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The Efficient Administration Paradox in Omni-Channel Electronics Retail: Evidence from MediaSaturn and the Introduction of the Real Importance Index

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Abstract

Aim: This article examines the adoption of Efficient Consumer Response (ECR) tools and their perceived strategic importance in German omni-channel electronics retail, with the aim of identifying implementation asymmetries.

Methodology: A qualitative-dominant research design with quantitative elements was applied, based on an expert survey conducted in 2022 with 36 managers from MediaMarktSaturn. Semi-structured questionnaires with five-point rating scales were used. A composite Real Importance Index (RII) was developed to integrate adoption levels with perceived strategic relevance.

Results: Demand-side ECR tools and Efficient Replenishment showed universal adoption and high strategic importance, whereas Efficient Administration (EA) lagged, revealing the EA Paradox.

Implications and recommendations: Retail managers should elevate Efficient Administration (EA) via task forces, digital standardisation (EDI/API), and RII-based monitoring; future research should apply the RII longitudinally.

Originality/value: The article provides first empirical evidence of the EA Paradox in non-grocery omni-channel-retail and introduces the RII as a replicable diagnostic tool.

Keywords: Efficient Consumer Response (ECR), omni-channel retailing, Efficient Administration (EA), Real Importance Index, supply chain collaboration

1. Introduction

The German electronics retail sector is undergoing profound transformation driven by digitalisation, shifting consumer preferences, and intensifying platform competition, primarily from Amazon (Ceconomy AG, 2024; Statista, 2025). Traditional retailers face the dual challenge of integrating physical store networks with e-commerce platforms while preserving supply chain efficiency. Efficient Consumer Response (ECR) frameworks — originally developed in the 1990s for grocery retail (Kurt Salmon Associates, 1993) — remain essential tools for optimising manufacturer-retailer interfaces across increasingly complex value chains (Reyes & Bhutta, 2005; Schmickler & Rudolph, 2002). In today's omni-channel retail era, ECR frameworks have become critical determinants of survival and competitive advantage (GS1 Germany, n.d.; Verhoef et al., 2015).

Investigating ECR adoption in German consumer electronics retail is particularly insightful as this sector differs fundamentally from grocery — the traditional ECR context (Kotzab & Teller, 2003) — with shorter product lifecycles, higher SKU complexity, and greater returns intensity, creating additional challenges in integrated forward and backward distribution systems (Hübner et al., 2016). MediaMarktSaturn, Germany’s market leader with over 1,000 stores across Europe and advanced omni-channel capabilities, constitutes a revelatory case in the sense of Yin (2018). The data were collected in 2022, prior to JD.com’s announced takeover of Ceconomy AG (Bundeskartellamt, 2025; JD.com, 2025;), thereby providing a critical pre-acquisition baseline for ECR adoption patterns. Against this backdrop, the present companion paper examined ECR adoption and the EA Paradox.

1.1. Research Objectives and Questions

Despite robust theoretical ECR frameworks (GS1 Germany, n.d.; Schmickler & Rudolph, 2002), empirical studies have predominantly focused on descriptive adoption patterns in traditional grocery retail (Corsten & Kumar, 2005; Kotzab & Teller, 2003). Systematic quantitative comparisons of actual usage rates versus perceived strategic importance of ECR instruments, particularly for the supply-side tool Efficient Administration (EA), remain scarce.

This companion study addressed these gaps through three research questions:

RQ1: Which ECR tools are adopted in German electronics retail companies?

RQ2: How important are these ECR tools perceived to be for competitiveness and omni-channel performance?

RQ3: How large is the adoption and perceived relevance gap for Efficient Administration (EA) compared to other ECR tools — the so-called EA Paradox?

The article makes three contributions: (1) it introduces the Real Importance Index (RII), a diagnostic heuristic integrating behavioural adoption with cognitive perception; (2) it provides the first quantitative benchmarking of ECR adoption in non-grocery omni-channel retail under platform competition; and (3) it documents the EA Paradox and offers an initial institutional-visibility interpretation as a starting point for future mechanism-testing.

2. Literature Review

2.1. Omni-Channel Evolution and Supply Chain Uncertainty

Retail has evolved from single-channel through multi-channel to omni-channel strategies, driven by digitalisation and shifting consumer behaviour (Galipoglu et al., 2018; Verhoef et al., 2015). Omni--channel retailing has emerged as a critical response to digital transformation pressures, requiring seamless integration across all touchpoints to deliver superior customer experiences (Verhoef et al., 2015; Verhoef, 2021). Persistent challenges remain in real-time inventory synchronisation and cross-

-channel visibility (Bijmolt et al., 2021; Goedhart et al., 2022), returns management across integrated forward and backward distribution systems (Hübner et al., 2016), and the management of inter-channel conflicts that affect company performance (Xiao et al., 2025). Contemporary supply chain implementations increasingly explore blockchain-based traceability (Silvestri et al., 2025; Treiblmaier, 2018), while Efficient Consumer Response (ECR) provides a supportive framework by optimising vertical collaboration and information exchange to address these uncertainties (Schmickler & Rudolph, 2002).

2.2. Efficient Consumer Response (ECR) Framework

Efficient Consumer Response (ECR) emerged in the early 1990s as a collaborative strategy to improve efficiency and responsiveness across the retail value chain (Kurt Salmon Associates, 1993; Schmickler & Rudolph, 2002). The framework adopts an integrative approach encompassing both supply and demand-side operations. On the supply side, it focuses on optimising product flow, inventory reduction and improved data exchange, with Efficient Replenishment as the central strategy (Schmickler & Rudolph, 2002) and further elements such as Efficient Operating Standards and Efficient Administration (Coca-Cola Retailing Research Group Europe, 1994). The demand side encompasses Category Management through Efficient Store Assortments (ESA), Efficient Promotion (EP), and Efficient Product Introductions (Kurt Salmon Associates, 1993; Schmickler & Rudolph, 2002).

Table 1 presents the core ECR tools with their definitions and practical examples. The taxonomy highlights a fundamental asymmetry: demand-side tools generate immediate, market-facing outcomes, whereas supply-side tools, especially Efficient Administration (EA), focus on back-office process optimisation and document-flow reduction (Coca-Cola Retailing Research Group Europe, 1994), producing efficiency gains that are harder to attribute directly to revenue generation. Bhutta et al. (2002) highlighted the importance of technological investment, including EDI infrastructure, for successful ECR implementation. Reyes & Bhutta (2005) further emphasised that ECR also demands fundamental cultural and organisational shifts towards greater interorganisational collaboration. Such changes tend to be particularly challenging for back-office administrative functions that are distant from direct revenue generation. Recent studies confirmed that these challenges persist in omni--channel settings (Radomska et al., 2025). This balanced integration across both supply and demand-side dimensions represents ECR's theoretical ideal (Kotzab & Lienbacher, 2010) — an assumption this article empirically examines in electronics retail.

Table 1. ECR Tool Taxonomy with Definitions and Practical Examples

ECR Tool	Dimension	Definition / Key Activities	Practical Examples
Efficient Store Assortments (ESA)	Demand--Side	Collaborative optimisation of product range and shelf space allocation based on consumer demand patterns	Shelf optimisation (planograms), local assortment customisation, category captaincy
Efficient Promotion (EP)	Demand--Side	Joint planning and execution of promotional campaigns to maximise sales impact while minimising supply chain disruption	Synchronised promotional calendars, joint ROI measurement, demand spike mitigation
Efficient Product Introduction (EPI)	Demand--Side	Collaborative new product launch processes ensuring supply chain readiness and market timing optimisation	Joint innovation pipelines, launch coordination, phase-in/phase-out management
Efficient Replenishment (ER)	Supply--Side	Automated, data-driven inventory replenishment minimising stockouts and overstock through collaborative forecasting and shared data	Vendor-Managed Inventory (VMI), Continuous Replenishment (CRP), CPFR

ECR Tool	Dimension	Definition / Key Activities	Practical Examples
Efficient Operating Standards (EOS)	Supply--Side	Collaborative optimisation of physical product flow and operating procedures without necessarily exchanging detailed sales data	Cross-docking, efficient unit loads, standardised handling and transportation processes
Efficient Administration (EA)	Supply--Side	Standardisation and digitalisation of administrative processes (invoicing, master data management, returns processing)	EDI for invoicing, automated invoice reconciliation, claims processing digitalisation, supplier portal integration

Source: based on (Bhutta et al., 2002; Coca-Cola Retailing Research Group Europe, 1994; Kurt Salmon Associates, 1993; Schmickler & Rudolph, 2002).

2.3. Measuring ECR Adoption: State of the Art and Limitations

Empirical ECR research has predominantly relied on self-reported measures to assess tool adoption, ranging from categorical implementation levels (full/partial/planned) to Likert-type scales (Corsten & Kumar, 2005; Kotzab & Teller, 2003). While this approach has enabled rapid cross-sectoral comparisons – particularly in the traditional grocery context – it primarily captured managerial perception rather than actual implementation depth. A rating of 4/5 for EA may refer to basic EDI invoicing with a few key suppliers or to fully automated reconciliation, master-data synchronisation and returns processing across the entire supplier base.

This conflation is particularly problematic for supply-side tools such as EA, whose implementation depth varies substantially more than for demand-side tools. Aastrup et al. (2008) proposed a model for structuring ECR measures that distinguishes between hard and soft measures. However, their framework remained at an aggregate structural level and did not operationalise tool-specific, process--level adoption indicators. The resulting measurement gap motivated the introduction of the Real Importance Index (RII) as a combined behavioural-cognitive metric in the presented study.

2.4. ECR Implementation Gaps and Adoption Barriers

While ECR theory prescribes balanced adoption across both supply and demand-side tools (Schmickler & Rudolph, 2002), empirical evidence suggests that implementation gaps exist across all tools, with administrative tools such as EA facing the most pronounced barriers. Administrative tools require cross-organisational IT harmonisation, including EDI standards, API compatibility, and shared master data repositories, which creates higher implementation complexity than demand-side initiatives (Kurnia et al., 2006). The prevalent legacy ERP systems create significant integration barriers, as administrative modernisation often requires replacing functional but outdated infrastructure (Bijmolt et al., 2021). Retail performance measurement systems traditionally reward revenue-generating activities over cost-reduction initiatives, systematically disadvantaging EA investments that lack immediate competitive differentiation (Corsten & Kumar, 2005). Radomska et al. (2025) confirmed that misaligned corporate motivations and inconsistent organisational strategies remain persistent barriers to omni-channel integration. Goedhart et al. (2022) demonstrated that omni-channel inventory management requires daily coordination and rationing decisions across channels, a complexity that amplifies the integration demands on supply-side ECR tools such as Efficient Administration (EA). Corsten and Kumar (2005) showed that ECR collaboration benefits are distributed asymmetrically, with larger retailers capturing disproportionately greater gains, a power dynamic that may discourage supplier investment in tools such as EA that require substantial inter-organisational commitment. Barta and Kotzab (2016) documented that only two of the 35 ECR projects in the German market between 1995 and 2014 addressed Efficient Administration — empirical evidence that EA under-adoption is not sector-specific but structurally embedded across the German retail landscape. Together, these barriers suggest that EA underadoption is not accidental but structurally embedded, which is a pattern this study documented empirically for the first time in electronics retail.

3. Methodology

3.1. Research Design and Data Collection

The author followed an exploratory-inductive research design (Creswell & Poth, 2018; Saunders et al., 2019). The approach was qualitative-dominant with quantitative elements and analyses exclusively the ECR-specific subset of a larger 2022 expert survey. While the broader stakeholder analysis (separate publication) examined omni-channel ecosystem dynamics using Reed et al.'s (2009) framework, this companion article focuses solely on the dedicated ECR-related questions.

The research was based on a purposive sample of 36 experts from MediaMarktSaturn (Ceconomy AG), Germany's leading electronics retailer: upper management (*n* = 19), middle management (*n* = 13), and lower management (*n* = 4). The participants were selected based on two criteria: (1) direct involvement in ECR-relevant processes (supply chain, category management, logistics, or administration), and (2) managerial decision-making authority. The sample was stratified across management levels to capture both strategic and operational perspectives on ECR adoption. All expert surveys were personally administered by the author in 2022, either face-to-face or via video conference, and lasted approximately 60-75 minutes in total. Of this time, roughly 15-25 minutes were dedicated to the ECR-specific section.

The questionnaire targeted the five ECR tools that emerged as most relevant during the exploratory phase and expert interviews: Efficient Store Assortments (ESA), Efficient Replenishment (ER), Efficient Promotion (EP), Efficient Product Introduction (EPI), and Efficient Administration (EA). Efficient Operating Standards (EOS) were not included as a distinct item, as initial qualitative insights suggested they had already reached near-universal operational integration in this mature retail setting. Therefore, the analysis concentrated on the five tools for which adoption rates and perceived strategic importance showed sufficient variation to enable meaningful comparison.

Adoption was measured with the following item: "To what extent is this tool currently implemented in your area?" (5-point rating scale: 1 = not at all, 5 = fully implemented). Perceived strategic importance was assessed with: "How important do you consider this tool for competitiveness and omni-channel performance?" (5-point rating scale: 1 = not important, 5 = extremely important). Although such scales are colloquially referred to as Likert scales, they were operationalised here as single-item rating scales; the use of means followed established practice in management and ECR research (Kotzab & Teller, 2003; Norman, 2010).

Data validity and reliability were ensured through member checking, the researcher's long-term industry knowledge in German electronics retail, and full GDPR compliance including informed consent, data anonymisation, and secure storage.

3.2. Real Importance Index Development

To integrate adoption frequency and perceived strategic relevance of individual ECR tools, this article introduces a new evaluative metric: the Real Importance Index (RII).

The development of this composite index followed the logic of instrument creation in exploratory research (Saunders et al., 2019). Equal weighting (50/50) of the behavioural dimension (actual usage rate) and the cognitive dimension (perceived strategic importance) aligned with established practice in composite index construction, where both aspects are treated as equally relevant indicators of practical relevance (Hair et al., 2019; Nunnally & Bernstein, 1994). Alternative weightings (e.g. 60/40) were tested in post-hoc sensitivity analyses but produced only negligible changes in ranking (maximum deviation: 1.2 percentage points), confirming the robustness of the balanced approach.

The index was calculated as follows: RII (%) = [Efficient Usage Rate (%) + Importance Rating (%)]/ 2

The importance rating was converted to a percentage by dividing the mean score by the maximum score of 5 and multiplying by 100 (e.g. 4.33/5 × 100 = 86.6%). For example, Efficient Store Assortments (ESA) achieved 100% efficient usage and a mean importance rating of 4.33/5 (86.6%). Thus: RII (ESA) = (100% + 86.6%) / 2 = 93.3%.

The RII does not assume that adoption and perceived importance are ontologically equivalent constructs, but rather it deliberately juxtaposes behavioural implementation and managerial cognition to reveal asymmetries between organisational action and strategic salience. As such, the index is intended as a diagnostic heuristic to surface misalignments, not as a validated measurement scale or performance proxy.

The RII thereby quantified which ECR tools delivered the highest real-world practical value and clearly highlighted underutilised areas such as Efficient Administration (EA) with an RII of only 47.75%. Unlike previous studies that examined adoption rates or importance ratings in isolation, the RII provided a simple, replicable diagnostic tool that combined both dimensions. It was developed post-hoc from the 2022 dataset as an extension of the primary stakeholder analysis and served as an independent methodological contribution of this companion paper.

4. Results

4.1. ECR Tool Adoption

All the 36 experts (100%) reported the efficient use of ESA, ER, EP, and EPI, while only 14 (38.9%) confirmed the efficient use of Efficient Administration (EA). This stark contrast highlighted the systematic underutilisation of administrative tools compared to customer-facing and operational ECR components.

4.2. Perceived Tool Importance

The 36 experts rated the perceived strategic importance of each ECR tool for competitiveness and omni-channel performance on a 5-point Likert scale. The results revealed a clear pattern: customer-facing tools (EP, EPI, ESA) received consistently high ratings (86.6-89.4%), while EA obtained a markedly lower mean rating (2.83/5 = 56.6%).

Table 2. ECR Tool Importance Ratings (*n* = 36)

ECR Tool	Mean Score	% of Maximum Score (5)
EP	4.47	89.4%
EPI	4.44	88.8%
ER	4.36	87.2%
ESA	4.33	86.6%
EA	2.83	56.6%

Source: author's own data.

4.3. Real Importance Index

The RII combined actual usage rates with perceived strategic importance for each ECR tool, providing a balanced metric integrating behavioural implementation with cognitive perception. The results revealed a clear asymmetry: demand-side tools (EP, EPI, ESA) and Efficient Replenishment (ER) achieved high scores between 93.3% and 94.7%, whereas EA scored only 47.75%, a gap of approximately 45 percentage points.

Table 3. Real Importance Index (*n* = 36)

ECR Tool	Efficient Usage	Importance	Real Importance Index (RII)
EP	100%	89.4%	94.7%
EPI	100%	88.8%	94.4%
ER	100%	87.2%	93.6%
ESA	100%	86.6%	93.3%
EA	38.9%	56.6%	47.75%

Example calculation (ESA): (100% + 86.6%) / 2 = 93.3%

Source: author's own data.

4.4. Performance Impact and Implementation Factors

The experts consistently reported substantial ECR benefits alongside implementation challenges, and Table 4 summarises the key performance effects, drivers, barriers, and success factors they mentioned. The figures indicate the percentage of experts who explicitly mentioned each factor at least once (multiple answers possible).

Table 4. Reported Performance Impact and Factors of ECR (*n* = 36)

Dimension	Description (most frequently mentioned)	Percentage of experts	Supporting literature
Performance Impact	Cost reduction Customer satisfaction Shorter delivery times	69% 67% 61%	Schmickler & Rudolph (2002)
Expected market share gain	Majority expects more than 25% gain	61% (22 experts)	Author's survey (2022)
Future strategic importance	Mean rating on 5-point scale	4.42	Author's survey (2022)
Key Drivers	Revenue growth cost reduction customer satisfaction	50% 47% 36%	Schmickler & Rudolph (2002)
Main Barriers	Returns / old goods employees IT problems	69% 69% 58%	cf. Radomska et al. (2025)
Success Factors	Employee training closer stakeholder cooperation	31% 22%	GS1 Germany (n.d.)

Note: the percentages indicate share of experts mentioning each factor at least once (multiple responses possible).

Source: author's own data (expert survey, 2022).

5. Discussion

5.1. The Efficient Administration (EA) Paradox

The central empirical finding of this study was the systematic underutilisation of Efficient Administration (EA). Despite its theoretical centrality within the ECR framework, EA recorded the lowest adoption rate (38.9%), the lowest perceived strategic importance (56.6%), and consequently the lowest Real Importance Index (RII: 47.75%), a gap of approximately 45 percentage points compared with the other ECR tools (RII: 93-95%).

This EA Paradox challenges the assumption of balanced ECR implementation often implicit in the theoretical literature (Kotzab & Lienbacher, 2010) and is consistent with the empirical findings showing strong implementation asymmetries in the German market (Barta & Kotzab, 2016).

The expert ratings of the 36 respondents repeatedly highlighted four recurring observations that appear linked to this gap:

- **Higher implementation complexity**: EA requires extensive cross-organisational IT harmonisation (EDI standards, API compatibility, shared master data), whereas demand-side tools can largely be implemented within existing retailer systems.
- **Lower outcome visibility**: Improvements through EA (e.g. fewer invoice discrepancies, faster claims processing) are often less immediately visible and measurable internally compared to customer-facing tools.
- **Cultural and incentive patterns**: Retail organisations tend to prioritise activities with direct revenue or customer-satisfaction impact; EA's long-term cost-reduction benefits receive comparatively less managerial attention.
- **Limited institutional emphasis**: Industry associations and best-practice initiatives appear to focus more strongly on demand-side and promotional tools than on administrative integration processes.

Taken together, the data showed a clear double confirmation: Efficient Administration was not only factually underutilised (38.9%) but was also perceived as significantly less strategically important. Within the MediaMarktSaturn context, this asymmetry suggests that the studied organisation tends to operationalise ECR frameworks in a front-stage biased manner, favouring tools with immediate, customer-visible outcomes while giving lower priority to back-office administrative integration, even though the latter holds substantial potential for sustained efficiency and supply chain resilience.

5.2. Theoretical Contributions

This article advances ECR knowledge through three distinct contributions. First, it provides systematic empirical documentation of implementation asymmetry between demand-side and supply-side ECR tools in omni-channel electronics retail, revealing a substantial 45-percentage-point gap. Second, the Real Importance Index (RII) was introduced as a diagnostic heuristic making the adoption–perception gap visible and quantifiable for the first time in this sector, and enabling cross-sectoral benchmarking and longitudinal tracking of ECR maturity.

Third, the analysis provided initial indicative evidence of ECR's theoretical portability beyond grocery retail, suggesting it may function as a sector-agnostic coordination framework applicable to electronics retail with short product lifecycles and intense platform competition. As platform competition intensifies and omni-channel complexity grows, ECR adoption may not be treatable as a one-time implementation decision, yet could require ongoing recalibration of tool priorities, measurement systems, and inter-organisational commitments. Taken together, these contributions reposition ECR from a static best-practice toolkit into a dynamic capability framework (Teece et al., 1997), requiring continuous reconfiguration to address omni-channel complexity.

5.3. Measurement Validity and the Limits of Self-Reported ECR Adoption

The EA Paradox is not only an adoption phenomenon but also a measurement challenge. The RII deliberately captured EA adoption as managerial self-perception on a single Likert item, given the exploratory nature of this first systematic benchmarking. A manager rating EA adoption at 4 out of 5 may refer to basic EDI invoicing with a few key suppliers or to near-complete automation across the full supplier base. The scale did not distinguish between these realities, suggesting that the adoption gap documented here may be simultaneously underestimated and mislocated across companies.

A more precise diagnosis of EA would require differentiating adoption along three dimensions: technical depth (e.g. EDI penetration rate, share of invoices processed without manual intervention), process breadth (e.g. proportion of SKUs under automated replenishment logic), and relational integration (e.g. number of suppliers with active portal connections and shared real-time KPIs). The RII thus served its intended purpose as a diagnostic heuristic making the gap visible and quantifying it for

the first time in this sector, while its causal explanation required qualitative differentiation and stakeholder analysis in subsequent research, addressing broader calls for improved measurement and deeper empirical understanding in the ECR literature (Reyes & Bhutta, 2005).

This measurement challenge is not unique to EA. Self-reported Likert ratings conflate substantively different implementation levels across all five ECR tools: whether ER reflects genuine VMI coverage or merely automated reorder points, whether EP captures collaborative forecast accuracy or simply synchronised promotional calendars, and whether ESA reflects data-driven planogram adherence or informal shelf decisions — none of these distinctions are resolvable through perception-based scales alone. Future research should therefore develop behaviourally grounded, process-level indicators for each ECR tool, enabling more precise cross-sectoral benchmarking and longitudinal ECR maturity tracking.

Whether fully objective, behaviourally grounded measurement of ECR adoption is achievable in practice remains an open question. Even process-level indicators such as EDI penetration rates capture only one dimension of implementation depth, while data governance constraints often limit researchers' access to the transactional evidence required for rigorous benchmarking.

5.4. Managerial Implications

This article offers four actionable recommendations for retail executives. First, elevate EA strategically using RII scorecards: establish dedicated EA task forces focusing on EDI cleanup, API supplier integration, and automated invoice reconciliation, while introducing quarterly RII dashboards prioritising anything below 70%. Second, address EA barriers through targeted change management: tackle legacy IT issues and overcome employee resistance through end-to-end training demonstrating efficiency gains. Third, leverage inter-company collaboration as a performance multiplier: ECR encompasses the entire customer journey and makes perfect ECR execution the decisive differentiation factor against platform competitors such as Amazon. Achieving this requires extremely close supplier cooperation with shared KPIs and robust trust mechanisms. Fourth, third-party organisations such as GS1 Germany can play an important role in accelerating EA adoption by providing supplier education, advancing EDI standards, and supporting transparent ROI analyses.

6. Conclusion

ECR retains sustained strategic relevance in European omni-channel retail despite systematic implementation asymmetries. Drawing on expert data collected in 2022 – immediately prior to JD.com's announced takeover of Ceconomy AG (Bundeskartellamt, 2025; JD.com, 2025) – this article provides a critical pre-acquisition baseline for future longitudinal research.

Three core findings emerge. First, demand-side tools and Efficient Replenishment showed universal adoption (100%) and high strategic importance (86.6-89.4%), while Efficient Administration (EA) lagged dramatically (38.9% usage, RII 47.75%), revealing a clear EA Paradox that challenged ECR's assumption of balanced diffusion. Second, the Real Importance Index (RII) quantified this 45-point gap by combining adoption rates with perceived importance, providing a simple, replicable diagnostic tool for the first time in this sector. Third, ECR delivered measurable performance impact: the majority of experts (61%) anticipated market share gains exceeding 25%, with inter-company cooperation, training, and management commitment as key enablers, while returns management, IT integration, and employee resistance remained the principal barriers.

Despite its contributions, this study had limitations. The single-case focus (MediaMarktSaturn, n = 36) constrained generalisability. The cross-sectional 2022 design captured a pre-acquisition phase; longitudinal studies tracking ECR evolution post-JD.com integration would illuminate temporal dynamics. Self-reported measures require triangulation with process-level, behaviourally grounded

indicators – such as EDI penetration rates, invoice automation shares, and VMI coverage ratios – to verify whether perceived implementation levels reflect actual operational depth. The RII requires cross-sectoral validation across company sizes and sectors. Future research should: (1) conduct dedicated ECR-only studies to analyse EA Paradox mechanisms; (2) validate the RII across grocery, fashion, and DIY retail; (3) examine ECR-ERP integration success factors; and (4) test whether social media represents a potential sixth ECR tool, given its pervasive role across the entire shopping journey (Pantano & Gandini, 2018).

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Paradoks efektywnej administracji w handlu detalicznym elektroniką w modelu omni-channel: dowody empiryczne z MediaMarktSaturn oraz wprowadzenie wskaźnika Real Importance Index

Streszczenie

Cel: Celem badania jest analiza stopnia wdrożenia narzędzi *Efficient Consumer Response* (ECR) oraz ich postrzeganej istotności strategicznej w niemieckim handlu detalicznym elektroniką w modelu omni-channel, ze szczególnym uwzględnieniem asymetrii implementacyjnych.

Metodyka: Badanie ma charakter jakościowo-dominujący z elementami ilościowymi i opiera się na badaniu ankietowym przeprowadzonym w 2022 r. wśród 36 menedżerów MediaMarktSaturn. Zastosowano półustrukturyzowane kwestionariusze z wykorzystaniem pięciopunktowych skal ocen.

Wprowadzono wskaźnik *Real Importance Index* (RII), integrujący poziom wdrożenia i postrzeganą istotność strategiczną narzędzi ECR.

Wyniki: Narzędzia popytowe oraz *Efficient Replenishment* wykazują pełne wdrożenie i wysoką ocenę znaczenia strategicznego, podczas gdy *Efficient Administration* jest niewdrożone, co ujawnia „Paradoks EA".

Implikacje i rekomendacje: Rekomenduje się podniesienie rangi *Efficient Administration* poprzez wprowadzenie odpowiednich zespołów, standaryzację EDI/API oraz wykorzystanie pulpitów RII.

Oryginalność/wartość: Artykuł po raz pierwszy empirycznie dokumentuje Paradoks EA w handlu omni-channel poza sektorem spożywczym oraz wprowadza replikowalny wskaźnik RII.

Słowa kluczowe: *Efficient Consumer Response*, handel omni-channel, *Efficient Administration*, *Real Importance Index*, współpraca w łańcuchu dostaw