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Demand Atomization and the Erosion of Competitive Coherence: Strategic Implications of Algorithmic Personalization

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Abstrak

Algorithmic personalization has been widely conceptualized as a performance-enhancing capability that improves targeting precision and customer alignment. However, its structural consequences for market organization and strategic stability remain under-theorized. This conceptual article advances a market-structure perspective by introducing the constructs of demand atomization and competitive coherence. It argues that increasing algorithmic personalization intensity reduces shared exposure across consumers, dispersing preferences into dynamically reconfigured micro-clusters. Simultaneously, reinforcement mechanisms embedded in digital platforms may concentrate transactional outcomes among highly visible actors. This dual dynamic—fragmentation in preference formation alongside concentration in transaction distribution—creates structural pressures that erode competitive coherence, defined as the firm's ability to maintain integrative strategic alignment across heterogeneous market contexts. The analysis proposes non-linear effects of personalization intensity and identifies privacy salience and firm size as critical boundary conditions. Small and medium-sized enterprises are theorized to face amplified vulnerability due to limited orchestration capacity. The framework reframes personalization from a tactical optimization tool to a market-structuring force with long-term strategic implications.

Keywords

algorithmic personalization; demand atomization; competitive coherence; digital market structure; platform ecosystems; strategic positioning

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1. Introduction

Algorithmic personalization has become a defining feature of digital competition. Across e-commerce and platform-mediated markets, firms increasingly rely on recommendation systems, dynamic ranking, and individualized content curation to tailor exposure and offerings at the level of the individual consumer. Dominant narratives in digital transformation portray personalization as a performance-enhancing capability that strengthens relevance, improves customer experience, and optimizes conversion (Verhoef et al., 2021). Recent discussions of AI-powered marketing similarly emphasize data-driven alignment between firm offerings and customer preferences (Kumar et al., 2024). In this framing, personalization refines segmentation into micro-targeting and enhances strategic precision.

Yet emerging evidence complicates this linear view. Research on recommender systems reveals contradictory effects on market outcomes. Some studies indicate that personalization increases consumption diversity by exposing customers to niche alternatives; others demonstrate reinforcement dynamics that concentrate attention and sales among already prominent products or sellers (Yi et al., 2022). Digital marketplaces governed by ranking and reputational feedback loops frequently exhibit cumulative advantage effects, where visibility compounds over time (Taeuscher, 2019). Simultaneously, personalization operates within the personalization–privacy paradox: individualized relevance generates value, but heightened data salience can provoke resistance, regulatory scrutiny, and behavioral backlash (Cloarec, 2020; Quach et al., 2022). These tensions suggest that algorithmic personalization does more than optimize marketing efficiency; it reshapes market dynamics in structurally consequential ways.

Despite these developments, strategic management scholarship has not fully theorized how algorithmic personalization transforms the architecture of demand. Most research treats personalization as a firm-level capability or as a consumer-level stimulus affecting engagement and performance (Kumar et al., 2024; Verhoef et al., 2021). Even when market-level consequences are examined, attention centers on distributional outcomes such as diversity or concentration (Yi et al., 2022), rather than on the implications for competitive positioning. What remains underdeveloped is a strategic account linking personalization intensity to changes in market structure and to the stability of firms' positioning within increasingly individualized demand environments.

Traditional segmentation theory assumes that firms compete within relatively stable demand clusters. Strategic coherence—the alignment between positioning, product portfolio, and value proposition—depends on such structural continuity. Algorithmic personalization challenges this assumption by curating individualized exposure streams that fragment shared market experience. Consumers no longer encounter a common set of alternatives; instead, each individual navigates a uniquely configured choice architecture shaped by algorithmic inference. Evidence indicates that recommendation systems influence search patterns and exposure breadth, thereby altering the diversity and concentration of consumption (Yi et al., 2022; Lv et al., 2024). When exposure itself becomes individualized, demand may cease to function as a coherent aggregate and instead disperse into dynamically recomposed micro-preference clusters.

The concept of demand atomization captures this structural shift. Demand atomization refers to the dispersion of market preferences into highly granular, algorithmically mediated clusters. Unlike conventional segmentation, which aggregates consumers into strategically manageable groups, atomization implies continuous reconfiguration at the individual level. Importantly, atomization does not preclude concentration at the transaction level. Reinforcement dynamics within platform ecosystems can simultaneously amplify dominant actors (Taeuscher, 2019). Thus, fragmentation in preference formation may coexist with concentration in realized outcomes—a dual dynamic that remains theoretically unresolved.

This duality carries significant strategic implications. Moderate personalization may enhance alignment between value propositions and identifiable customer needs, strengthening competitive positioning. However, as atomization intensifies, firms face pressure to tailor offerings, pricing, and communication to increasingly granular micro-contexts. Over time, such responsiveness can erode integrative coherence. Competitive coherence denotes the firm's capacity to maintain consistent and recognizable positioning across fragmented interactions. It reflects alignment among product architecture, pricing logic, and strategic identity. While coherence has long been implicit in positioning theory, it has rarely been conceptualized as vulnerable to algorithmic intermediation.

Several mechanisms connect personalization intensity to coherence erosion. First, exposure narrowing reduces shared reference points across consumers (Lv et al., 2024), prompting firms to diversify micro-level tactics. Second, feedback reinforcement prioritizes signals associated with short-term optimization, potentially privileging conversion metrics over strategic consistency (Yi et al., 2022). Third, privacy and regulatory tensions introduce structural constraints that may moderate or amplify atomization effects (Cloarec, 2020; Quach et al., 2022). The interaction of these mechanisms suggests a non-linear relationship: personalization may enhance coherence at moderate levels but undermine it beyond a threshold.

The strategic consequences are especially salient in platform-mediated environments. Platforms govern visibility and exposure, embedding firms within algorithmically structured ecosystems (Taeuscher, 2019). Large firms may buffer coherence risks through governance routines and portfolio integration. In contrast, resource-constrained firms face greater vulnerability. Small and medium-sized enterprises (SMEs), heavily dependent on platform visibility and lacking extensive orchestration capacity, are particularly exposed to coherence drift. As a boundary condition, SMEs illuminate how atomized demand environments amplify strategic fragility.

Algorithmic personalization thus functions not merely as a marketing capability but as a market-structuring force. By reconfiguring demand dispersion, reinforcing concentration dynamics, and altering strategic stability, personalization reshapes the conditions under which competitive advantage is pursued. Understanding these structural effects shifts the focus from performance optimization to the resilience of strategic coherence under atomized demand conditions.

2. Theoretical Foundations

Digital competition increasingly unfolds within algorithmically mediated environments in which visibility, exposure, and transactional flows are structured by data-driven systems rather than by stable market boundaries. To theorize demand atomization and the erosion of competitive coherence, it is necessary to integrate three foundational streams of scholarship: (1) algorithmic personalization and digital marketing strategy, (2) market structure and diversity–concentration dynamics in platform economies, and (3) privacy–data governance tensions as structural constraints. Together, these literatures clarify how personalization functions not merely as a tactical tool but as a reconfiguring force in competitive systems.

3.1 Algorithmic Personalization as a Market-Structuring Mechanism

Algorithmic personalization refers to the systematic tailoring of exposure, ranking, recommendations, and messaging through predictive models that infer individual-level preferences from behavioral and contextual data. Within marketing scholarship, personalization is widely positioned as a strategic capability that enhances relevance and customer value (Verhoef et al., 2021). AI-powered marketing is frequently framed as improving targeting precision, reducing search costs, and strengthening firm performance

(Kumar et al., 2024). This capability-centric perspective emphasizes efficiency gains and customer alignment, implicitly assuming that personalization deepens segmentation without fundamentally altering market structure.

However, personalization does more than refine targeting; it reorganizes the architecture of choice. When algorithms curate individualized exposure streams, consumers encounter distinct subsets of products, brands, and price points. This individualized exposure reshapes the informational environment in which preferences form. Recommendation research demonstrates that algorithmic curation influences search breadth and consumption patterns, sometimes expanding diversity and sometimes reinforcing dominant options (Yi et al., 2022). Evidence on filter bubble effects further indicates that personalized systems can narrow exposure diversity, limiting cross-segment overlap in consideration sets (Lv et al., 2024). These findings suggest that personalization redefines the informational common ground that underpins competitive interaction.

From a strategic standpoint, such exposure restructuring challenges the classical assumption that firms compete within relatively stable and collectively perceived segments. If consumers do not share comparable exposure to alternatives, then competition becomes mediated through individualized micro-contexts. Algorithmic personalization thus functions as a market-structuring mechanism: it determines not only which firm competes with whom, but also which alternatives are visible in the first place.

3.2 Diversity, Concentration, and the Dual Dynamics of Digital Markets

A second theoretical foundation emerges from research on market-level diversity and concentration in digital ecosystems. Early expectations that digital platforms would expand the “long tail” of niche consumption have been tempered by empirical evidence demonstrating heterogeneous outcomes. Recommendation systems may increase product diversity by matching consumers with specialized offerings; yet they may also generate cumulative advantage dynamics that concentrate sales among already visible actors (Yi et al., 2022).

Marketplace studies highlight reinforcement loops embedded in ranking and reputation systems. Visibility advantages translate into higher transaction volumes, which in turn reinforce ranking prominence, producing rich-get-richer effects (Taeuscher, 2019). This logic indicates that diversity in exposure does not necessarily translate into dispersion in outcomes. Rather, digital markets exhibit a dual dynamic: preference heterogeneity can increase even as realized transactions become concentrated.

The coexistence of fragmentation and concentration carries profound strategic implications. Fragmentation at the level of exposure disperses demand into micro-clusters, while concentration at the level of transactions reallocates competitive power toward a limited subset of actors. The literature has documented these patterns descriptively, yet it has not systematically examined how they affect firms’ ability to maintain integrative positioning. Competitive coherence presupposes a relatively stable mapping between segments and value propositions. When exposure fragmentation and outcome concentration operate simultaneously, that mapping becomes unstable.

This instability introduces a deeper structural tension within digitally mediated competition. When exposure becomes fragmented while transactional outcomes become concentrated, firms confront a paradoxical competitive environment in which the informational landscape grows increasingly individualized while market rewards accumulate around a narrowing set of visible actors. Under such conditions, strategic positioning becomes progressively harder to sustain because firms must simultaneously respond to dispersed micro-preferences and compete within visibility regimes governed by algorithmic reinforcement. The resulting environment challenges the traditional assumption that competitive advantage can be anchored in stable segment–value alignments. Instead, firms operate within continuously

shifting exposure architectures where strategic coherence depends not only on differentiation but also on the capacity to navigate algorithmically structured visibility dynamics.

3.3 Privacy–Personalization Tensions as Structural Boundary Conditions

Personalization operates within normative and regulatory environments that shape data access and consumer response. The personalization–privacy paradox captures the tension between consumers' appreciation of tailored experiences and their concerns about surveillance and data misuse (Cloarec, 2020). As personalization intensity increases, so does the salience of data practices, potentially triggering resistance, avoidance, or regulatory intervention (Quach et al., 2022).

Privacy tensions function not merely as attitudinal variables but as structural constraints on market evolution. Regulatory frameworks, platform data policies, and shifting consumer norms delimit the extent to which firms can intensify personalization. When privacy salience is high, algorithmic personalization may be moderated, stabilizing exposure patterns and limiting atomization. Conversely, low privacy salience or permissive data governance can accelerate atomization dynamics. By shaping the feasible intensity of personalization, privacy conditions indirectly influence the dispersion of demand and the stability of competitive positioning.

This structural perspective reframes privacy from an ethical side constraint to a boundary condition in market-structuring processes. The degree to which demand atomization unfolds depends on the interaction between technological capability and normative governance regimes. Competitive coherence, in turn, becomes contingent upon how firms navigate these constraints.

2.1 Toward a Strategic Theory of Competitive Coherence under Atomized Demand

Positioning theory has long emphasized the importance of consistency in value propositions and market identity. Competitive advantage depends not only on differentiation but also on the internal alignment of strategic elements. Yet this coherence assumption presumes that segments remain sufficiently stable to support integrated positioning.

Algorithmic personalization destabilizes this premise by reconfiguring exposure and preference formation at the individual level. As demand disperses into dynamically recomposed micro-clusters, firms face pressure to tailor offerings across heterogeneous contexts. Tactical responsiveness to micro-signals may enhance short-term fit but generate cumulative divergence in pricing, messaging, and portfolio configuration. Over time, such divergence can erode integrative coherence.

The integration of personalization research (Kumar et al., 2024; Verhoef et al., 2021), diversity–concentration dynamics (Yi et al., 2022; Taeuscher, 2019), and privacy–data governance scholarship (Cloarec, 2020; Quach et al., 2022) reveals a conceptual gap at the intersection of market structure and strategic stability. Demand atomization represents a structural transformation of preference dispersion, while competitive coherence captures the firm-level capacity to maintain strategic alignment within that transformed environment. Developing this linkage provides the foundation for a mechanism-based model explaining when algorithmic personalization enhances strategic fit and when it undermines competitive resilience.

This table establishes construct clarity and prevents conceptual ambiguity by explicitly differentiating the core concepts introduced in the manuscript. It clarifies definitions, levels of analysis, theoretical anchoring, and distinctions from adjacent constructs—thereby pre-empting reviewer concerns regarding construct inflation or relabeling.

Table 1. Core Constructs, Definitions, and Theoretical Positioning

Construct	Definition	Level of Analysis	Theoretical Anchoring	Distinction from Adjacent
Algorithmic Personalization Intensity	The degree to which exposure, ranking, recommendations, and pricing are individualized through predictive analytics and behavioral inference	Market-level technological structuring mechanism	Digital marketing strategy; AI-enabled decision systems; platform intermediation	Not equivalent to segmentation sophistication; refers to structural individualization of exposure rather than improved targeting accuracy
Demand Atomization	The dispersion of market preferences into highly granular, dynamically reconfigured micro-clusters resulting from individualized exposure streams	Market structure (preference architecture)	Recommendation systems research; filter bubble effects; market design	Not synonymous with micro-segmentation; implies erosion of shared exposure and collective consideration sets
Transaction Concentration	The increasing allocation of realized transactions among a limited subset of highly visible actors due to algorithmic reinforcement mechanisms	Market outcome distribution	Platform economics; cumulative advantage; reputation systems	Distinct from monopoly power; reflects algorithmically reinforced visibility rather than traditional entry barriers
Competitive Coherence	The firm's capacity to maintain integrative alignment across product architecture, pricing logic, value propositions, and strategic identity across heterogeneous contexts	Firm-level strategic integration	Positioning theory; activity-system coherence; dynamic capabilities	Not equivalent to consistency or rigidity; refers to integrative alignment under contextual variation
Privacy Salience	The degree to which data collection and personalization practices are cognitively and normatively salient to consumers and regulators	Institutional boundary condition	Privacy calculus; data governance; regulatory constraint theory	Not reducible to consumer trust; functions as a structural moderator of personalization feasibility
Firm Size (SME Vulnerability)	The extent of organizational resource capacity and orchestration capability available to manage strategic variation under atomized demand	Organizational structural condition	Resource-based view; platform dependency theory; digital entrepreneurship	

Source: Author's conceptualization

Table 1 strengthens analytical precision by explicitly defining each construct and clarifying its theoretical lineage and level of analysis. By distinguishing demand atomization from segmentation and competitive coherence from simple consistency, Table 1 reinforces construct validity and prevents conceptual inflation. It ensures that subsequent propositions

operate on clearly specified constructs, thereby enhancing reviewer-oriented clarity and theoretical rigor.

3. Conceptual Development

Algorithmic personalization does not merely refine targeting precision; it restructures how markets operate. As personalization intensity increases, digital systems reshape exposure patterns, preference formation, and competitive dynamics. This section develops a mechanism-based model linking algorithmic personalization intensity to demand atomization and, ultimately, to the erosion of competitive coherence. The argument specifies non-linear effects and structural boundary conditions.

The conceptual architecture below integrates the full mechanism linking personalization intensity to competitive coherence. It clarifies mediation, dual structural dynamics, non-linearity, and boundary conditions within a single analytically coherent framework.

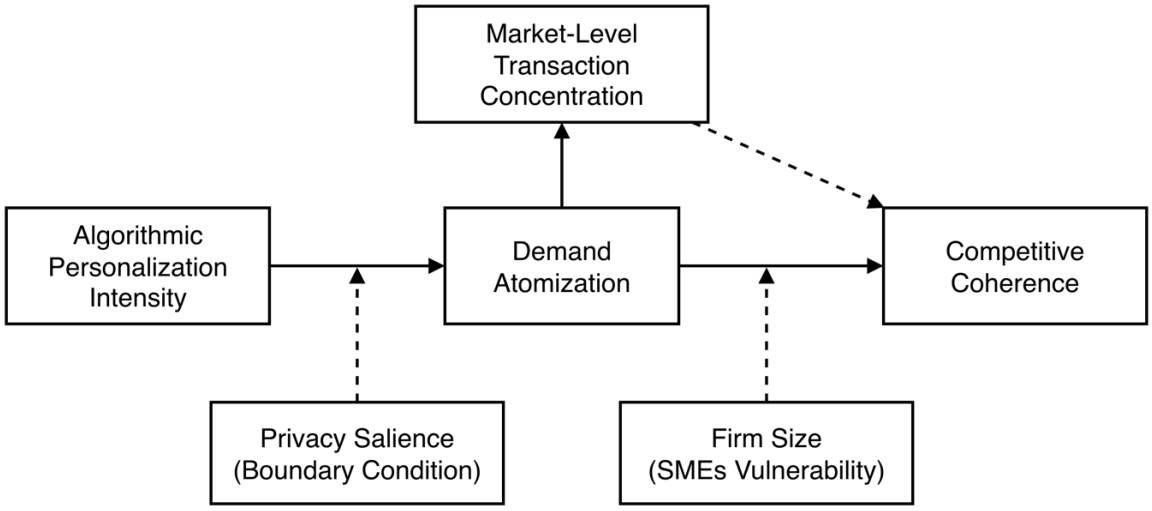

Figure 1. Mechanism Linking Algorithmic Personalization to Competitive Coherence
Source: Author's conceptualization

Figure 1 articulates the structural mechanism through which algorithmic personalization intensity reshapes competitive stability. Personalization increases demand atomization, which directly undermines competitive coherence and indirectly intensifies erosion through market-level transaction concentration. Privacy salience moderates the personalization–atomization link, while firm size conditions the strength of the atomization–coherence relationship, highlighting asymmetric vulnerability for SMEs. Together, the architecture clarifies how personalization operates as a market-structuring force rather than a purely performance-enhancing capability.

3.4 Algorithmic Personalization Intensity and Demand Atomization

Algorithmic personalization intensity reflects the extent to which exposure, recommendations, ranking, and pricing are individualized through predictive analytics and behavioral inference. At low levels of intensity, consumers share substantial overlap in exposure and consideration sets. At higher levels, exposure becomes increasingly individualized, reducing shared market reference points.

Research demonstrates that recommender systems alter search behavior and consumption diversity (Yi et al., 2022). Personalized systems may also narrow exposure breadth through filter bubble effects, limiting cross-category visibility (Lv et al., 2024). These findings suggest that personalization reshapes not only purchase outcomes but also the informational environment in which preferences are formed.

As exposure becomes individualized, overlap in consideration sets declines. Reduced overlap increases divergence in consumer preference structures, producing dynamically shifting micro-clusters of demand. In such conditions, aggregated demand becomes less stable and less predictable.

P1: Algorithmic personalization intensity is positively associated with demand atomization.

The relationship, however, is unlikely to be strictly linear. Moderate personalization differentiates exposure within recognizable category structures. Beyond a threshold, individualized curation substantially diminishes shared exposure, accelerating fragmentation.

P2: The relationship between algorithmic personalization intensity and demand atomization is non-linear, such that atomization accelerates at high levels of personalization intensity.

3.5 Dual Dynamics: Atomization and Market-Level Concentration

Demand atomization at the level of preference formation does not necessarily imply dispersion in transactional outcomes. Digital marketplaces governed by ranking and reputational feedback mechanisms often exhibit cumulative advantage effects (Taeuscher, 2019). Visibility advantages translate into higher transaction volumes, reinforcing algorithmic prominence.

Empirical work indicates that recommender systems can simultaneously increase preference heterogeneity and concentrate sales among highly visible actors (Yi et al., 2022). This produces a structural duality: fragmentation in preference formation coexists with concentration in transaction distribution.

The following diagram isolates the structural paradox at the core of digital markets: fragmentation in preference formation coexists with concentration in transaction outcomes. It analytically separates exposure dynamics from outcome distribution while clarifying the reinforcing role of algorithmic visibility mechanisms.

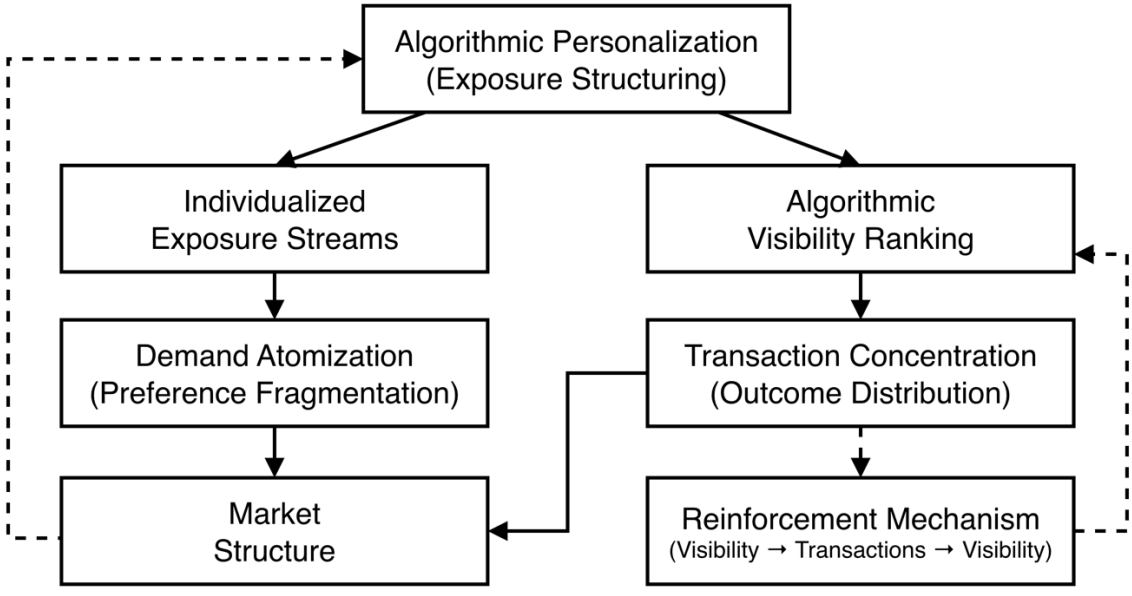

Figure 2. Dual Structural Dynamics of Fragmentation and Concentration in Algorithmic Markets
Source: Author's conceptualization

Figure 2 analytically disentangles the two simultaneous processes triggered by algorithmic personalization. On the left, individualized exposure streams generate demand atomization at the level of preference formation. On the right, algorithmic visibility ranking produces transaction concentration, reinforced through feedback loops linking visibility and realized

transactions. By separating these levels, Figure 2 clarifies how fragmentation and concentration coexist structurally rather than contradict each other, thereby resolving the diversity–concentration paradox central to the article's argument.

This dual dynamic intensifies competitive pressure. When outcomes concentrate, firms face incentives to conform to dominant algorithmic logics to preserve visibility, even as demand fragments into micro-clusters.

P3: Demand atomization is positively associated with transaction concentration at the market level through algorithmic visibility reinforcement mechanisms.

3.6 Demand Atomization and Competitive Coherence

Competitive coherence refers to the degree of internal alignment and external consistency in a firm's strategic positioning across market contexts. It encompasses integration among product architecture, pricing logic, value propositions, and competitive identity.

In relatively stable markets, firms can maintain coherent positioning because segments exhibit structural continuity. Demand atomization disrupts this continuity. As micro-clusters proliferate, firms encounter increasing contextual variation. Strategic responses often involve granular adaptation—dynamic pricing, tailored offerings, differentiated messaging.

While local adaptation may improve short-term alignment, cumulative micro-adjustments can generate internal divergence. Product portfolios become reactive, pricing logics inconsistent, and value propositions fragmented. Over time, this process produces coherence drift—a gradual erosion of integrative strategic alignment.

P4: Demand atomization is negatively associated with competitive coherence.

This erosion is amplified in concentrated markets. When transaction concentration intensifies competitive visibility pressures, firms are more likely to prioritize algorithmic conformity over strategic integration.

P5: Market-level transaction concentration strengthens the negative relationship between demand atomization and competitive coherence.

3.7 Non-Linear Strategic Effects of Personalization

Algorithmic personalization does not inherently erode coherence. At moderate levels, personalization may enhance strategic alignment by improving fit between offerings and identifiable customer needs. Problems emerge when personalization intensity surpasses the firm's capacity to orchestrate variation coherently.

As complexity increases, internal integration costs rise. Beyond a threshold, incremental adaptation yields diminishing returns and accelerates strategic fragmentation. The overall relationship between personalization intensity and competitive coherence is therefore curvilinear.

This diagram makes the curvilinear logic explicit by showing how personalization can initially strengthen strategic alignment but, beyond a threshold, generates coherence drift as micro-optimization outpaces integrative orchestration capacity. The visual isolates the form of the relationship so the non-linearity is analytically unambiguous.

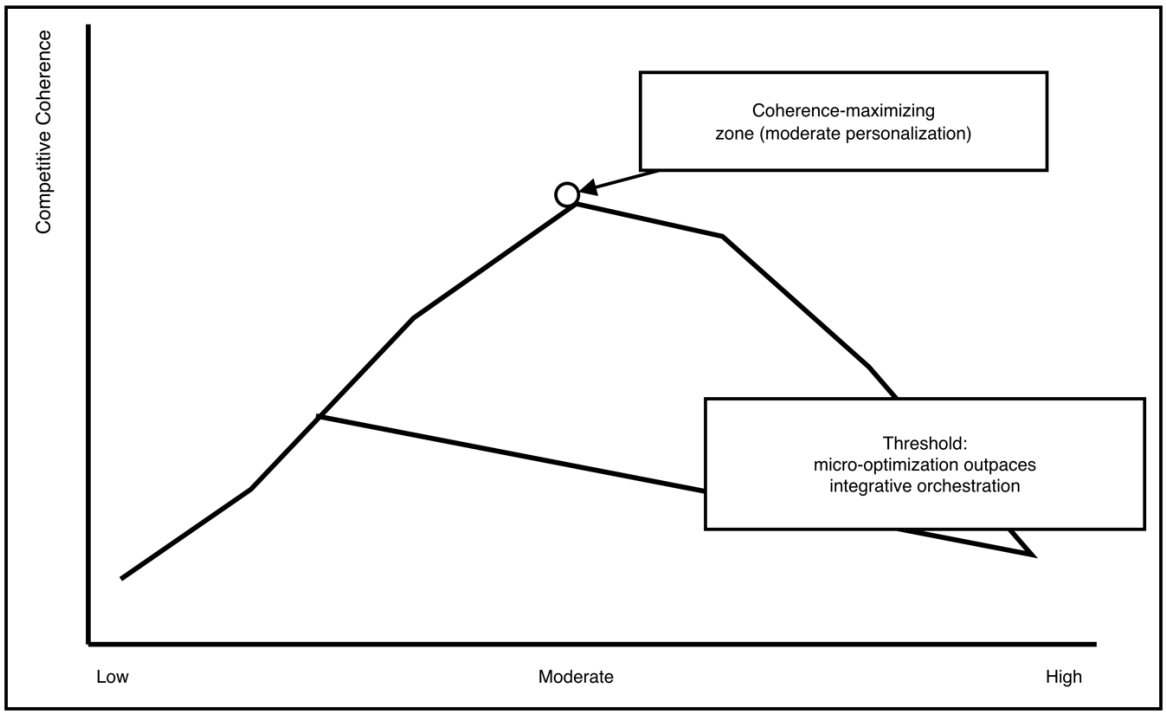

Figure 3. Inverted U-Shaped Relationship Between Personalization Intensity and Competitive Coherence
Source: Author's conceptualization

Figure 3 formalizes the article's non-linear prediction by showing that competitive coherence improves as personalization rises from low to moderate levels, but declines once personalization becomes sufficiently intense to induce coherence drift. The peak indicates the coherence-maximizing zone where personalization enhances fit without overwhelming integrative governance, while the downward slope captures the point at which accumulated micro-adaptations fragment pricing, messaging, and portfolio alignment. As a result, Figure 3 directly supports the paper's mechanism-driven claim that "more personalization" is not monotonically beneficial for strategic stability.

P6: The relationship between algorithmic personalization intensity and competitive coherence follows an inverted U-shape, such that moderate levels enhance coherence while high levels erode it.

3.8 Structural Boundary Conditions

The proposed dynamics are contingent on structural constraints.

Privacy salience and regulatory intensity moderate personalization feasibility. The personalization–privacy paradox indicates that heightened awareness of data practices can limit consumers' willingness to share information and trigger regulatory intervention (Cloarec, 2020; Quach et al., 2022). Such constraints dampen extreme personalization and, by extension, limit demand atomization.

P7: Privacy salience weakens the positive relationship between algorithmic personalization intensity and demand atomization.

Organizational capacity further conditions outcomes. Firms with extensive strategic governance routines and resource buffers may manage micro-variation without sacrificing integration. In contrast, small and medium-sized enterprises (SMEs), often highly dependent on platform visibility and limited in orchestration capacity, face greater vulnerability to coherence drift.

P8: The negative relationship between demand atomization and competitive coherence is stronger for SMEs than for large firms.

This conceptual development establishes a mechanism-based model linking algorithmic personalization intensity to demand atomization, transaction concentration, and competitive coherence erosion. It identifies non-linear effects and specifies structural boundary conditions, positioning SMEs as a critical context in which atomized demand environments amplify strategic fragility.

This table systematizes the eight propositions into a structured mechanism map. It clarifies causal direction, mediating logic, non-linearity, and boundary conditions, ensuring that the model operates as an integrated theoretical system rather than a list of isolated claims.

Table 2. Proposition Architecture and Structural Relationships

Proposition	Relationship	Mechanism	Direction/Form	Moderator
P1	Personalization → Atomization	Individualized exposure reduces shared consideration sets	Positive	—
P2	Personalization → Atomization	Sharp decline in exposure overlap at high intensity	Non-linear (accelerating)	—
P3	Atomization → Transaction Concentration	Algorithmic visibility reinforcement	Positive	—
P4	Atomization → Competitive Coherence	Micro-context proliferation induces strategic divergence	Negative	—
P5	Atomization × Concentration → Coherence	Visibility pressure amplifies coherence drift	Strengthening effect	Market concentration
P6	Personalization → Coherence	Fit improves at moderate levels; integration costs dominate at high levels	Inverted U-shape	—
P7	Personalization → Atomization	Privacy salience constrains personalization	Weakening effect	Privacy salience
P8	Atomization → Coherence	Limited orchestration capacity	Stronger negative for SMEs	Firm size

Source: Author's conceptualization

Table 2 consolidates the theoretical model by aligning each proposition with its causal mechanism, directionality, and conditioning variables. Rather than repeating the graphical model, it makes the analytical architecture explicit and reviewer-transparent. By clarifying where non-linearity, mediation, and moderation operate, Table 2 strengthens internal coherence and reduces the risk of perceived conceptual inflation or hidden assumptions.

4. Discussion

Algorithmic personalization has largely been celebrated as a strategic capability that enhances customer relevance and firm performance (Kumar et al., 2024; Verhoef et al., 2021). However, positioning personalization primarily as an optimization tool obscures its structural consequences for market organization and competitive stability. The present framework reorients the discussion by conceptualizing personalization as a market-structuring mechanism that reshapes demand architecture and alters the foundations of competitive advantage.

4.1 Challenging the Capability-Centric View of AI in Strategy

The resource-based view (RBV) traditionally conceptualizes competitive advantage as rooted in valuable, rare, inimitable, and non-substitutable resources (Barney, 1991). In digital contexts, data assets and algorithmic systems have increasingly been framed as such strategic resources (Brynjolfsson & McElheran, 2016; Shrestha et al., 2019). Dynamic capabilities scholarship similarly emphasizes firms' abilities to sense, seize, and reconfigure in response to technological change (Teece, 2007; Warner & Wäger, 2019).

Yet these perspectives assume that digital technologies enhance adaptive capacity within relatively stable market structures. The present analysis questions this assumption. When personalization intensity reshapes exposure patterns and fragments shared market reference points, the environment itself becomes structurally unstable. Under demand atomization, competitive boundaries are no longer collectively defined but algorithmically individualized.

This observation extends recent calls to reconsider digital transformation beyond operational upgrading (Verhoef et al., 2021) and to interrogate how AI systems embed decision authority into algorithmic infrastructures (Shrestha et al., 2019). Rather than strengthening dynamic capabilities unconditionally, excessive personalization may overwhelm orchestration capacity and induce coherence drift. In this sense, personalization can function as both capability enhancer and structural destabilizer.

4.2 Resolving the Diversity–Concentration Paradox

Digital marketplace research has documented conflicting outcomes of recommendation systems. Some studies suggest expanded diversity and long-tail effects (Anderson, 2006; Yi et al., 2022), while others demonstrate cumulative advantage and market concentration (Taeuscher, 2019; Parker et al., 2016). This contradiction has remained theoretically unresolved.

The dual-dynamics model developed here clarifies that fragmentation in preference formation can coexist with concentration in transaction outcomes. Exposure narrowing increases heterogeneity at the micro level (Lv et al., 2024), while algorithmic reinforcement amplifies visibility advantages (Taeuscher, 2019). These mechanisms operate simultaneously, not sequentially.

This integration contributes to platform strategy literature (Gawer & Cusumano, 2014; Parker et al., 2016) by specifying how personalization intensifies structural asymmetries. It also aligns with recent evidence that digital markets exhibit winner-take-most tendencies despite surface-level diversity (Autor et al., 2020). The coexistence of atomization and concentration generates a structural tension that traditional segmentation logic fails to capture.

4.3 Competitive Coherence and the Limits of Micro-Optimization

Strategic positioning theory emphasizes consistency and clarity in value propositions (Porter, 1996). Competitive advantage depends not merely on differentiation but on the internal alignment of activities. However, digital personalization encourages micro-optimization across individualized contexts.

Recent digital marketing scholarship has focused on engagement metrics and conversion performance (Kumar et al., 2024), often assuming that granular adaptation enhances strategic precision. The inverted U-shaped relationship proposed here challenges that assumption. Beyond moderate levels, personalization complexity may exceed integration capacity.

This argument resonates with emerging critiques of metric-driven strategy (Mazzucato, 2018) and algorithmic management (Kellogg et al., 2020). When firms prioritize short-term

algorithmic visibility signals, strategic coherence may erode incrementally. Unlike disruptive shifts, coherence drift accumulates through small, localized adjustments.

The framework thus bridges positioning theory (Porter, 1996), dynamic capability theory (Teece, 2007), and digital strategy research (Warner & Wäger, 2019) by identifying a structural condition under which adaptation undermines integration.

4.4 Privacy, Governance, and Institutional Moderation

Privacy–personalization tensions are typically examined through trust and consumer response lenses (Cloarec, 2020; Martin & Murphy, 2017; Quach et al., 2022). However, positioning privacy salience as a structural stabilizer introduces a broader institutional dimension.

Regulatory regimes and data governance constraints shape the feasible intensity of personalization (Zuboff, 2019). In environments with strong data protection enforcement, atomization processes may be moderated, preserving shared exposure and limiting coherence erosion. Conversely, permissive data regimes accelerate structural fragmentation.

This institutional framing extends platform governance scholarship (Gawer, 2021) by linking regulatory intensity to market architecture rather than merely compliance costs. It also aligns with debates on digital market power and algorithmic accountability (Autor et al., 2020; Zuboff, 2019).

4.5 SMEs, Resource Constraints, and Asymmetric Vulnerability

Strategic management research has long emphasized that smaller firms face resource constraints that limit strategic buffering (Barney, 1991). In platform-mediated markets, SMEs are often highly dependent on algorithmic visibility mechanisms (Parker et al., 2016).

The present framework suggests that demand atomization amplifies this vulnerability. Limited orchestration capacity reduces SMEs' ability to integrate micro-adaptations coherently. At the same time, transaction concentration heightens dependency on platform governance systems.

This insight extends digital entrepreneurship research (Nambisan et al., 2019) by highlighting structural asymmetry rather than opportunity expansion alone. While digital platforms lower entry barriers, algorithmic personalization may increase long-term fragility for resource-constrained actors.

4.6 Reframing Sustainable Advantage in Algorithmic Markets

Traditional strategy theory conceptualizes sustainable advantage as the outcome of resource heterogeneity and positional clarity (Barney, 1991; Porter, 1996). In algorithmically mediated environments, advantage increasingly depends on managing exposure architectures and visibility logics.

The present analysis suggests that sustainability in such markets hinges on balancing responsiveness with coherence. Excessive personalization may generate short-term gains while undermining structural stability. This reframing challenges techno-optimistic narratives that equate AI adoption with automatic competitive superiority (Brynjolfsson & McElheran, 2016).

Algorithmic personalization thus emerges as a paradoxical force: it enhances precision while destabilizing shared market structures. Competitive advantage under atomized demand depends less on maximizing personalization intensity and more on maintaining integrative coherence within algorithmically fragmented environments.

5. Conclusion

Algorithmic personalization has been widely celebrated as a strategic enabler of precision, responsiveness, and performance optimization. Yet its structural implications for market organization and strategic stability have remained under-theorized. By conceptualizing demand atomization and competitive coherence as interrelated constructs, this study reframes personalization as a market-structuring force rather than a purely capability-enhancing tool.

The central argument advanced here is that increasing personalization intensity reshapes the architecture of demand by reducing shared exposure and dispersing preferences into dynamically reconfigured micro-clusters. This atomization process coexists with transaction-level concentration driven by algorithmic visibility reinforcement. The coexistence of fragmentation and concentration generates structural tensions that place pressure on firms' strategic integration. While moderate personalization may enhance alignment between offerings and customer needs, excessive personalization risks coherence drift—an incremental erosion of integrative positioning caused by cumulative micro-adaptations.

This perspective contributes to strategic management scholarship in three ways. First, it extends personalization research beyond consumer-level and performance-centric analyses by introducing a market-structure lens. Second, it resolves the apparent contradiction between diversity expansion and outcome concentration identified in recommender system research (Yi et al., 2022) by specifying dual-level dynamics. Third, it introduces competitive coherence as a strategic construct vulnerable to algorithmic mediation, thereby bridging digital marketing and core positioning theory.

The analysis also situates privacy–data governance tensions as structural moderators rather than peripheral ethical considerations. By constraining personalization intensity, privacy salience and regulatory regimes shape the trajectory of atomization and, indirectly, the stability of competitive positioning (Cloarec, 2020; Quach et al., 2022). This reinterpretation highlights the broader institutional conditions under which digital competition evolves.

Importantly, the framework identifies asymmetry in vulnerability. Resource-constrained firms—particularly SMEs—face heightened exposure to coherence erosion in atomized markets. Limited orchestration capacity and dependence on platform visibility amplify the strategic risks associated with high personalization intensity. In this sense, algorithmic personalization may simultaneously enhance short-term tactical performance and undermine long-term strategic resilience.

The implications extend beyond marketing analytics to the foundations of competitive advantage in digitally intensive environments. As AI-mediated systems increasingly govern exposure and interaction, sustainable strategy depends not solely on maximizing personalization, but on managing its structural consequences. Competitive advantage in atomized markets may hinge on the capacity to balance localized responsiveness with integrative coherence.

Understanding algorithmic personalization as a transformative force in market structure opens new avenues for empirical inquiry and theoretical refinement. More broadly, it underscores a critical insight: in digitally mediated competition, the pursuit of precision can inadvertently destabilize the very coherence upon which durable advantage depends.

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