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RESEARCH ARTICLE

Escaping the Programmatic Panopticon: A New 4p for Governing Data Capitalism—Evidence From a Three-Round Delphi

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ABSTRACT Programmatic advertising has transformed digital marketing into an automated ecosystem governed by data, algorithms, and platforms. However, this transformation reproduces the core tensions of data capitalism, including the contradictions between precision and privacy, efficiency and ethics, and innovation and inequality. Grounded in the Paradox Theory framework, this study examines whether programmatic systems inevitably reinforce surveillance capitalism or can evolve toward a more participatory and accountable marketing order that enhances digital resilience. A three-round Delphi study was conducted with 34 senior practitioners representing advertisers, agencies, platforms, regulators, and civil society. The findings reveal eleven structural paradoxes that define the socio-technical dynamics of programmatic advertising. Scenario analysis evaluates nine possible futures along two axes: regulatory intensity and platform dominance. Results indicate that status-quo trajectories strengthen data monopolies, reduce algorithmic transparency, and increase exposure to misinformation and deepfakes. Transformative outcomes become feasible when four institutional conditions coincide: enforceable data commons, multi-effect accounting that includes attention and carbon, auditable algorithms, and open protocols under multi-stakeholder governance. Building on these insights, the study proposes a governance-oriented reframing of the marketing mix, termed Permissions, Participation, Portability, and Purpose (4P 2.0). This framework demonstrates how performance and ethics can reinforce one another, providing a roadmap for policymakers and industry leaders to move programmatic advertising from creative extraction to creative renewal.

INDEX TERMS Algorithmic transparency, data governance, Delphi, digital resilience, exposure diversity, paradox theory, programmatic advertising, scenario planning, surveillance capitalism, 4P 2.0.

I. INTRODUCTION

Programmatic advertising (PA) has accelerated the shift from manual placement to an algorithmic marketplace that promises real-time precision, scale, and measurable returns [1]. However, this rapid diffusion coincides with a social environment shaped by interlinked crises and dense, algorithmically mediated information flows [2]. In this hyper-mediated polycrisis, the same infrastructures that optimize attention and revenue can also magnify systemic fragilities. Privacy harms, opacity in decision pipelines, and concentrated gatekeeping power pose a central question: Can programmatic systems genuinely bolster digital resilience, understood as the capacity of individuals, institutions, and publics to absorb, adapt to, and recover from informational shocks such as misinformation, coordinated manipulation, and deepfake campaigns?

The promise of programmatic rests on technical integration across the customer journey [3]. What began as simple retargeting now combines behavioral and contextual signals with real-time bidding and machine learning to deliver the right message to the right user at the right time [4], [5]. Global programmatic spending surpassed 558 billion USD in 2023 and is projected to exceed 700 billion USD by 2026 [6]. However,

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growth is shaped as much by regulation and public scrutiny as by engineering advances. The GDPR and related statutes have accelerated the pivot to first-party data [7]. Apple's iOS 14.5 curtailed third-party tracking and raised paid media costs [8], [9]. The Cambridge Analytica scandal intensified concerns about consent and manipulation. Google's third-party cookie phase-out and the Privacy Sandbox have forced a strategic reset across the ecosystem [10].

Although programmatic markets appear open and competitive, data ownership and algorithmic control tend to concentrate power in a few platforms. Personalization engines convert behavioral exhaust into economic value while calls for privacy, transparency, and user autonomy intensify [11]. Agenda setting has shifted from editorial judgment to algorithmic recommendations, redistributing visibility and authority within the media ecosystem [12], [13]. In crisis conditions, these dynamics can couple optimization incentives with unhealthy exposure patterns, limited verifiability, and slow institutional recovery [14].

These tensions are not temporary frictions. They reflect structural contradictions that accompany optimization under uncertainty. Following Paradox Theory, PA can be read as a system organized around interdependent dualities that cannot be resolved once and for all but must be navigated. Precision versus privacy, openness versus concentration, and performance optimization versus user trust sit at the core of everyday decisions [15]. In the context of digital resilience, additional tensions become salient. Speed versus verification, automation versus accountability, and personalization benefits versus exposure diversity each shape how societies handle mis and disinformation [16], bot traffic, and deepfakes [17], [18]. Technologies adopted without a robust conceptual grounding often generate short-term lift but long-term fragility [19]. A resilience-oriented marketing science therefore needs to evaluate tools not only for functional efficiency but also for their capacity to reduce systemic risk. For programmatic, this entails examining how governance choices, auditing capabilities, and data rights influence exposure diversity, attack surfaces, and recovery trajectories. It also requires linking firm-level objectives with public-interest outcomes in ways that are empirically tractable and normatively explicit.

This study reframes PA as a paradoxical socio-technical system and examines how its governance shapes digital resilience. Methodologically, it draws on a three-round, scenario-based Delphi study with 34 practitioners from across the digital advertising ecosystem. The analysis identifies 11 structural paradoxes and evaluates nine plausible futures defined by regulatory intensity and platform dominance. The findings show that status-quo trajectories reinforce concentration, short-termism, and algorithmic opacity. In contrast, more resilient outcomes depend on enforceable data commons, multi-effect accountability, auditable algorithms, and open protocols under multi-stakeholder governance. Building on these findings, the paper proposes 4P 2.0 Permissions, Participation, Portability, and Purpose as a governance-oriented reframing of the marketing mix for programmatic advertising.

In light of these tensions, the study is guided by three research questions. RQ1: What are the main structural paradoxes that define programmatic advertising as a socio-technical system? RQ2: How do these paradoxes evolve across alternative futures shaped by regulatory intensity and platform dominance? RQ3: Under what governance conditions can programmatic advertising move toward a more participatory, accountable, and digitally resilient marketing order, and how can these conditions be synthesized into the 4P 2.0 framework?

II. STUDY BACKGROUND

In the past decade, PA has become a complex socio-technical ecosystem that automates media buying through algorithmic bidding and data-driven platforms [20]. Greater precision and efficiency have come with structural tensions that directly affect digital resilience by shaping exposure diversity, verification capacity, and the speed of institutional recovery after informational shocks [21], [22]. Research still privileges technical optimization, including bidding algorithms and creative rotation, over privacy breaches [23], data-security risks [24], manipulative targeting [25], and surveillance creep [26]. Auction opacity [27] and rising data costs [28] are also often treated as isolated trade-offs, which obscures how programmatic infrastructures can accelerate misinformation and disinformation, bot-amplified campaigns, and deepfake-enabled persuasion during high-salience events.

Three paradoxes illustrate this gap. Personalization increases relevance but intensifies privacy concerns, user resistance, and regulatory pressure [21]. When engagement is prioritized over verification, consent signals weaken and manipulative narratives gain more room to circulate. Regulation creates a second tension: while privacy rules restrict data flows, they can also reinforce platform dominance, raise costs, and narrow competition [28]. This concentration centralizes failure points and produces brittle infrastructures that adversaries can target. A third paradox lies between perfect matching and brand loyalty. Microtargeting may improve click-through rates [29], yet it can erode emotional attachment and increase price sensitivity [30], [31], [32]. As shared brand narratives weaken, so do the common knowledge and public trust required for recovery after informational shocks. The literature rarely treats these tensions within a single explanatory frame, leaving an incomplete link between optimization choices and resilience outcomes.

This leads to a central question: does PA establish a new marketing order, or does it reproduce classical capitalist logics? The issue is normative as well as technical because data ownership, algorithmic steering, and privacy erosion shape the terms of market participation. Zuboff describes platforms as ''behavioral futures markets'' that trade ''prediction products'' derived from behavioral surplus [11]. In this setting, the ''Product'' in the 4Ps is no longer limited to consumer goods but includes user traces harvested at scale. Unless constrained

by auditing capacity, data-rights regimes, and open protocols, these prediction markets expand attack surfaces and reduce transparency. The same logic recasts everyday clicks, searches, and scrolls as uncompensated digital labor [33], [34], while panoptic surveillance shifts from institutions to platforms and normalizes personalization as guidance rather than coercion [35]. These dynamics can weaken public trust, blunt responsiveness to credible warnings, and reduce participation in verification processes.

Agenda setting has likewise moved from editorial judgment to algorithmic recommendation systems that rank and amplify content, shaping brand exposure and attention [12], [36]. Programmatic markets depend on uninterrupted user-data flows, which makes users their indispensable fuel [13]. Consumers are positioned as audience and raw material at the same time, as value is extracted from the prediction products built on behavioral surplus [11]. When systems optimize short-term engagement without resilience safeguards, they can amplify polarizing or deceptive content during crises. This study moves from diagnosis to design by advancing a governance lens and 4P 2.0 (Platform, People, Purpose, Partnership), and by using expert judgment to specify when PA can deliver performance with legitimacy. The framework is tied to resilience criteria that broaden exposure diversity, strengthen verifiability through auditing and transparency, and shorten institutional recovery after informational shocks.

III. THEORETICAL BACKGROUND

A. PARADOX THEORY

Paradox Theory offers a focused lens for explaining the recurring tensions of PA. Rather than treating these tensions as temporary trade-offs, it frames them as persistent and interdependent demands that must be managed over time [15], [37], [38]. In marketing contexts, this perspective clarifies why personalization, privacy, efficiency, transparency, and automation remain simultaneously relevant in strategic decision-making [39], [40]. It also aligns with critiques of surveillance capitalism, where behavioral data are extracted and commodified through asymmetrical relations between platforms that control algorithms and distribution and users whose activities generate value [11], [41]. PA can therefore be understood as a socio-technical system structured by enduring paradoxes: personalization versus privacy, competition versus concentration, and optimization versus trust [21], [28], [43]. These tensions matter for digital resilience because they shape exposure diversity, verifiability, and the capacity to recover from misinformation, bot amplification, and deepfake-enabled persuasion.

B. SYSTEM THEORY

Systems Theory explains why these paradoxes persist and how local optimization can lead to system-level fragility. PA operates as an open system organized through recursive feedback loops [44]. Consumer behavior, publisher inventory, and advertiser budgets enter bidding and allocation processes managed by demand-side and supply-side platforms, while performance signals feed back into subsequent decisions. Because these subsystems are tightly coupled, adjustments by advertisers, publishers, platforms, regulators, or users can propagate nonlinearly across the ecosystem [13], [45]. Resilience outcomes, therefore, depend on how data flows, ranking rules, and feedback mechanisms are governed.

This perspective clarifies two central dynamics. Expanding data collection and model granularity can improve relevance and efficiency, yet it also intensifies monitoring, weakens consent, and increases the scope for manipulation when engagement is prioritized over verification [21], [42]. Open auctions and interoperability can widen participation, but scale economies in data, identity resolution, and infrastructure also reinforce concentration [28]. As market power consolidates, failure points become more centralized and more vulnerable during high-salience events [46]. These dynamics also reconfigure marketing practice by turning behavioral surplus into prediction products and platform exchanges into the main infrastructure of value creation and distribution [11]. This theoretical framing grounds the later development of the 4P 2.0 model and identifies the governance conditions most relevant to resilience: auditing capacity, open protocols, and data-rights regimes [39], [44].

IV. METHODOLOGY

This study employs a three-round, scenario-based Delphi design to capture expert perspectives on the paradoxes of PA. Informed consent was obtained from all participants prior to participation in each of the three Delphi rounds; participation was voluntary, and responses were collected and analyzed in anonymized form.

The expert panel was assembled through purposive sampling to capture senior, practice-based knowledge from across the programmatic advertising ecosystem rather than statistical representativeness. The 34 panelists represented advertisers, media agencies, adtech-related firms, creative agencies, and publishers, ensuring heterogeneity across key institutional positions in the ecosystem. Participants were selected based on their direct involvement in programmatic advertising decision-making, platform governance, data strategy, campaign operations, or related managerial and technical functions. This panel design was intended to secure information-rich judgments from actors with sustained professional exposure to the structural, technological, and regulatory tensions examined in the study.

The Delphi method is particularly suitable for domains marked by rapid technological change, limited longitudinal data, and interdependent variables [47], [48]. Iterative rounds foster convergence while anonymity minimizes groupthink and dominance bias [49]. The scenario-based adaptation enhances this by introducing structured "future states," prompting participants to assess plausibility, desirability, and strategic implications [50].

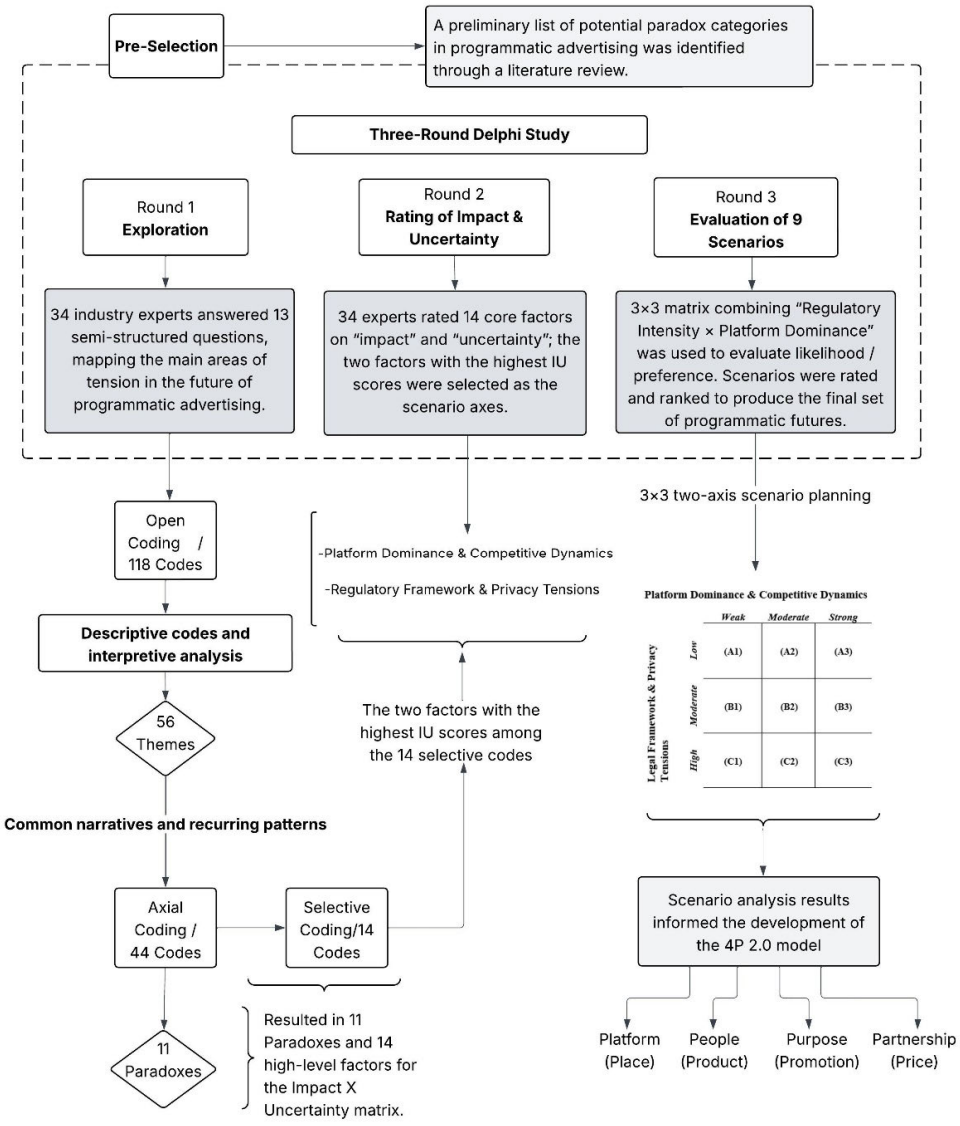


FIGURE 1. Research design.

A literature-driven pre-screen identified candidate paradox categories. In Round 1, 34 industry experts responded to 13 semi-structured prompts. The corpus was analyzed in MAXQDA 2020 Analytics Pro using a grounded theory-informed procedure. Line-by-line open coding generated 118 first-order codes, which were refined through axial coding into 56 themes and then consolidated through selective coding into 11 structural paradoxes. Where category boundaries required clarification, coded excerpts and category definitions were revisited iteratively to strengthen conceptual consistency. In Round 2, experts evaluated the relative impact and uncertainty of the identified factors, from which the two dominant scenario axes were selected. These axes were defined as Platform Dominance and Competitive Dynamics, and Regulatory Framework and Privacy Tensions. In Round 3, nine scenarios in a 3×3 matrix were rated for likelihood and preference, yielding a ranked scenario set that informed theory development. The open-ended reflections from this round were then re-examined to identify recurring governance barriers, enabling conditions, and institutional responses, which were synthesized into the 4P 2.0 framework as a design-oriented interpretation of the Delphi findings. The overall research design is summarized in Figure 1.

A. FIRST-ROUND DELPHI PROCEDURE

The first round identified the uncertainty domains and sectoral paradoxes that seeded subsequent scenario development. Using open-ended prompts derived from a targeted literature review, experts articulated ecosystem tensions, boundary conditions, and plausible trajectories. Narratives were coded to extract paradoxes, uncertainties, and conflict points, which then informed the critical variables prioritized in later rounds.

The panel comprised 34 senior practitioners across operations, strategy, media buying, creative, analytics, and client leadership. Fieldwork was conducted between November 20, 2024, and February 2, 2025, achieving a 100% response rate. Purposive sampling recruited ''information-rich'' experts with direct, practice-based knowledge, prioritizing heterogeneity and depth over representativeness, as recommended for Delphi studies in complex domains [51], [52]. The Delphi panel consisted of 34 senior practitioners from across the digital advertising ecosystem, including advertisers (n = 13), media agencies (n = 7), adtech-related firms (n = 7), creative agencies (n = 4), and publishers (n = 3). Participants ranged in age from 27 to 50 years (M = 40.9) and had between 5 and 29 years of professional experience (M = 17.9). Their roles covered operations, strategy, media buying, analytics, creative, and client leadership, providing heterogeneous yet practice-rich perspectives on programmatic advertising governance. A detailed participant-level profile is provided in Supplementary Table S1.

The instrument contained 13 open-ended questions probing: (i) industry structure and stakeholders; (ii) technological developments (AI/ML, data platforms); (iii) data privacy and regulation (cookies, GDPR, contextual targeting); and (iv) ethics and innovative solutions (manipulative targeting, brand safety, transparency, blockchain). The complete questionnaire is provided in Supplementary Table S2.

1) QUALITATIVE DATA ANALYSIS AND CODING PROCESS

The Round 1 corpus was analyzed in MAXQDA 2020 Analytics Pro using a grounded theory–informed protocol [53]. Line-by-line coding identified 118 discrete meaning units, each tagged with a descriptive open code [54], [55]. Through constant comparison, axial coding collapsed these into 44 provisional categories [56], clarifying relationships under broader umbrellas. Selective coding then integrated these categories with the theoretical frame, yielding 56 themes consolidated into 11 overarching paradox domains [53], [57]. This iterative clustering transformed dispersed narratives into a coherent conceptual map. Beyond frequency patterns, the structure captured enduring, interdependent tensions central to PA [58]. Thereby providing the substrate for the Round-2 Impact X Uncertainty matrix and advancing theory building on paradoxes in socio-technical marketing systems.

2) STRUCTURAL PARADOXES SHAPING PROGRAMMATIC ADVERTISING

In the first round, open-ended panel responses were systematically content-analyzed, yielding eleven structural paradoxes that define the socio-technical dynamics of PA. These paradoxes capture tensions across efficiency, privacy, competition, creativity, and sustainability, and are summarized in Table 1. Coding hierarchies are reported in Supplementary Table S3, dimensions and themes are summarized Supplementary Table S4, and detailed paradox descriptions and illustrative expert quotations are provided in Supplementary Note S1. Building on this evidence, a systems perspective clarifies how programmatic reconfigures the 4Ps so that each dimension seeds a distinct tension, a pattern detailed in Supplementary Table S5.

TABLE 1. Structural paradoxes identified in round 1 of the delphi study.

Paradox	Core Tension	Illustrative Mechanism	Key References
Precision–Concentration	Accuracy gains ↔ Rising capital intensity & market concentration	ROI from 95% targeting requires massive data/compute	[3], [59]
Data Ethics	Performance gains ↔ Privacy & legitimacy risks	Finer signals improve ROI but heighten surveillance perception	[43], [60], [24]
Arms Race	Automation & scale ↔ Ad fraud escalation	AI-driven bots mimic human signals	[61], [62]
Automation Overreach	Efficiency ↔ Oversight deficit	High-speed misconfigurations propagate damage	[28], [63]
Loss of Serendipity	Personalization ↔ Novelty & discovery	Recommendation loops reduce exposure diversity	[64], [65]
Metrics Paradox	Measurability ↔ Creativity	KPIs bias campaigns toward short-term clicks	[66], [67]
Blockchain Implementation Paradox	Transparency ↔ Throughput & compliance	Immutable ledgers slow RTB, clash with GDPR	[68], [69], [70]
Sustainability vs. High Computing Power Paradox (Green Programmatic)	Efficiency ↔ Carbon footprint	RTB & AI-driven optimization inflate energy use	[71], [6]
Scalability Paradox	Expansion ↔ Costs, integrity, concentration	Scale boosts ROI but inflates fraud & compliance costs	[10]
1Ethical Nudging vs. Consumer Autonomy	Performance ↔ Consumer autonomy	Micro-targeted nudges blur persuasion vs. manipulation	[72], [73], [11]
Cookieless Monetization vs. Data-Driven Programmatic Ecosystem	Privacy ↔ Monetization & scale	ID fragmentation raises cost, lowers reach	[74], [75]

3) ROUND-1 SYNTHESIS: PROGRAMMATIC PARADOXES AND THE 4P FRAMEWORK

The first-round Delphi synthesis shows that PA functions not as a collection of isolated issues but as a set of enduring structural paradoxes. Through open, axial, and selective coding, each paradox was linked to its dominant systemic tendency,

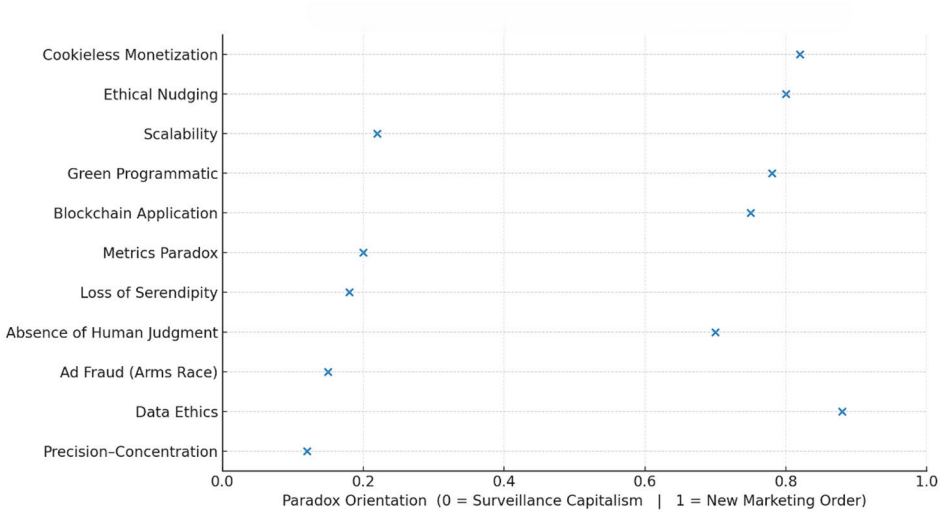


FIGURE 2. Paradox summary matrix with representative quotes.

Platform Dominance and Competitive Dynamics

Legal Framework and Privacy Tensions	*Weak*	*Moderate*	*Strong*
Low	Chaotic Freedom (A1)	Fragile Balance (A2)	Laissez-Faire Platform Leviathan (A3)
Moderate	Polyphonic Competition (B1)	Regulated Pluralism (B2)	Regulated Hegemony (B3)
High	Tight Reins (C1)	Responsible Innovation Corridor (C2)	Regulated Oligopoly (C3)

FIGURE 3. Scenario matrix.

either reinforcing the status quo or opening space for normative transition. For example, greater precision tends to foster market concentration, and an exclusive focus on ROI metrics tends to erode creative quality, whereas stronger transparency, commons-based data arrangements, and enhanced user autonomy create conditions for change. Supplementary Table S6 summarizes this paradox topology by distinguishing status-quo reproduction (Label 1) from transition potential (Label 2).

Figure 2 offers a conceptual map linking practitioner narratives with critical theory. It situates status-quo tendencies (concentration, ROI obsession) within Zuboff's surveillance-capitalism [11] and Schumpeter's innovation-driven consolidation [76], while positioning transition dynamics (transparency, autonomy, sustainability) alongside Foucault's power/discipline [35] and systems theory in marketing [44], [77], [78]. The visualization thus highlights which paradoxes reinforce extractive logics and which provide leverage for a participatory marketing order.

B. SECOND-ROUND DELPHI PROCEDURE

In the second-round Delphi, using an impact–uncertainty approach, 34 experts (23 February–2 March 2025) rated the expected impact and unpredictability of 14 core factors over the next 5–10 years. The results show that "Platform dominance & competitive dynamics" and "Regulatory regime & privacy tensions" achieved the highest *Impact X Uncertainty* scores, see Supplementary Table S7; these two dimensions were adopted as the principal axes of the 3 × 3 scenario matrix (see Figure 3). In line with scenario-planning logic, the numerous paradoxes were clustered around these axes to examine how they would resolve

TABLE 2. Overview of nine PA scenarios.

Code & Label	Regulation/ Platform Hegemony	Core Configuration (≤15 words)	Key Assumptions	Likely Drifts / Triggers
A1.Chaotic Freedom	Minimal/ Weak	Fragmented SME-led market; aggressive data use; creative but fraud-prone.	Easy data access; low costs; low privacy salience.	To A2 if algorithms converge → price wars; to B3 if platforms strengthen; to B1/C1 if regulation tightens.
A2.Fragile Balance	Minimal (light)/ Moderate	Baseline rules, weak enforcement; self-regulation; mid-tier players viable.	Targeting remains cost-efficient; no stringent controls.	To A1 if capability commoditizes; to B3 if dominance grows; to C1 if oversight hardens.
A3.Laissez-Faire Platform Leviathan	Minimal/Strong	1–2 super-platforms set rules; oligopolistic rails; dependences deepen.	Regulatory passivity; weak antitrust; low backlash.	To B1/C1 on scandal/backlash; further lock-in if performance leaps.
B1.Polyphonic Competition	Moderate/Weak	Clear baseline rules; proportionate enforcement; diverse actors, niche models.	Balanced oversight without stifling innovation.	To B2/B3 after scandals; to A1/A3 if rules loosen; mergers → A3.
B2.Regulated Pluralism	Moderate/ Moderate	Enforced consent/privacy; semi-concentrated market; niches coexist.	Enforcement credible; entry still feasible.	To B3/C3 with crises; to A3 via consolidation; to A1 if enforcement fades.
B3.Regulated Hegemony	Moderate	Few platforms dominate under visible but limited oversight.	Sanctions deter abuse; structure unchanged.	To C3 if oversight tightens; to A3 if constraints relax; to B2 with transparency/open ID.
C1.Tight Reins	Strong/ Weak	Strict rules & enforcement; plurality preserved; high compliance costs.	Durable political will; high privacy salience.	Entrench with scandals; relax to C2/B2 via PETs/harmonization; consolidation → B3.
C2.Responsible Innovation Corridor	Strong/Moderate	Strict yet innovation-friendly; PETs, contextual, shared verification standards.	Compliance tech matures; harmonized norms.	Tighten to C1 on shocks; relax to B2 with agreements; mergers → B3.
C3.Regulated Oligopoly	Strong/Strong	Trusted but centralized; compliance automated; high entry barriers.	Persistent consolidation; heavy RegTech.	Strong antitrust → C2/C1; weaker enforcement → deeper concentration.

or intensify under alternative futures, thereby ensuring the scenarios' methodological objectivity and coherence. The 11 paradoxes identified in Round 1 were used as the differentiating dynamics within the matrix.

1) SCENARIO PLANNING APPROACH

PA's paradoxical structures demand not only understanding current trends but also anticipating long-term disruptions. To this end, the study employs an exploratory scenario approach, consistent with the IPCC's definition of scenarios as plausible depictions of 'how the future could unfold' rather than forecasts [79]. Drawing on Kahn and Wiener's [80] framework, this method enables decision-makers to navigate uncertainty by examining multiple futures instead of relying on a single projection.

The nine scenarios integrate conflicting dynamics to surface strategic trajectories, threats, and opportunities, serving as structured thought experiments grounded in Paradox Theory. Delphi's multi-round expert input ensured objectivity, reliability, and creativity, which are criteria emphasized in scenario planning [81]. In the third round, experts evaluated draft scenarios on feasibility, desirability, and impact [82], refining both their content and structure.

Table 2 summarizes the nine scenarios generated by crossing regulatory intensity (A–C) with platform dominance (1–3). Each cell depicts a coherent, plausible future with distinct incentives, risks, and governance levers.

The matrix serves as a decision aid by surfacing likely drifts across cells and the triggers that move the ecosystem from one state to another. Detailed narratives, assumptions, and early indicators for all nine scenarios (A1–C3) are provided in Supplementary Note S2.

C. THIRD-ROUND DELPHI PROCEDURE

The third round evaluated scenario configurations derived from the critical uncertainties and paradoxes identified in earlier stages. Conducted between 13 March and 2 April 2025, it re-engaged the same 34 practitioners from previous rounds to ensure continuity of expertise. The objective was to assess whether these scenarios indicate a transition toward a ''new marketing order'' or reinforce the logics of surveillance capitalism. Scenario briefs in the survey form presented to experts were condensed into shortened versions for evaluation in Supplementary Note S3. To operationalize this, a questionnaire was developed using 15 semantic-differential scales (e.g., profit logic: classical vs. transformative; user

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
A1	3.2 (L)	2.5 (VL)	4.1 (M)	3.8 (L)	3.0 (L)	2.2 (VL)	3.9 (L)	4.4 (M)	2.8 (VL)	5.2 (H)	3.6 (L)	2.9 (VL)	3.2 (L)	4.7 (M)	5.1 (H)
A2	4.3 (M)	3.8 (L)	4.7 (M)	4.1 (M)	4.6 (M)	3.9 (L)	5.1 (H)	4.9 (M)	5.3 (H)	5.5 (H)	5.2 (H)	4.1 (M)	4.8 (M)	5.0 (H)	5.7 (H)
A3	2.7 (VL)	2.2 (VL)	3.1 (L)	2.4 (VL)	2.8 (VL)	2.0 (VL)	2.9 (VL)	3.2 (L)	2.6 (VL)	3.7 (L)	4.1 (M)	3.0 (L)	2.6 (VL)	3.1 (L)	3.9 (L)
B1	4.9 (M)	4.1 (M)	4.6 (M)	4.2 (M)	5.2 (H)	4.8 (M)	4.3 (M)	5.3 (H)	6.2 (VH)	5.0 (H)	4.4 (M)	4.7 (M)	4.9 (M)	5.5 (H)	6.2 (VH)
B2	6.0 (VH)	5.6 (H)	6.2 (VH)	5.7 (H)	5.9 (H)	5.4 (H)	6.4 (VH)	5.6 (H)	6.1 (VH)	6.3 (VH)	5.7 (H)	6.0 (VH)	5.9 (H)	5.8 (H)	6.4 (VH)
B3	4.2 (M)	5.0 (H)	5.5 (H)	4.9 (M)	4.8 (M)	4.6 (M)	5.6 (H)	5.2 (H)	4.7 (M)	4.9 (M)	5.1 (H)	5.3 (H)	4.4 (M)	5.2 (H)	5.9 (H)
C1	5.7 (H)	6.1 (VH)	4.9 (M)	5.2 (H)	6.3 (VH)	5.5 (H)	6.0 (VH)	5.7 (H)	5.8 (H)	5.4 (H)	6.2 (VH)	5.9 (H)	5.2 (H)	6.0 (VH)	5.3 (H)
C2	6.3 (VH)	5.9 (H)	6.6 (VH)	6.2 (VH)	6.5 (VH)	6.1 (VH)	6.8 (VH)	5.9 (H)	6.3 (VH)	6.0 (VH)	6.4 (VH)	6.1 (VH)	6.6 (VH)	6.3 (VH)	6.7 (VH)
C3	3.9 (L)	4.4 (M)	3.2 (L)	4.1 (M)	4.6 (M)	3.8 (L)	4.2 (M)	3.5 (L)	4.0 (M)	4.3 (M)	3.9 (L)	4.2 (M)	3.7 (L)	4.6 (M)	4.4 (M)

FIGURE 4. Scenario × transformation dimensions heatmap. Note: VH = Very high transformation (new order); H = High; M = Moderate (mixed); L = Low; VL = Very low transformation (surveillance continuity).

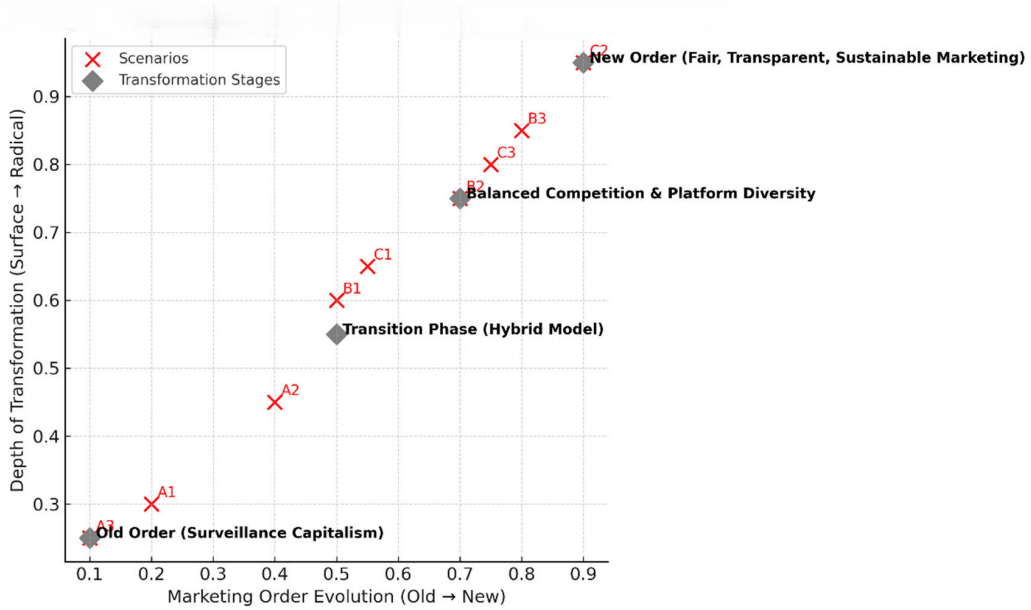


FIGURE 5. Scenario positioning map: toward a new marketing order.

role: passive vs. autonomous; data ownership: corporate vs. user-centric), rated on a 1–7 continuum between ''legacy capitalist order'' and ''innovative participatory order'' (see Supplementary Table S8).

In addition, panelists were asked four open-ended questions to probe qualitative judgments: (1) whether each scenario weakens or excludes the possibility of a new order; (2) how classical capitalist logics are recognized; (3) whether structural dynamics can shift in the long run; and (4) whether small actors can foster innovation and systemic transformation. The qualitative insights generated from these questions were subsequently analyzed to inform the development of the ''4P 2.0'' framework, whose theoretical underpinnings are examined in detail under the section Theoretical Underpinnings of 4P 2.0. Each participant was presented with concise scenario briefs highlighting core assumptions (e.g., high regulation & weak platform dominance), and asked to complete both the scale ratings and narrative reflections.

1) RESULTS OF THE THIRD DELPHI ROUND

The third-round results cover nine scenarios derived from the two dominant axes, state regulation and platform dominance. Expert ratings across 15 dimensions yielded 1,350 observations (9 × 15 × 34), which were visualized in a heatmap (Figure 4). Heatmap analysis revealed three distinct clusters. A3 scored consistently low, representing continuity of the legacy order. B2 and C2 achieved uniformly high

ratings, emerging as the strongest ''new order'' candidates. Intermediate scenarios (A2, B1, B3, C1, C3) exhibited mixed profiles, combining transformative and legacy features. This visualization provided an intuitive overview of systemic fault lines across dimensions such as user autonomy, data ownership, and profit logic.

To interpret the scenario typology in Figure 5, we map established theoretical lenses onto the observed trajectories (see Supplementary Table S9). Beyond critiques of surveillance capitalism, alternative lenses, Polanyi's embedded economy [83], Schumpeter's creative destruction [76], and value-centric marketing [84] illuminate plausible pathways toward a more participatory, ethical, and sustainable marketing order. Our mapping (see Supplementary Table S9) is heuristic and non-exclusive: it situates each scenario along a continuum from reproduction of the prevailing order to normative transformation. It indicates the likely time horizon of each theory's explanatory strength. In the reproduction cluster, Marx's surplus-value and digital labor perspectives [33], [34], [85], Zuboff's behavioral surplus [11], and Srnicek's platform capitalism [86] align most closely with A3 and A1 (and, in attenuated form, A2/B1): data are commodified as unpaid labor, accumulation is centralized in platforms, and personalization/automation primarily deepen extraction and control. Foucault's panoptic governmentality [35] complements this by explaining how algorithmic monitoring becomes normalized in A3/B1, shifting coercion into self-discipline. Bauman's liquid modernity [87] captures the volatility, opacity, and consumer insecurity that pervade A3/B3, even in the presence of partial reforms.

The transformational cluster coheres around B2 and especially C2. Polanyi's embeddedness [83] anticipates re-anchoring data rights, market rules, and revenue distribution in social protections; Schumpeter [76] explains how innovation, privacy-enhancing tech, open IDs, and green data centers can disrupt incumbency without abandoning market dynamism; and Kotler's Marketing 3.0–5.0 and brand activism [84], [88] frame the shift toward human-centric, accountable marketing architectures. Hybrid cases (C3, sometimes B3) remain transitional: elements of digital-labor extraction persist, yet emerging governance and cooperative infrastructures begin to diffuse power. The profile clarifies what moves scenarios: strong, enforceable regulation; PETs and open standards; revenue-sharing and consent infrastructures; and collective user/brand governance. Where these enablers are weak, the Marx–Zuboff–Srnicek/Foucault cluster best explains outcomes; where they are strong and sustained, the Polanyi–Schumpeter–Kotler/Sarkar cluster becomes the more predictive frame.

a: FROM THE OLD SYSTEM TO A NEW SYSTEM: A ''NEW 4P'' PROPOSAL

PA exposes governance gaps that the classical 4P (Product-Price-Place-Promotion) cannot resolve. Built for firm-centric, Fordist markets, the mix presumes passive consumers, underweights data rights, and externalizes ethical and ecological costs in platformized, algorithmic environments [11], [34]. Contemporary logics already move beyond this template, from Service-Dominant Logic's co-creation to human-centric architectures [84], [88], [89]. The shift is ontological: marketing operates as an open, multi-actor system whose performance depends as much on consent, interoperability, and public-value safeguards as on product features or media weight.

We recast the marketing mix as governance levers: Permissions, Participation, Portability, and Purpose (4P 2.0). Permissions make promotion consent-first: data use must be lawful, explainable, and revocable, with metrics tied to what users authorize (e.g., consent quality, redress rates). Participation reframes product as ex-ante co-creation with users, communities, and creators; success is measured by contribution share and downstream adoption, not short-term ROI. Portability redefines place through interoperable identity, data mobility, and open standards that reduce lock-in and rebalance bargaining power (indicators include multi-homing and identity portability). Purpose expands price into fair value and externalities revenue sharing with smaller publishers, equitable access, and carbon-per-conversion metrics.

Aligned with our Delphi findings, 4P 2.0 is most fully realized in transformative B2/C2 scenarios yet remains partially feasible in transitional regimes (B1/B3/C1). In essence, it operates as a normative operating system for programmatic markets: reconciling efficiency with rights, redirecting innovation away from extractive tracking, and re-embedding marketing within social and ecological accountability. Comparative coherence with contemporary logics is outlined in Supplementary Table S10.

b: THEORETICAL UNDERPINNINGS OF 4P 2.0

We investigate whether PA signals a paradigm shift by employing the classic 4Ps as a diagnostic lens rather than as the object of change, thereby motivating a governance-oriented 4P 2.0 (hereafter: *Permissions, Participation, Portability, Purpose*). For each scenario, experts addressed four questions targeting: (i) structural barriers to a ''new marketing order,'' (ii) empirical markers of classical capitalist logic, (iii) the system's long-run capacity to evolve, and (iv) whether greater small-actor participation can catalyze transformation (see Supplementary Note S4)

Qualitative analysis of ≈5,800 words of open-ended responses to Q1 (''principal structural obstacles'') segmented into 94 meaning units, open-coded into 87 in-vivo codes by two coders (Cohen's $\kappa a = .79$) [90], clustered via axial coding into 22 subcategories and distilled through selective coding into E1–E10 isolates three macro constraints (see Table 3): (1) data-ownership concentration and power asymmetries (data monopoly), (2) short-termism/metric fixation that narrows strategic horizons, and (3) closed, low-interoperability platform architectures that weaken collaboration incentives. Technological insufficiency is rare and primarily a

downstream effect of scale/access disadvantages. Thus, the bottleneck to paradigm change lies less in technology supply and more in governance, ownership, and collaboration design, directly motivating a 4P 2.0 that re-centers consent, co-creation, interoperability, and fair value.

To convert third-round free-text into a scenario-by-barrier evidence map, we built a code-density matrix (see Supplementary Table S11). Cell counts were normalized within scenario to neutralize verbosity and binned into four salience bands (high ≥66%, medium 33–65%, low >0–32%, none).

TABLE 3. Ten structural barriers to paradigm shift.

#	Barrier	Brief Description	4P 2.0 Intersection
E1	Data Ownership Monopoly	Behavioral data is concentrated in closed "walled-garden" silos, eliminating shared data-pool/co-op options.	Platform
E2	Closed-Box Algorithms & Transparency Gap	Targeting models are not auditable; ethical errors remain unseen.	Platform
E3	Short-Term ROI Dependence	CPM/CPA pressure chokes storytelling and ESG investments.	Purpose
E4	Erosion of Consumer Autonomy (Ethical Nudging)	Micro-targeting crosses into behavior engineering.	People
E5	Weak Consumer/NGO Pressure	Low data-rights awareness; no policy momentum emerges.	People
E6	Regulatory Instability (Over- or Under-reach)	Either smothers innovation or invites abuse.	Partnership / Policy
E7	Sustainability ↔ High-Compute Paradox	RTB, AI modeling and chain operations raise energy/carbon costs.	Purpose
E8	High Compliance Costs & Entry Barriers	Small actors can't afford regulatory/technical overhead.	Partnership
E9	Ad-Fraud & Trust-Infrastructure Gap	Bot traffic + measurement chaos → ecosystem-wide trust erosion.	Platform
E10	Missing Innovation Commons / Weak Collaboration	Lack of open standards, shared APIs and revenue-sharing models.	Partnership

This content-analytic heatmap (not a Likert scale) answers: within each scenario, which barriers dominate expert narratives, thereby indicating where 4P 2.0 levers face the greatest friction. Triangulation with round-two *Impact X Uncertainty* and round-three ratings supports construct validity. Findings show a common core triad E1 (data-ownership concentration), E2 (transparency gaps/closed-box algorithms), E3 (short-term ROI dependence) that locks most scenarios; barriers such as E7 (sustainability–compute paradox) and E8 (compliance cost/entry barriers) recede only once this triad weakens. Thus, a genuine shift beyond the digitally accelerated status quo requires breaking E1, enforcing E2, and rebalancing E3; absent these conditions, even "responsible innovation" paths (e.g., C2) are unlikely to scale.

We condense the second open-ended question, "By which indicators does classical capitalist logic remain dominant?" into a compact synthesis. Panel responses (3,752 words) were segmented into 78 units, coded into 65 in-vivo labels (κ =.77), collapsed into 18 subcategories, and distilled through theory-informed triangulation [11], [33], [83], [86] into five themes (see Supplementary Table S12). The results show PA remains anchored in profit metrics and proprietary data, with platform concentration and digital labor chains close behind; social-environmental externalities remain under-internalized.

The first two clusters, Profit–Metric Hegemony and Data Commodification, account for 53% of the course, evidencing a persistent "profit + closed ownership" axis. Platform Oligopoly and Digital Labor (36%) highlight how Schumpeterian "creative destruction" is absorbed by platform capital while Polanyian "counter-movements" remain weak. The remaining 11% Externalized Social/Environmental Costs explains why ESG rhetoric is often superficial. Together with the barrier map, these findings confirm the necessity of a structurally grounded 4P 2.0: open/auditable platforms (E1–E2), user agency and consent (E4–E5), multi-impact accounting (E3–E7), and cooperative governance (E6–E8–E10).

Responses to the panel's third open-ended question ("Can this environment genuinely evolve into a new order in the long run, or do the foundational dynamics remain the same?") closely aligned with the three macro-clusters identified by the heat-map analysis applied to the scenario matrix. The 34 responses to this question formed a 2,822-word dataset, which was segmented at the sentence level into 42 meaning units; open coding yielded 26 in vivo codes. Conducted by two independent coders, the analysis achieved strong inter-coder agreement (Cohen's κ =.78) [90], supporting the content analysis's internal reliability. The resulting interpretations were then grouped into three overarching categories that run parallel to the macro-clusters in the scenario matrix (see Supplementary Table S13).

During axial coding, the open codes were cross-tabulated with the Status-Quo (A-series) scenarios, yielding a co-occurrence matrix that counted how often each barrier (E1–E10) was referenced within A-series texts. Nodes with frequencies ≥50% of A-series meaning units were designated "dominant barriers" and matched to representative quotations. This procedure consolidated recurring

''walled-garden'' phrases under E1 as Closed data silos; ''CPM/CPA is the anchor of everything'' remarks under E3 as CPM/CPA hegemony; ''algorithmic closed box'' complaints under E2 as Closed-box models; and ''lobby-driven, symbolic oversight'' references spanning E6–E8 as a single Token regulation theme. Reported under Status-Quo Cluster: Diagnostic Profile, these four high-frequency themes clarify the structural lock-in points of the A-series. Building on this clustering, we formalize four threshold parameters (P^1–P^4) that, over the long run, either enable or obstruct a paradigmatic break (see Supplementary Table S14).

Table 10 reveals three macro clusters of evolutionary paths. ''Status-Quo Replicators'' (A-series) were identified by 71% of panelists as ''accelerated digital capitalism'': without shifts in data ownership (P^1), short-term ROI pressures (P^2), and oligopolistic concentration (P^4) reinforce classic property–competition logics, pre-empting Polanyian countermovements [83] and entrenching Bauman's economy of uncertainty (E7) [87]. The ''Transition/Hybrid'' cluster (B1–B3, C1, C3) combines partial freedoms with partial restraints. B2 emerges as a potential ''launch ramp,'' sustaining Schumpeterian competition while opening room for Polanyian regulation [83]; yet with data commons optional (P^1) and multi-effect accounting only incentive-based (P^2), it remains an intermediate form rather than a paradigmatic break (see Supplementary Table S14).

''Threshold-Changers'' (B2, C2) show the strongest transformative potential. C2, in particular, scores medium-to-high on three thresholds: data commons, multi-effect accounting, algorithmic transparency, and governance, and was judged by 64% of panelists as a locus for genuine break. By contrast, C1 approximates a state-disciplined market, while C3 approximates a cartelized ''safety'' regime in which compliance costs stifle innovation. These findings suggest that private ownership, profit maximization, and capital concentration do not dissolve endogenously; structural change requires concurrent crossing of P^1–P^4. At present, only C2 and partly B2 meet this condition. Thus, 4P 2.0 is not a normative aspiration but a structural necessity; absent a concrete governance design, PA will accelerate but remain capitalism in digital form.

The panel's fourth open-ended question (''Can the participation of smaller actors in competition, by boosting innovation, transform the existing system?'') was analyzed using a ≈4,500-word corpus from 34 experts. Sentence-level parsing yielded 42 meaning units. Two independent coders produced 26 in-vivo codes; intercoder reliability was high (Cohen's κ =.80) [90]. Through axial coding and theory-informed synthesis (Schumpeter, Polanyi, Ostrom, Srnicek), responses converged into four clusters (see Supplementary Table S15). Roughly one-third of experts portrayed small actors as Schumpeterian catalysts capable of triggering systemic adaptation through scalable niche innovations. The modal view, however, was conditional: micro-innovations attain system-level impact only when buttressed by regulatory sandboxes, open API standards, and data cooperatives; absent these, network effects reabsorb entrants. A third group saw complementary but not paradigmatic effects, and a small minority emphasized rapid co-optation via acquisition by dominant platforms.

The analysis tempers ''bottom-up transformation'' claims: smaller-actor innovation can catalyze change, but only when enabled by institutional designs that directly confront the core blockages identified elsewhere (E1–E10). Without data commons, transparent/auditable algorithms, multi-effect accounting beyond short-term ROI, and shared governance mechanisms, effects remain partial or are quickly reabsorbed, confirming that system-level renewal is contingent on structural, not merely entrepreneurial, conditions. In line with the Q4 clustering, the constraint on bottom-up renewal is not ''more startups'' but the infrastructure they plug into (see Supplementary Table S16). On the Platform axis, open protocols and auditable models are decisive: without standardized APIs and independent algorithmic review, data concentration (E1) and opacity (E2) funnel novelty back into oligopolies. On People, small-actor innovation scales only if user autonomy generates real demand-side pressure that drives consent governance, portability, and collective rights (E4–E5) as market access conditions, not aspirational ethics. Purpose requires multi-effect accounting to escape short-term ROI gravity (E3) and RTB/AI externalities (E7); attention and carbon metrics must reach parity with financial KPIs. Partnership hinges on regulation–innovation balance: data cooperatives, RegTech sandboxes, and multi-stakeholder councils are enabling infrastructure (E6, E8–E10), not ''nice-to-haves.'' These moves refract Polanyi's re-embedding, unlock Schumpeterian renewal beyond acquisition cycles, and operationalize the human/mission turn in marketing. In short, 4P 2.0 is not a cosmetic update but a structural redesign around transparency, autonomy, inclusion, and sustainability so that ''creative destruction'' does not collapse into creative absorption.

c: IMPLEMENTATION AND THEORETICAL DEPTH MAP OF THE NEW 4P MODEL

Table 5 extends the transition in Table 4 by showing how the New 4P functions across conceptual, systemic, and strategic layers. Rather than a tactical refinement, it offers a paradigmatic redesign of marketing, embedding ethical accountability, stakeholder participation, and sustainability into programmatic markets. Platform redefines governance by addressing data ownership, transparency, and the balance of platform power. People recasts users as co-creators and rights-bearing actors rather than passive data subjects. Purpose shifts the logic from ROI-driven manipulation to multi-effect accountability, incorporating attention quality, environmental costs, and social impact. Partnership reimagines pricing as cooperative value-sharing through revenue-sharing schemes, data cooperatives, and stakeholder councils. What distinguishes this framework is its multi-dimensional mapping: each ''P'' connects to structural barriers identified by experts, theoretical foundations, scenario trajectories, and stakeholder responsibilities. By integrating challenges, time

TABLE 4. Theoretical and strategic transition from the classical 4PS framework to the new 4P 2.0 model.

4P	"Surveillance Capitalism" Old System	Proposed "4P 2.0"	Theoretical Context & References
Platform (Place)	-Closed data silos; unilateral data ownership. -Users treated as passive data sources; data aggregated on central servers. -Closed-box algorithms; RTB is efficient but lacks transparency.	-Inter-platform cooperation, transparent data ownership, and shared standards. -Mandatory open protocols / shared APIs; auditable logs via federated learning & blockchain. -Active engagement with regulators and civil society on data protection. -Explainable AI (XAI) with independent audits. -Multi-party ownership through data cooperatives and data trusts.	Zuboff [11]: surveillance capitalism, data monopoly; Foucault [35]: panoptic surveillance, normative discipline; Gillespie [91]: platforms as intermediaries/regulators (manipulation risk); Polanyi [83]; Lenin [92]: social embeddedness; Srnicek [86]; Veale and Borgesius [24]; EU-DSA [93].
People (Product)	-The product is largely designed and produced by the firm, then pushed to market. -Weak feedback channels; risk of "digital labor" exploitation. -Product innovation steered primarily by monopolistic platform data. -Consent notices are symbolic; no data portability. -Weak demand-side pressure; limited access for civil society/NGOs.	-Users are integrated via co-creation (community feedback, crowdsourced innovation). -Data sovereignty: granular consent dashboards and real-time opt-out. -Consent-based data sharing with continuous feedback loops; emphasis on fair reward models. -Product developed at the intersection of human needs + data insight. -"Right to justification" for algorithmic decisions + right to contest.	Marx [33]: surplus value and digital labor; Fuchs [94]: communal evaluation of user data; Sarkar & Kotler [84], Kotler et al. [88]: Marketing 3.0–5.0 (human-centric vision); Foucault [35]; GDPR [95]; Noble [96].
People (Product)	-Promotion geared to persuasion/manipulation; short-term ROI maximized via behavioral targeting. -Ethics and long-horizon brand narrative are secondary; nudging dominates and is often opaque. -Preference for creating controllable audiences through surveillance/data rather than preserving user autonomy. - Single-metric fixation: CPM/CPA and near-term ROI. -Carbon, attention fatigue, and social costs are externalized. -"Story-doing" replaced by "click harvesting."	-Messaging integrates societal benefit, sustainability, and brand equity. -Multi-effect accounting: carbon-CPM, attention footprint, social ROI (S-ROI). -Integrated reporting of ESG plus digital footprint. -Slow advertising and "meaning metrics" to build long-term brand capital. -Nudging/retargeting follows transparent choice-architecture principles, not manipulation. -Long-term reputation and "societal value" prioritized over short-term performance.	Foucault [35]: normative surveillance & behavioral normalization; Zuboff [11]: instrumentarian power/behavioral surplus; Han [97]: transparency society & psychopolitics; Elkington [98]; GRI 2021[99]; B-Corp Standards [100].
Partnership (Price)	-Pricing anchored in one-sided profit maximization; ad auctions can be steered by platforms. -Small actors are pushed to the margins (platform scale advantages dominate AdTech). -Revenue flows concentrate between platform and brand; publishers/users capture minimal share. -Self-regulation plus lobby-led rule-making. -High compliance costs create entry barriers for smaller players. -"Winner-takes-all" network effects.	-Fair revenue-sharing across all stakeholders. -Polycentric governance: sandbox regulation + multi-stakeholder ethics councils. -Transparent payout models via micro-payments and smart contracts (blockchain). -Dynamic compliance through RegTech solutions. -Antitrust and pro-competitive regulation to curb platform monopolization; multi-actor innovation is supported. -Mandatory interoperability and incentives for data cooperatives.	Srnicek [86]: platform capitalism/monopoly dynamics; Schumpeter [76]: creative destruction & the need to constrain monopoly; Polanyi [83]: re-embedding markets & cooperative value sharing; Ostrom [101]; ISO, [102]; OECD [103]; EU-DMA [104].

horizons, and KPIs, the model moves beyond normative aspiration into measurable levers of reform.

V. DISCUSSION

This article reframes PA as more than a technical evolution in media buying. It is a contested socio-technical regime whose trajectory stages a struggle between continuity and transformation. Our Delphi-based scenario analysis indicates that the field does not move along a linear path. Instead, it oscillates between reproducing surveillance capitalism and the fragile emergence of a participatory "new marketing order."

The findings demonstrate that technology alone does not determine outcomes. In line with Foucault's notion of

TABLE 5. Implementation framework for 4P 2.0.

4P 2.0	Key Emphasis/ Potential Gains | Stakeholder Roles	Potential Risks / Structural Barriers | KPI Set	4P 2.0 Implementation / Policy Steps	Implementation difficulty & timeline
Platform (Place)	Responsible Technology & Data Ecosystem -Increased transparency and data integrity -Broader stakeholder participation (agencies, publishers, users) -Growth of competitive innovation Stakeholders' roles -Rule-makers (state and international regulators) -Platform owners -NGOs and civil-society advocates	Potential risks: - Heightened surveillance risk via excessive data dependence - Power monopolies by dominant platforms - Lack of interoperable standards KPI: "Platform Transparency Index", degree of data commercialization, number of data breaches -*Interoperability Score* (percent compliance with common APIs) - Carbon intensity per million impressions	-Establish common APIs and data standards (industry consortia, e.g., IAB) -Independent ethics boards / regulatory oversight (GDPR, privacy authorities) -Antitrust policies to prevent platform monopolization -Mandatory annual algorithmic audit reports (independent) -Data-portability APIs enabling real-time deletion/transfer -"Green-Tag" labeling for energy transparency	Difficulty Level: High *Long term* -Align technical standards with global regulation; antitrust enforcement -Harmonize global energy/carbon standards *Short term* -Green-Tag pilot: energy/carbon labeling by platforms *Medium term* -Mandatory algorithmic audits: independent XAI audit reports
People (Product)	Human-Centricity & Shared Value -Co-creation:Innovation driven by active user contribution -Enrichment of digital labor and user experience -Increase in brand loyalty Stakeholder Roles -Brands (R&D and design teams) -Digital content creators -User communities	Potential Risks: -If user contributions turn into "unpaid labor," potential exploitation criticism -Lack of standards in participatory designs -Excessive expectation management challenges -Digital divide and lack of cultural representation -Emotional manipulation (sentiment-targeting) KPI: Community participation rate, number of active feedback submissions, digital labor incentive score -User Data-Control Index (frequency of profile edits) -Co-creation Adoption Rate (extent of community contribution to the product roadmap)	-Community management tools, user feedback panels -Consent management in data sharing (opt-in/out), reward-based models -Digital literacy training (giving users the right to view/edit their data profile) -Certified participatory design framework (PD Charter) -Data-trust model for user data with profit-sharing (%-based royalties)	Difficulty Level: Medium *Medium Term* -Expanding user participation culturally & technically -Mandatory algorithmic audits, prohibition of dark patterns -Data-trust model – escrow accounts / profit-sharing for user data *Short Term* PD Charter testing – piloting the participatory design protocol *Long Term* -No defined long-term step at present; scaling is expected as a natural extension
Purpose (Promotion)	Purpose-Driven Communication & Ethical Responsibility -Strong long-term brand reputation -Increased consumer trust and loyalty -Easier crisis management with public support Stakeholder Roles -Advertising agencies (creative strategy) -User engagement & community management -Oversight mechanisms	Potential risks: - Risk of "purpose fatigue" or "purpose washing" (insincere ethical claims) - Ethical violations through manipulative nudging - Digital fatigue and attention erosion caused by continuous targeting KPI: Brand Trust Index, frequency of "purpose washing" critiques, number of manipulation complaints. -*Purpose Authenticity Index* (NGO-verified) - Correction speed per complaint (h:mm)	-"Value + ethics"-oriented creative briefing and internal audit mechanisms -Transparency disclosures during campaigns to reduce manipulation (e.g., "Why this ad?") -Sustainability reporting and carbon footprint tracking -Mandatory inclusion of a digital well-being metric (well-being adjusted attention) in campaign reports -Dark pattern prohibition	Difficulty level: Medium *Short term* -Purpose Authenticity Index (beta) – purpose–reality scoring *Medium term* -Transition to purpose-driven communication is relatively fast, but authenticity must be continuously monitored -Dark pattern ban – collective removal of manipulative interface designs *Long term* -No specific long-term step yet;
Partnership (Price)	Collaborative Value Sharing -Multi-actor innovation through competition, cooperation -Long-term market stability via fair profit-sharing -Prevention of monopolization Stakeholder Roles -Platforms, brands, users -Competition regulators -NGOs, industry consortia	Potential risks: -"Profit-first" mentality rejecting collaborative solutions -Power asymmetry between platforms and small players -Legal uncertainties KPI: Number of platform stakeholders, size of joint R&D fund, smart contract adoption rate. -Income Distribution Gini / HHI (market concentration metric) -"Smart contract penetration" (% of total payments)	-Smart contract–based (blockchain) revenue sharing -Joint funds by governments, NGOs, and platforms to support small actors (competitive ecosystem) -Global regulatory collaborations (cross-regional compliance / data transfer protocols) -Revenue floor for independent publishers and Cross-platform clearinghouse + smart contract interoperability standard	Difficulty level: High *Short term* -Empty – preparatory phase in the short term *Medium term* -Empty – technical feasibility studies in the medium ter *Long term* -Clearinghouse integration – industry-wide smart contract settlement -Revenue floor regulation – minimum share for independent publishers

TABLE 5. *(Continued.)* **Implementation framework for 4P 2.0.**

			-FinTech & payment gateways and Content creator unions

governmentality, programmatic systems normalize surveillance through subtle architectures of choice that train users to self-regulate under the promise of personalization. Even when instruments such as privacy-preserving computation or blockchain enter the scene, they often intensify concentration rather than dismantle it. This pattern affirms Zuboff's [11] thesis that surveillance capitalism adapts to constraints and reconstitutes itself in more sophisticated guises. The ''creative absorption'' of innovation, whereby disruption is domesticated into incumbent advantage, recurs across cases. From a Marxian perspective, PA reveals how data has displaced labor as the raw material of accumulation [33]. User traces become behavioral surplus appropriated without compensation, while value concentrates within platforms. The A-series scenarios exemplify this dynamic: rather than democratizing markets, algorithmic optimization entrenches oligopoly and accelerates the extraction of surplus.

Our panel also identified Polanyian counter-movements, including regulatory regimes, user demands for data rights, and civil-society interventions that embed market logics within social protections. Scenario C2 represents precisely this institutional turn, where rights-based consent, auditable algorithms, and shared governance are stabilized through enforceable rules and oversight. Another striking insight is that Schumpeterian creative destruction no longer operates primarily at the level of entrepreneurial rivalry. Innovation persists, yet under platform capitalism, it is rapidly acquired, absorbed, or replicated by incumbents. Transformation thus depends less on the next disruptive entrant and more on institutional thresholds: enforceable data commons, multi-effect accounting, algorithmic transparency, and stakeholder governance. Only when these parameters align do technologies sustain systemic change rather than being neutralized. Intermediate scenarios show that surveillance and participatory logics are not mutually exclusive; instead, they coexist in hybrid regimes. This coexistence reflects the paradoxical structure of socio-technical systems, in which efficiency and equity, personalization and privacy, and return on investment and sustainability persist as tensions to be managed rather than problems to be solved. Our Delphi experts emphasized this hybridity, noting that even C2, the most transformative design, carries regression risk if institutional support weakens.

The proposed 4P 2.0 model is not a cosmetic update but a theoretical provocation. It invites marketing scholars to abandon the Fordist assumptions embedded in the original 4Ps, such as passive consumers, firm-centric control, and externalized costs, and to reconceive marketing as an open system governed by transparency, autonomy, participation, and sustainability. In doing so, it advances debates on whether PA marks the culmination of marketing's absorption into digital capitalism or serves as a laboratory for its reinvention. By positioning Platform, People, Purpose, and Partnership as governance levers rather than tactical instruments, 4P 2.0 connects paradox theory with systems thinking and offers an analytic framework for understanding how structural conditions, including ownership regimes, accounting metrics, technical protocols, and governance institutions, shape not only advertising efficiency but also legitimacy and sustainability.

VI. LIMITATIONS AND FUTURE RESEARCH

Like any exploratory work, this study involves design choices that both constrain inference and indicate productive next steps. First, privileging expert judgment through a Delphi design provides forward-looking insight but leaves consumer perspectives underrepresented. Second, the scenario framework is heuristic and identifies plausible trajectories rather than probabilistic forecasts. Third, the theoretical scaffold is necessarily selective and does not exhaust the range of critical perspectives that could be brought to bear on programmatic advertising. Fourth, although the panel included 34 senior practitioners from across the ecosystem, the findings remain context-bound and should not be treated as statistically generalizable.

Future research should extend this study in several directions. Consumer-facing research is needed to examine how individuals experience and respond to personalization, privacy, and platform power in everyday settings, ideally through ethnography, experiments, and large-scale survey designs. Longitudinal studies should track how regulation, platform governance, and market backlash shape the real-world evolution of the scenarios identified here. Comparative work across sectors and regions should test whether the paradoxes and governance levers associated with 4P 2.0 remain stable across contexts such as healthcare, finance, and retail, and across Global North and Global South settings. Additional theoretical development could also incorporate feminist political economy, postcolonial approaches to data colonialism, and Southern epistemologies to better capture how digital advertising infrastructures reproduce asymmetries at a global scale.

Whether PA evolves into a more resilient and accountable system will depend on how these institutional, regulatory, and social dynamics unfold in practice.

VII. CONCLUSION

This study shows that PA is not merely a technical upgrade to media buying, but a socio-technical regime shaped by enduring paradoxes and recursive feedback. Evidence from a three-round Delphi study with 34 senior practitioners indicates that its trajectory is contingent rather than linear. PA tends toward surveillance capitalism when data ownership becomes concentrated, strategy is compressed into short-term metrics, and algorithmic systems remain opaque. It can move toward a more participatory marketing order when key institutional thresholds are crossed in combination and digital resilience is treated as a core design objective.

The scenario analysis clarifies where this shift becomes plausible. A3 represents continuity, whereas B2 and especially C2 indicate transition pathways in which enforceable data commons, multi-effect accountability, auditable models, open protocols, and multi-stakeholder governance form a credible institutional structure. These mechanisms do not remove paradoxes, but they make them governable by aligning optimization with legitimacy and by redistributing bargaining power across platforms, advertisers, publishers, and users. In this context, institutional design becomes decisive: privacy, transparency, and interoperability must operate as enforceable constraints rather than aspirational principles. This is the practical role of 4P 2.0. Permissions reframes promotion through consent-first communication. Participation treats users and creators as contributors to value creation. Portability reduces lock-in through interoperable identity and open standards. Purpose extends performance evaluation beyond narrow ROI by incorporating attention quality, environmental externalities, and distributional fairness.

The implications are immediate. Future research should combine field experiments, algorithmic audits, carbon-per-conversion accounting, and longitudinal analysis of portability and multihoming to test resilience effects more directly. Cross-jurisdictional comparison is also needed to determine which combinations of antitrust, privacy law, and open standards enable transformation rather than stabilize regulated oligopoly. For managers and policymakers, the priority is to adopt auditable algorithms, replace single-metric ROI with multi-effect scorecards, invest in interoperable consent and identity infrastructures, and build governance forums that include civil society, smaller publishers, and creators.

PA does not face a simple choice between efficiency and equity, personalization and privacy, or innovation and accountability. The central question is whether institutional rules will continue to treat these tensions as incompatible, or whether they will be governed in ways that make them mutually sustainable. When the thresholds identified in this study are crossed in combination, programmatic markets can move beyond adaptive continuity and toward institutional renewal that strengthens digital resilience. When they are not, the system is likely to intensify existing risks while preserving its current logic.

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