happened but not purchase outcome unless partner shares data.
- **1-2:** Pure referral links without transaction data. Sends traffic away and hopes for revenue share. No visibility into transaction completion.

Fulfillment control: Partner-dependent vs. owned logistics

- **9-10:** Owned fulfillment infrastructure. Network of warehouses, own delivery fleet for meaningful portion of orders (same-day, next-day), complete control over fulfillment quality and speed. Physical infrastructure creates competitive moat.
- **7-8:** Mix of owned and partner fulfillment. Some warehouses and logistics control, partners handle remainder. Strong fulfillment capability with reasonable control.
- **5-6:** Primarily partner fulfillment with some oversight. Merchant-fulfilled or third-party logistics with platform standards and tracking.
- **3-4:** Entirely partner-dependent. No fulfillment infrastructure. Marketplace model where merchants handle shipping. Limited quality control.
- **1-2:** No fulfillment capability or visibility. Pure referral to others who handle entire post-purchase experience.

Scale and reach: Transaction volume and geographic coverage

- **9-10:** Billions of annual transactions. Global fulfillment network covering 100+ countries. Massive physical infrastructure (hundreds of warehouses, logistics network). Scale creates unit cost advantages and can fulfill most orders in 1-2 days.
- **7-8:** Hundreds of millions of annual transactions. Strong infrastructure in key markets with international reach in 30-50 countries. Substantial scale advantages.
- **5-6:** Tens of millions of annual transactions. Regional coverage with limited international capability. Functional scale but not dominant.
- **3-4:** Millions of annual transactions. Local or single-country focus. Limited infrastructure.
- **1-2:** Low transaction volume (sub-million annually) or experimental commerce offering. No meaningful scale or infrastructure.

Importance for Advertising Intelligence:

- Product breadth enables frequent return visits and habitual checking, generating more purchase intent data
- Transaction data ownership closes the advertising loop—knowing what was purchased prevents wasteful retargeting
- Fulfillment trust reduces purchase friction; users are more likely to act on recommendations when delivery and returns are reliable
- Physical infrastructure (warehouses, delivery networks) separates companies serious about commerce from those experimenting

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4.2 ADVERTISING SYSTEMS (1-10 points)

Definition: The technical infrastructure, formats, and measurement capabilities that enable brands to reach target audiences, deliver messages, and measure effectiveness.

Included:

- Ad serving and delivery infrastructure (auction systems, pacing, frequency capping)
- Ad formats and surfaces (search ads, display, video, native, shopping ads, sponsored content, audio)
- Targeting capabilities (demographic, behavioral, contextual, intent-based, lookalike)
- Measurement and attribution (view-through, click-through, conversion tracking, multi-touch, incrementality, data clean rooms)
- Creative tools and automation (dynamic creative, AI-generated ads, auto-optimization)
- Self-service platforms and advertiser tools (campaign management, reporting, APIs)
- Brand safety and verification (viewability, fraud prevention, content adjacency controls)
- Cross-platform/cross-device measurement
- Privacy-compliant targeting solutions (cohorts, contextual, on-device)

Excluded:

- Advertiser relationships themselves (covered in Advertiser network)
- Prediction algorithms (covered in AI/Technical Capability)
- Ad sales teams and services

Scoring Criteria:

Format diversity: Single format vs. multi-format across surfaces

- **9-10:** Comprehensive ad formats across five+ surfaces (search, display, video, native, shopping, audio, connected TV, etc.). Can deliver advertiser message in any context across any content type. Format variety enables campaign objectives from awareness to conversion.
- **7-8:** Strong multi-format capability across three to four major surfaces. Can handle most advertiser needs with good variety.
- **5-6:** Two to three ad formats. Covers core use cases but limited in variety.
- **3-4:** Single primary ad format with emerging second format. Limited advertiser flexibility.
- **1-2:** Single basic ad format only. Cannot serve diverse advertiser needs.

Targeting sophistication: Basic demographics vs. behavioral/intent vs. real-time contextual

- **9-10:** Advanced targeting combining intent signals, behavioral data, contextual understanding, and real-time optimization. Can target based on purchase intent, life events, micro-moments. Privacy-compliant sophisticated targeting that will survive 2030 regulations. Lookalike modeling and AI-powered audience discovery.
- **7-8:** Strong behavioral and intent-based targeting. Good personalization using first-party data. Effective targeting with some advanced capabilities.
- **5-6:** Solid demographic and interest-based targeting. Basic behavioral signals. Functional targeting but not sophisticated.
- **3-4:** Basic demographic targeting. Limited behavioral data. Broad audience segments only.
- **1-2:** Minimal targeting. Broad reach with little personalization. Run-of-network inventory.

Measurement quality: Last-click vs. multi-touch vs. incrementality

- **9-10:** Sophisticated measurement including multi-touch attribution, incrementality testing, data clean rooms for privacy-compliant advertiser data integration. Can measure ad effectiveness across online and offline. View-through conversion tracking. Brand lift studies. Gold standard measurement that will work in 2030 privacy environment.
- **7-8:** Good multi-touch attribution and conversion tracking. View-through measurement. Can connect ads to outcomes across customer journey. Strong measurement capabilities.

- **5-6:** Solid last-click attribution with some multi-touch. Conversion tracking functional. Adequate measurement for most advertiser needs.
- **3-4:** Basic click tracking and attribution. Limited visibility into conversions. Measurement gaps make ROI unclear.
- **1-2:** Minimal measurement. Impression counting only or unreliable conversion data. Advertisers cannot assess effectiveness.

Automation and optimization: Manual campaigns vs. AI-powered

- **9-10:** Fully automated campaign optimization. AI-powered bidding, creative generation, audience discovery, budget allocation. Machine learning continuously improves performance. Advertisers set objectives and AI handles optimization. Dynamic creative optimization at scale.
- **7-8:** Strong automation for bidding and optimization. Some AI-powered features. Good auto-optimization with manual override options.
- **5-6:** Basic automation. Auto-bidding for simple campaigns. Limited optimization. Still requires significant manual campaign management.
- **3-4:** Mostly manual campaign management. Minimal automation. Advertisers do most optimization work.
- **1-2:** Entirely manual. No automation or optimization tools. Campaign setup and management is labor-intensive.

Privacy compliance: Third-party cookie dependent vs. first-party solutions

- **9-10:** Fully privacy-compliant targeting and measurement built on first-party data, contextual signals, and privacy-preserving technologies (data clean rooms, on-device processing, aggregated cohorts). Not dependent on methods that will be obsolete by 2030. Can deliver sophisticated targeting that survives regulatory evolution.
- **7-8:** Primarily first-party data with privacy-compliant methods. Some legacy dependencies but transition plan clear. Will adapt to 2030 privacy environment.
- **5-6:** Mix of first-party and third-party methods. Transitioning away from cookies but still dependent for some capability. Privacy compliance in progress.
- **3-4:** Heavily dependent on third-party cookies or tracking methods facing regulatory pressure. Limited first-party alternative. Significant capability at risk.
- **1-2:** Entirely dependent on obsolete tracking methods. No viable path to privacy-compliant targeting by 2030. Business model at risk from privacy regulation.

Note on Measurement and Privacy: These are scored as separate criteria. A company might have excellent measurement capabilities today that won't survive 2030 regulations (low privacy compliance score) or limited measurement that is highly durable (high privacy compliance).

Examples: Amazon's walled garden provides complete purchase visibility (high measurement, naturally privacy-compliant); Apple's SKAdNetwork offers limited but robust app attribution; Google's data clean rooms provide sophisticated privacy-preserving measurement.

4.3 ADVERTISER NETWORK (1-10 points)

Definition: The scale and quality of relationships with brands and businesses that pay to reach consumers through advertising, including the depth of those partnerships and network effects in the ad marketplace.

Included:

- Number of active advertisers (thousands vs. millions)
- Advertiser diversity (SMBs, mid-market, enterprise; categories/verticals)
- Ad spend volume and growth trajectory
- Self-service vs. managed service mix
- Advertiser retention and LTV
- Agency and partner ecosystem
- Two-sided network effects (more advertisers → more competition → better user experience → more users → more advertisers)
- Platform dependency (must-buy vs. nice-to-have in media plans)
- Category leadership (dominant in specific verticals like retail media, B2B, local, etc.)

Excluded:

- Advertising systems/technology (covered in Advertising systems)
- Merchant relationships for commerce (covered in Commerce infrastructure and Data Assets)
- Ad sales personnel (human capital vs. network)

Scoring Criteria:

Advertiser scale: Number of active paying advertisers

- **9-10:** Millions of active advertisers. Platform serves everyone from small businesses to Fortune 500. Massive self-service adoption plus large enterprise relationships. Advertising ecosystem is thriving marketplace.
- **7-8:** Hundreds of thousands of active advertisers. Strong mix of SMB self-service and enterprise. Substantial and diverse advertiser base.
- **5-6:** Tens of thousands of active advertisers. Good mix but not massive scale. Functional advertiser network.
- **3-4:** Thousands of advertisers. Limited scale. Primarily enterprise with minimal SMB adoption.
- **1-2:** Hundreds of advertisers or fewer. Very limited advertiser network. Experimental or nascent ad business.

Spend concentration: Diversified base vs. dependent on few large advertisers

- **9-10:** Highly diversified spend. Top 100 advertisers represent <20% of revenue. Loss of any single advertiser is immaterial. Long-tail of SMBs provides stable base. Thousands of advertisers spending $100K+ annually.
- **7-8:** Good diversification. Top 100 advertisers represent 20-40% of revenue. Mix of large and small advertisers provides balance.
- **5-6:** Moderate concentration. Top 100 advertisers are 40-60% of revenue. Some dependency on large advertisers but diversification improving.
- **3-4:** High concentration. Top 50-100 advertisers represent 60-80% of revenue. Vulnerable to loss of major accounts.
- **1-2:** Extreme concentration. Handful of advertisers represent majority of revenue. Business depends on few relationships. No long-tail distribution.

Network effects strength: Does platform growth compound?

- **9-10:** Strong two-sided network effects. More advertisers compete for inventory → higher CPMs but better ad relevance → improved user experience → more users → more valuable inventory → more advertisers. Flywheel creates compounding advantages. Market share gains accelerate growth.
- **7-8:** Meaningful network effects. Growth feeds on itself through advertiser competition and user value. Positive feedback loops operating.
- **5-6:** Moderate network effects. Scale helps but doesn't create dramatic compounding. Growth is linear rather than exponential.
- **3-4:** Weak network effects. More advertisers don't meaningfully improve user experience or attract more users. Limited compounding.
- **1-2:** No network effects. Growth doesn't reinforce itself. Pure linear scaling without compounding advantages.

Platform essentiality: Must-have in media plans vs. experimental

- **9-10:** Must-have platform for advertisers in most categories. Would never skip this platform in media plan. Core part of digital advertising mix. Budget allocation is substantial and stable. Platform is where customers are, so brands must be present.
- **7-8:** Important platform for many advertiser categories. Strong consideration in media plans. May not be essential for all categories but significant for target advertisers.
- **5-6:** Considered platform. In the mix for media planning but not essential. Advertisers test and allocate incremental budget. Nice-to-have rather than must-have.
- **3-4:** Optional experimental budget. Advertisers try platform but don't depend on it. Can skip without consequence. Tier 3 platform in priority.
- **1-2:** Rarely considered. Experimental budget only from adventurous brands. Not part of standard media planning. Advertisers unaware or dismissive of platform.

Ecosystem health: Retention, satisfaction, ROI delivery

- **9-10:** Excellent advertiser retention (90%+ annual renewal). High satisfaction scores. Advertisers consistently achieve strong ROI. Agency partnerships thriving. Platform is viewed as high-performing and reliable. Advertisers increase spend over time.
- **7-8:** Good retention (75-90%) and satisfaction. Most advertisers see acceptable ROI. Healthy relationships with agencies. Functional ecosystem.
- **5-6:** Moderate retention (60-75%). Mixed satisfaction. Some advertisers see ROI, others churn. Ecosystem is functional but not thriving.
- **3-4:** Poor retention (40-60%). Low satisfaction. Many advertisers don't see ROI and leave. Weak agency relationships. Ecosystem struggling.
- **1-2:** High churn (<40% retention). Advertisers dissatisfied with results. Cannot prove ROI. Burning through advertisers without building lasting relationships.

Note on Merchants vs. Advertisers: This component focuses purely on advertiser relationships. Merchant relationships (sellers on Amazon Marketplace, Shopify stores) are covered in Data Assets (Business/commercial data) and Commerce Infrastructure (merchant tools). Some businesses are both merchants and advertisers (Amazon seller who buys sponsored product ads); these companies score on both dimensions.

CATEGORY 5: CONTENT/MEDIA (Engagement Layer)

Total: 30 points

Content/Media evaluates how entertainment creates advertising opportunities and intelligence surfaces. This category focuses on how content ownership enables high-impact ad inventory, commerce integration, and ecosystem lock-in—not content quality for its own sake.

5.1 CONTENT SCALE AND CONTEXT (1-10 points)

Definition: The volume, variety, and consumption context of entertainment that creates advertising opportunities and surfaces for proactive intelligence.

Included:

- Content volume and engagement time (hours of content consumed daily)
- Multi-format content portfolio (video, audio, music, audiobooks, podcasts, gaming, text/chat)
- Co-viewing dynamics (family/group viewing vs. individual consumption)
- Lean-back vs. lean-in consumption contexts (passive TV vs. active device engagement)
- Content across day parts (morning audio, daytime background, evening viewing, late-night)
- Live vs. on-demand (appointment viewing, event-driven engagement)
- UGC vs. professional content mix (scale vs. premium brand safety)

- Content that generates conversation (watercooler moments, cultural relevance)

Excluded:

- Content quality for entertainment value alone
- Recommendation algorithms (covered in AI/Technical Capability)
- Commerce integration (covered in next sub-component)

Scoring Criteria:

Engagement volume: Total time users spend with content

- **9-10:** Billions of hours consumed daily across user base. Multiple hours per user per day. Content platform is primary entertainment destination. Daily engagement time × user base creates massive scale.
- **7-8:** Hundreds of millions to low billions of hours daily. Strong engagement with 1-2 hours per user per day. Major entertainment platform.
- **5-6:** Tens to hundreds of millions of hours daily. Moderate engagement with 30-60 minutes per user per day. Meaningful entertainment presence.
- **3-4:** Millions of hours daily. Limited engagement with <30 minutes per user per day. Small entertainment footprint.
- **1-2:** Minimal content engagement. Content is peripheral to platform, not primary use case.

Format diversity: Single format vs. multi-format

- **9-10:** Five+ content formats (video, audio, music, podcasts, gaming, live streaming, text/chat). Can fill all entertainment needs across day parts and contexts. True multi-format media platform.
- **7-8:** Three to four formats. Strong multi-format capability covering major use cases.
- **5-6:** Two formats, or deep single format. Good coverage but not comprehensive.
- **3-4:** Single format focus with very limited secondary format. Narrow content offering.
- **1-2:** Single format only or minimal content. Limited entertainment variety.

Context variety: Solo/group, active/passive, different day parts

- **9-10:** Content consumed across all contexts—solo phone viewing, family TV watching, morning audio commutes, background music, focused evening viewing, late-night browsing. Serves all day parts and consumption modes. Content fits into any part of user's day.
- **7-8:** Strong context variety. Content works in three to four distinct consumption contexts and day parts. Good versatility.
- **5-6:** Two to three contexts. Content fits some use cases well but limited in others.
- **3-4:** Single primary context. Content works for specific consumption mode (e.g., solo mobile only) but not versatile.

- **1-2:** Very narrow context. Content only consumed in limited circumstances.

Attention quality: Distracted/background vs. focused/engaged

- **9-10:** Mix of high-attention content (focused viewing, appointment TV, live events) and background content. Can command premium advertising rates for engaged viewing while maintaining scale with background consumption.
- **7-8:** Primarily focused attention or mix leaning toward engaged viewing. Good attention quality for advertising.
- **5-6:** Mix of focused and distracted viewing. Moderate attention quality.
- **3-4:** Primarily background or distracted consumption. Limited focused attention. Lower advertising value.
- **1-2:** Entirely background or minimal attention. Content is noise while users do other things. Poor advertising context.

Cultural impact: Niche content vs. shared cultural moments

- **9-10:** Creates regular cultural moments and watercooler conversations. Content drives social media discourse. Major shows, events, or creator moments that reach mass consciousness. Content is culturally relevant and generates buzz. Advertising during cultural moments commands premiums.
- **7-8:** Some cultural impact. Occasional shows or events generate conversation. Recognized as source of culturally relevant content.
- **5-6:** Limited cultural impact. Content is consumed but doesn't drive broad conversation. Niche audiences with limited mainstream reach.
- **3-4:** Minimal cultural relevance. Content is entertainment but doesn't create shared moments. No watercooler effect.
- **1-2:** No cultural impact. Content is commodity without cultural significance.

Importance for Advertising: Cultural moments create advertising premiums (Super Bowl effect). Co-viewing (families watching together) vs. solo consumption affects ad targeting and pricing. Multiple formats and day parts create diverse inventory for different advertiser needs. High engagement volume provides more opportunities for ad impressions and intelligence gathering.

5.2 ADVERTISING INNOVATION IN CONTENT (1-10 points)

Definition: The sophistication and variety of advertising formats within entertainment experiences, emphasizing seamless integration, commerce enablement, and non-disruptive monetization.

Included:

- Traditional formats (pre-roll, mid-roll, post-roll, display overlays, audio spots)
- Dynamic ad insertion (server-side, personalized at individual level, real-time optimization)
- Native and integrated formats (sponsored content, branded entertainment, product placement)
- Shoppable content (click-to-buy within video, QR codes, visual search on paused content)
- Interactive ad formats (choose-your-own-adventure, polls, games, AR try-on)
- Contextual targeting within content (ad matches content theme/mood/audience)
- AI-generated personalized ads (dynamic creative at scale)
- Commerce integration depth (see product in content → purchase without leaving experience)
- Non-interruptive monetization (pause ads, ambient placement, virtual product placement)

Excluded:

- Advertising systems infrastructure (covered in Transaction Capability → Advertising systems)
- Advertiser relationships (covered in Transaction Capability → Advertiser network)
- Content quality itself (covered in Content scale and context)

Scoring Criteria:

Format diversity: Limited formats vs. wide variety

- **9-10:** Comprehensive ad innovation across eight+ formats—traditional pre/mid/post-roll, dynamic insertion, native integration, shoppable content, interactive formats, contextual targeting, AI-generated creative, ambient placement. Can monetize content in every possible way while maintaining user experience.
- **7-8:** Strong format variety with five to seven innovative formats. Good balance of traditional and emerging ad types.
- **5-6:** Three to four ad formats including some innovation beyond traditional spots. Functional variety.
- **3-4:** Two to three formats, mostly traditional with limited innovation. Basic monetization.
- **1-2:** Single ad format only (basic pre-roll or display). No innovation in content advertising.

Native integration: Interruptive vs. seamlessly woven

- **9-10:** Advertising feels like natural part of content experience. Product placements, sponsored content, and branded entertainment integrated so seamlessly users don't experience interruption. Contextual ads enhance rather than disrupt. Virtual product placement allows post-production advertising insertion without content interruption. Users accept or even welcome ads due to relevance and non-disruptive nature.

- **7-8:** Good native integration with some interruptive elements. Mix of integrated and traditional ads. Most advertising feels acceptable within content experience.
- **5-6:** Some native formats but primarily interruptive advertising. Users tolerate ads but see them as interruption.
- **3-4:** Mostly interruptive formats. Advertising disrupts content experience. Limited native integration.
- **1-2:** Entirely interruptive. Advertising is painful interruption that degrades user experience. No attempt at native integration.

Direct commerce capability: Awareness only vs. transact without leaving

- **9-10:** Full commerce integration. See product in content → tap/click → purchase completes without leaving entertainment experience. Product information, reviews, cart, checkout all within content player. Seamless conversion from inspiration to transaction. Complete attribution from content viewing to purchase.
- **7-8:** Strong commerce integration. Shoppable content with easy path to purchase. May require minimal navigation away from content but friction is low. Good conversion tracking.
- **5-6:** Moderate commerce integration. Click to product page on separate commerce platform. Some shoppability but requires context switch.
- **3-4:** Basic commerce linking. Can identify products but user must search separately or navigate away entirely. High friction to purchase.
- **1-2:** No commerce integration. Advertising is awareness only with no purchase path. Cannot connect content viewing to transactions.

Dynamic personalization: Static ads vs. individual-level creative

- **9-10:** Fully personalized advertising at individual level. Different viewers see different ads (and even different products within ads) in same content based on interests, purchase history, demographics. AI-generated creative dynamically adjusts messaging. Real-time optimization of which ad to show. Complete personalization while maintaining privacy compliance.
- **7-8:** Good dynamic ad insertion with cohort-level or demographic personalization. Can swap ads for different audience segments. Some creative personalization.
- **5-6:** Basic dynamic insertion. Different ads for broad segments (geography, time of day). Limited personalization.
- **3-4:** Mostly static ads. Same ads for all viewers with minimal variation. Manual ad insertion.
- **1-2:** Entirely static. Same ads baked into content for all viewers at all times. No personalization or dynamic insertion.

Focus on 2030: By 2030, advertising in content will be increasingly personalized (different viewers see different ads in same content), shoppable (purchase products seen in content

immediately), and non-disruptive (AI-generated product placements, contextual ads that enhance rather than interrupt). This component evaluates readiness for that future.

5.3 CONTENT ECOSYSTEM LOCK-IN (1-10 points)

Definition: The ability to use exclusive content and intellectual property to create switching costs, drive ecosystem adoption, and enable multi-surface entertainment experiences.

Included:

- Exclusive IP ownership (franchises, characters, worlds, creators that only exist in their ecosystem)
- Original content investment (shows, movies, games users can't get elsewhere)
- Creator exclusivity (exclusive deals with talent, influencers, studios)
- Cross-surface content continuity (start on TV, continue on phone, resume on smart speaker)
- Content-driven service adoption (exclusive content that drives subscription/platform choice)
- Family/household content lock-in (kids content, shared libraries, family plans, profiles)
- Content library investment and sunk cost (years of purchased/saved content users don't want to lose)
- Subscription bundling (content + other services creating combined value and switching friction)

Excluded:

- Platform/OS control (covered in Distribution → Hardware/devices and Ecosystem reach)
- Content volume for its own sake (covered in Content scale and context)
- Hardware adoption unrelated to content (covered in Distribution)

Scoring Criteria:

IP exclusivity strength: Commodity content vs. must-have exclusives

- **9-10:** Portfolio of must-have exclusive franchises, characters, or creators that drive platform adoption. Users subscribe specifically to access this content that exists nowhere else. Major IPs with cultural significance and multigenerational appeal. Exclusive content creates competitive moat—users cannot get it elsewhere at any price.
- **7-8:** Strong exclusive content portfolio. Original shows/movies/games that differentiate platform and drive subscriptions. Good exclusive creator relationships. Content exclusivity is meaningful differentiator.

- **5-6:** Some exclusive content but not essential. Mix of exclusive and licensed. Exclusives are nice-to-have but users could find substitutes elsewhere. Limited exclusive content creation.
- **3-4:** Minimal exclusivity. Mostly licensed content available on other platforms. Few or weak original productions. Content doesn't differentiate platform.
- **1-2:** No exclusive content. Pure aggregator of content available elsewhere, or minimal content investment. No IP ownership or exclusive creator relationships.

Cross-surface integration: Single device vs. seamless across TV/mobile/audio

- **9-10:** Seamless content experience across all surfaces—start episode on TV, continue on phone during commute, listen to soundtrack on smart speaker, resume on tablet in bed. Unified account with synchronized playback, preferences, recommendations across 5+ device types. Content flows effortlessly through user's day across contexts.
- **7-8:** Strong cross-surface capability across three to four device types. Good synchronization and continuity. Most use cases covered.
- **5-6:** Cross-surface on two to three devices with some gaps. Basic synchronization works but not seamless.
- **3-4:** Limited cross-surface capability. May work on couple devices but experience is not integrated. Manual progress tracking.
- **1-2:** Single-surface only or no meaningful cross-device integration. Content locked to specific device/platform.

Investment lock-in: Easy to switch vs. years of accumulated value

- **9-10:** Users have years of purchased content, curated playlists, saved preferences, viewing history, ratings, and personalized recommendations they don't want to lose. Switching means abandoning substantial accumulated value. Sunk cost and personalization lock-in create high switching friction. Users feel they've "invested" in platform.
- **7-8:** Meaningful accumulated value. Users have content libraries or preferences representing significant investment. Switching has real cost in lost personalization.
- **5-6:** Some accumulated value. Users have purchased some content or built some preferences. Moderate switching cost.
- **3-4:** Minimal lock-in. Subscription-only model where user can leave without losing purchased assets. Limited preference accumulation.
- **1-2:** No lock-in. Pure rental/streaming with no purchases and minimal personalization. Switching is trivial—cancel and join competitor.

Household penetration: Individual vs. family-wide adoption

- **9-10:** Family/household-wide service with multiple profiles, kids content keeping whole family subscribed, family plans, shared libraries. Each family member uses service, creating multiple stakeholder lock-in. Canceling affects entire household, not just

individual. Kids content particularly sticky—parents won't cancel if children depend on platform.
- **7-8:** Good household adoption with family features. Multiple profiles and shared access. Several household members active users.
- **5-6:** Some household usage. May have family plan but primarily serves one or two users. Limited whole-household value.
- **3-4:** Primarily individual service. Family features exist but adoption is limited. Single-user value proposition.
- **1-2:** Entirely individual. No family features or household value. One user per subscription.

Bundle integration: Standalone vs. integrated with other services

- **9-10:** Content bundled with essential non-content services creating combined value greater than sum of parts. Amazon Prime (video + shipping), Apple One (music + TV + storage + fitness + news), etc. Canceling content means losing other valuable services. Bundle creates switching friction beyond content value alone.
- **7-8:** Content bundled with other media/entertainment services (music + video + gaming). Good bundle value but services are related rather than creating cross-category lock-in.
- **5-6:** Limited bundling. May have package options but content can be purchased standalone without significant penalty.
- **3-4:** Minimal bundling. Primarily standalone content offering with optional add-ons. Bundle value limited.
- **1-2:** Entirely standalone. No bundling strategy. Pure content service without integration to other offerings.

Examples of Lock-in:

- **IP exclusivity:** Marvel content exclusive to Disney+, Rings of Power exclusive to Prime Video
- **Cross-surface:** Start episode on TV, finish on phone during commute, listen to soundtrack on smart speaker
- **Investment lock-in:** Spotify user with 10 years of curated playlists, Steam user with 200+ game library
- **Household penetration:** Netflix with multiple profiles, kids content keeping whole family subscribed
- **Bundle integration:** Amazon Prime (video + shipping), Apple One (music + TV + storage + fitness)

Framework Application Notes

Time Horizon Considerations:

- All scores should reflect anticipated 2030 position, not just current state
- Consider trajectory and momentum: Is the company investing in areas of weakness? Are strengths durable?
- Regulatory environment assumed to evolve toward privacy protection, antitrust scrutiny of tech platforms, and user data rights

Privacy and Regulation:

- Privacy compliance is embedded in scoring criteria rather than separate category
- Data and tracking methods that won't survive 2030 regulations receive lower scores
- Companies building privacy-preserving alternatives (federated learning, on-device processing, data clean rooms) receive credit for future-proofing

Geographic Scope:

- Framework assumes global perspective but recognizes regional differences matter
- Companies strong in one region (ByteDance in Asia, Amazon in North America) vs. truly global (Google, Microsoft) should be noted in analysis
- Geopolitical constraints (TikTok bans, data localization requirements) should factor into Distribution and Ecosystem Reach scores

Interdependencies:

- Categories are designed to be mutually exclusive and collectively exhaustive (MECE)
- Some capabilities appear in multiple categories when they serve different purposes (e.g., merchant data in Data Assets vs. merchant tools in Commerce Infrastructure)
- Scoring should avoid double-counting by focusing on the specific definition of each component

Strategic Paths:

- High scores can be achieved through different strategies: fortress (deep ecosystem lock-in) vs. ubiquity (cross-platform presence)
- No single capability is mandatory for success—companies can compensate for weaknesses in one area with exceptional strength in others
- However, Data Assets + AI/Technical Capability represent 44.4% of total score, with Distribution now at 22.2%, reflecting that intelligence = data + processing capability + trusted access to users

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Document Version: 2.0
Last Updated: November 25, 2025
Total Framework Score: 180 points

Key Changes: Added Trust (3.4) to Distribution category, increasing Distribution from 30 to 40 points. Added detailed scoring grades (1-2, 3-4, 5-6, 7-8, 9-10) for all components across all categories.