



From Web Analytics to Marketing Value: A Digital Process Innovation Perspective

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Abstract

This article reframes key performance indicators (KPI) and web analytics from passive measurement devices into process-intelligence mechanisms that support digital process innovation and marketing value creation. The revised manuscript responds to reviewer concerns by clarifying that the study is a structured literature-based conceptual synthesis, not a newly replicated stand-alone systematic literature review. The core evidence base consists of the 26 eligible studies previously identified from 378 records in the digital marketing and web analytics domains, while the present manuscript contributes a new conceptual recoding of that corpus through the lenses of digital transformation capability, customer journey theory, organizational learning, and analytics-enabled value creation. The method section now reports the review logic, search domains, inclusion and exclusion criteria, quality appraisal dimensions, coding procedure, and synthesis strategy. The findings show that quantitative indicators such as traffic, unique users, click-through rate, conversion rate, return on investment, leads, source type, and keyword ranking function as process-efficiency signals, whereas qualitative indicators such as A/B testing, user-flow analysis, user-experience diagnostics, calls to action, surveys, and forms operate as process-learning mechanisms. The article contributes a process-layer synthesis that links analytics to attraction and discovery, transition and conversion, interaction and experience, and learning and resource allocation. It concludes that web analytics generate marketing value only when they are embedded in decision routines that translate digital signals into diagnosis, experimentation, redesign, and organizational learning.

Keywords: digital process innovation, marketing value, KPI, web analytics, digital marketing, value creation

1. Introduction

The expansion of internet-based technologies has transformed marketing from a predominantly promotional function into a system of interconnected digital processes. Firms

increasingly compete through the orchestration of search visibility, content distribution, website interaction, conversion pathways, and feedback mechanisms rather than through message exposure alone. Digital transformation therefore changes not only the channels through which firms communicate, but also the organizational capabilities and processes through which customer value is created and evaluated (Verhoef et al., 2021; Cioppi et al., 2023; Feliciano-Cestero et al., 2023). The development of digital marketing capabilities is consequently becoming an important source of competitive performance, particularly when firms can integrate data, technology, and managerial routines into coherent decision processes (Homburg & Wielgos, 2022).

Within this architecture, web analytics and key performance indicators (KPI) have become central managerial instruments. Marketing analytics literature shows that analytics can support decision-making, customer understanding, capability building, and competitive advantage, but its value depends on how data are interpreted and connected to managerial action (Basu et al., 2023; Vollrath & Villegas, 2022). Longitudinal evidence further indicates that marketing analytics can strengthen customer agility and satisfaction, especially under dynamic market conditions (Agag et al., 2024). Similarly, data analytics can enhance marketing agility when organizations possess the ability to sense market signals and respond to them through informed action (Tarn & Wang, 2023). (Dingus et al., 2024).

Despite this progress, KPI and analytics are frequently treated as retrospective reporting instruments for campaign evaluation, performance monitoring, or budget justification. Such a measurement-centric orientation can obscure the process function of analytics. Marketing analytics capabilities are more valuable when they enable firms to sense, seize, and reconfigure market-facing activities rather than merely report what has already occurred (Hossain et al., 2022; Haverila & Haverila, 2024). Research on data-driven marketing innovation likewise emphasizes that analytics becomes an organizational capability when resources, routines, and learning mechanisms connect analysis to deployment and process change (Ravat et al., 2024).

The customer journey provides an important bridge between analytics and process innovation. Digital interactions occur through sequences of touchpoints, and analytics can make movement, friction, abandonment, and conversion visible across those touchpoints. Contemporary customer-journey research emphasizes the complexity of digitalized journeys and the need to understand how digital touchpoints, roles, and overall processes interact (Tueanrat et al., 2021; Lundin & Kindström, 2023). Digital customer-experience frameworks similarly highlight the importance of designing connected experiences rather than optimizing isolated encounters (Kandil et al., 2024; Zha et al., 2023).

The present article builds on a previously reported literature corpus of 378 records and 26 eligible studies in digital marketing and web analytics. Rather than replicating that review, it recodes the evidence through a process-innovation perspective. This repositioning is consistent with recent research that views digital transformation as a reconfiguration of organizational processes, value propositions, and capabilities (AlNuaimi et al., 2022; Fernandez-Vidal et al., 2022; Piepponen et al., 2022). It also responds to the growing emphasis on data quality, analytics capability, and responsible use of customer data as conditions for meaningful value creation (Aker et al., 2023; Proença & Martins, 2023; Brüggemann et al., 2025).

Accordingly, the article addresses three research questions: (1) how are KPI and web analytics positioned in the reviewed digital marketing and web analytics literature; (2) which indicators are most relevant to digital process innovation; and (3) how do these indicators contribute to marketing value creation when interpreted as process intelligence? The originality

lies in developing an integrative process-layer synthesis that connects digital metrics to diagnosis, experimentation, redesign, and organizational learning rather than treating metrics as isolated reporting outputs.

2. Literature Review

2.1 Digital process innovation in marketing systems

Digital process innovation in marketing refers to the redesign, integration, and continuous improvement of marketing processes through digital technologies, data, and feedback loops. Digital transformation research distinguishes digitization, digitalization, and broader transformation, with the latter requiring changes in structures, capabilities, and performance measurement (Verhoef et al., 2021). In established organizations, digital transformation strategies can create pathways to digital service innovation when digital resources are embedded in organizational routines rather than implemented as isolated technologies (Soto Setzke et al., 2023).

The process perspective is particularly important for marketing because data-driven technologies change how firms sense market conditions, formulate responses, and learn from outcomes. Digital transformation leadership, agility, and strategy are interdependent in determining whether firms can turn digital resources into organizational renewal (AlNuaimi et al., 2022; Fernandez-Vidal et al., 2022). In marketing, analytics capability contributes to sensing, seizing, and reconfiguring, while artificial intelligence can further strengthen these capability pathways (Hossain et al., 2022; Manis & Madhavaram, 2023).

Recent studies reinforce the need to treat analytics as a process capability. Data-driven innovation capability is developed through resources, routines, and learning mechanisms across ideation, analysis, and deployment (Ravat et al., 2024). Customer analytics capability similarly depends on the complementarity of organizational resources, customer orientation, and data-driven culture (Haverila & Haverila, 2024). Evidence from longitudinal research indicates that data-driven innovation capabilities can support marketing agility and competitive advantage over time (Agag et al., 2024; Tarn & Wang, 2023). In financial and service settings, digitalization can also alter value creation by changing the way organizations coordinate service processes and customer interactions (Lähteenmäki et al., 2022; Piepponen et al., 2022).

2.2 KPI and web analytics as digital process intelligence

Web analytics provides structured information about digital behavior, while KPI systems translate such information into performance signals. The strategic question is therefore not whether firms possess dashboards, but whether analytics helps managers understand what is happening, why it is happening, and what should be redesigned. Marketing analytics research identifies decision-making, forecasting, capability development, customer-journey understanding, and competitive positioning as major uses of analytics (Basu et al., 2023).

Quantitative indicators such as impressions, traffic, unique users, leads, CTR, conversion rate, ROI, and cost-based measures describe observable outcomes and process efficiency. Yet the interpretation of those measures becomes stronger when they are connected to organizational capabilities and decision quality. Marketing data analytics assets and capabilities make distinct contributions to value creation, while analytics use can strengthen customer agility and satisfaction (Sáenz et al., 2022; Agag et al., 2024). Analytics quality is also important because weak data, models, or deployment processes can limit strategic business value (Akter et al., 2023).

Qualitative and diagnostic indicators complement quantitative measures. A/B testing, user-flow analysis, surveys, forms, calls to action, and user-experience assessment can help explain why users respond differently to alternative designs or messages. Conversion-rate optimization research demonstrates how systematic testing across digital touchpoints can reduce friction and improve the pathway from exposure to action (Zimmermann & Auinger, 2023). Digital customer-experience research likewise stresses that experience improvement requires attention to the structure and continuity of the digital process (Kandil et al., 2024).

The distinction between efficiency signals and learning mechanisms is therefore analytically useful. Quantitative metrics identify patterns and deviations, while qualitative diagnostics provide explanations that can be translated into experimentation and redesign. The combination moves analytics from passive measurement toward process intelligence.

2.3 Customer Journey, Experience, and Marketing Value

Customer journeys are composed of multiple stages and touchpoints rather than single transactions. A review of customer-journey research identifies service satisfaction, failure and recovery, co-creation, customer response, channels, and technological disruption as interconnected themes (Tueanrat et al., 2021). Digitalization further changes the customer journey by adding or transforming touchpoints, activating new roles, and extending the overall process (Lundin & Kindström, 2023).

From this perspective, traffic, source type, CTR, conversion, time on site, goal completion, repeat visits, and related indicators represent partial signals from different points in the journey. Their managerial value depends on whether firms can connect the signals into an explanation of customer movement and friction. Research on digital customer experience in complex services emphasizes the importance of designing coherent journeys, while customer-experience synthesis research shows that customer experience is multidimensional and should be understood across interconnected components (Kandil et al., 2024; Zha et al., 2023).

Marketing value can appear as improved discoverability, more efficient acquisition, higher conversion, stronger engagement, retention, or better allocation of marketing resources. The relationship is not automatic. Digital marketing capabilities have value when they are embedded in organizational processes that enable firms to convert information into action and adaptation (Homburg & Wielgos, 2022). Analytics-driven customer agility also suggests that value emerges through the organization's ability to respond to changing conditions rather than through measurement alone (Agag et al., 2024).

2.4 Data Quality, Responsible Analytics, and Digital Marketing Context

Analytics-enabled marketing also depends on the quality and governance of data. Research on marketing analytics success identifies data, model, and deployment quality as important antecedents of strategic value (Akter et al., 2023). The use of digital marketing analytics further requires absorptive capacity so that organizations can recognize, interpret, and apply information in decision-making (Proença & Martins, 2023). These conditions help explain why simply acquiring analytical tools does not guarantee superior outcomes.

The contemporary literature also emphasizes responsible data use. Marketing analytics research increasingly intersects with questions of privacy, ethics, bias, and sustainability. Recent work highlights the need to consider how analytics affects consumers, firms, and policymakers, including the broader sustainability implications of digitalization (Brüggemann et al., 2025). Data-driven marketing in Indonesia likewise faces challenges related to data management,

privacy, infrastructure, and skills, making organizational readiness an important contextual consideration (Mawuntu et al., 2024; Paramitra et al., 2024). (Petrescu & Krishen, 2025).

Within Indonesia, recent studies indicate growing interest in digital marketing transformation, analytics, and data-driven strategy. Hidayati et al. (2024) discuss marketing analytics as part of digital-based marketing strategy, while Piartrini et al. (2024) examine data-driven marketing strategy for digitally oriented consumers. These studies reinforce the practical relevance of analytics but also leave room for a process-oriented synthesis that explains how metrics move from observation to diagnosis, experimentation, redesign, and learning. This article addresses that conceptual gap. (Dakwah et al., 2024; Farhan et al., 2024).

3. Research Methodology

3.1 Research design and relationship to the source corpus

This study uses a structured literature-based conceptual synthesis. It does not present itself as a newly replicated stand-alone systematic literature review. Instead, it reinterprets a previously reported corpus in which 378 records were identified and 26 studies were retained in the digital marketing and web analytics domain. The present article contributes a process-innovation recoding of that evidence, supported by supplementary literature on digital transformation, marketing analytics capability, customer journey, and organizational learning.

The design is appropriate because the objective is conceptual extension rather than statistical estimation. The unit of analysis is the role performed by a KPI or analytics indicator within a digital marketing process. The synthesis therefore asks how analytics make processes visible, how they support diagnosis, and how they enable experimentation, redesign, and learning. This logic is consistent with recent conceptual and review research that treats digital transformation and marketing analytics as capability-building processes (Cioppi et al., 2023; Basu et al., 2023).

3.2 Search logic and evidence base

The core evidence base was derived from the previously reported search domains of digital marketing and web analytics. To make the review logic more transparent, the revised manuscript reports the search logic used to interpret the corpus and to organize the supplementary theoretical literature. The core corpus retained the 26 studies reported by the source review, while the supplementary theoretical layer was used only to strengthen interpretation and did not alter the 26-study corpus.

Table 1. Review logic and evidence base

Element	Description
Core search domains	Digital marketing; web analytics; KPI; marketing metrics; online marketing; internet marketing; search engine marketing; social media marketing.
Databases identified in the source review	Scopus, PubMed, PsycINFO, ScienceDirect, and Web of Science.
Illustrative Boolean logic	("digital marketing" OR "online marketing" OR "internet marketing" OR "search engine marketing" OR "social media marketing") AND ("web analytics" OR "digital analytics" OR "marketing analytics" OR "KPI" OR "key performance indicator" OR "metric") AND ("conversion" OR "customer journey" OR "user experience" OR "value creation" OR "optimization").
Core corpus	378 initial records and 26 eligible studies reported in the source review.

Element	Description
Supplementary theoretical search	Digital transformation, dynamic capabilities, marketing analytics capability, customer journey, process intelligence, business analytics value creation, and organizational learning.
Purpose of supplementary literature	To strengthen theoretical grounding, not to expand the core corpus or create a new SLR dataset.

3.3 Inclusion, exclusion, and quality appraisal criteria

The screening and interpretation were guided by eligibility criteria that match the purpose of the article. Studies were considered relevant when they discussed digital marketing metrics, web analytics, digital campaign performance, user behavior, conversion, customer acquisition, or marketing analytics capability. Studies were excluded when they were unrelated to digital marketing processes, lacked conceptual or empirical relevance to analytics, or treated metrics only as technical reporting tools without marketing implications.

Table 2. Eligibility and quality appraisal criteria

Criterion	Inclusion rule	Exclusion rule
Topical relevance	The study addresses digital marketing, web analytics, KPI, marketing analytics, customer acquisition, conversion, or digital performance.	The study focuses on unrelated information systems, general accounting, offline marketing, or non-marketing analytics.
Process relevance	The study provides insight into customer journey, optimization, campaign performance, UX, search visibility, engagement, or decision support.	The study only defines metrics without explaining any managerial, behavioral, or process role.
Evidence value	The study offers empirical findings, conceptual models, systematic review evidence, or relevant managerial frameworks.	The study lacks a clear research basis, is purely promotional, or does not provide usable analytical content.
Quality appraisal	Conceptual clarity, methodological transparency, relevance to digital marketing, and usefulness for process interpretation.	Low relevance, weak conceptual connection, insufficient methodological description, or non-scholarly source when not used as contextual material.

3.4 Coding and synthesis procedure

The synthesis was conducted in four stages. First, the identified indicators were extracted and grouped as quantitative or qualitative metrics. Second, each indicator was coded according to the digital process stage it primarily informs attraction and discovery, transition and conversion, interaction and experience, or learning and resource allocation. Third, the innovation function of each indicator was interpreted by asking whether the metric supports visibility, diagnosis, experimentation, redesign, or strategic learning. Fourth, the marketing value created by each process role was synthesized into an integrative framework.

To strengthen analytical rigor, the revision distinguishes between descriptive classification and conceptual inference. Descriptive classification identifies which indicators appear in the literature. Conceptual inference explains how these indicators may support process innovation.

The paper therefore presents its claims as theoretically grounded propositions rather than as causal effects directly measured by the reviewed studies.

The trustworthiness of the synthesis was improved by cross-checking each process layer against three forms of support: metric definitions in the reviewed corpus, theoretical alignment with digital transformation and analytics capability literature, and practical relevance to the customer journey. This procedure reduces arbitrary interpretation while acknowledging that the study remains conceptual and literature based.

4. Result And Discussion

4.1 Profile of the reviewed literature

The reviewed studies span business, information science, computer science, services, and systems-oriented journals. This disciplinary spread is meaningful because digital marketing analytics is not solely a marketing communication issue. Business studies tend to emphasize value generation, customer acquisition, conversion, and strategic return. Information science and computer science studies contribute technical and behavioral insights related to information retrieval, user interaction, search dynamics, and data interpretation. Together, these traditions indicate that digital marketing performance cannot be understood through a single disciplinary lens.

The literature has concentrated heavily on search-related performance, online promotion, conversion-oriented indicators, and analytics-enabled decision making. This concentration suggests that firms have historically treated digital marketing optimization as a problem of visibility and measurable action. However, once these insights are integrated across studies, a broader picture emerges what is actually being optimized is the process through which users discover, evaluate, and respond to digital offerings.

The revised contribution is therefore twofold. First, the paper reframes web analytics as process intelligence rather than dashboard reporting. Second, it develops a process-layer synthesis that explains how metrics create value through attraction, conversion, experience, and learning mechanisms. This contribution is conceptual rather than empirically novel, but it is useful because it clarifies the managerial logic through which analytics becomes valuable.

4.2 KPI and web analytics across the digital marketing process

A process-oriented synthesis of the reviewed literature shows that KPI and analytics can be grouped into four functional layers of digital process innovation. These layers explain where metrics operate in the customer journey and how they contribute to marketing value creation.

Table 3. KPI and analytics as digital process innovation mechanisms

Process layer	Relevant indicators	Innovation function	Marketing value created
Attraction and discovery	Impressions, traffic, unique users, source type, keyword ranking, non-branded keyword traffic.	Improve visibility logic, refine search presence, and diagnose channel effectiveness.	Higher discoverability, better audience reach, and lower acquisition inefficiency.
Transition and conversion	CTR, leads, conversion rate, goal completion, cost per lead, cost per action, pay-per-click, cost per click.	Reduce friction from click to action and optimize commercial pathways.	Higher conversion efficiency and improved monetization.

Process layer	Relevant indicators	Innovation function	Marketing value created
Interaction and experience	A/B testing, call-to-action performance, user flow, page interaction, time on site, UX diagnostics, surveys, and forms.	Redesign interfaces, messages, and pathways based on observed behavior.	Stronger user relevance, better usability, and improved engagement.
Learning and resource allocation	ROI, returning visitors, user type, campaign source, cross-channel comparison, source quality.	Support iterative learning, budget optimization, and strategic adaptation.	Greater accountability, better investment decisions, and sustained marketing value.

4.3 Quantitative Indicators as Signals of Process Efficiency

Quantitative indicators are often presented as straightforward measures of digital performance, but their process value becomes clearer when interpreted as efficiency signals. Traffic indicates whether attraction mechanisms are functioning; source type and unique users indicate audience composition; CTR signals movement from exposure to engagement; and conversion rate indicates the effectiveness of the pathway from attention to desired action. These measures should be interpreted jointly rather than as isolated targets (Vollrath & Villegas, 2022; Sáenz et al., 2022).

ROI is particularly important because it connects process performance to managerial accountability. It can be viewed as a summary signal of upstream process quality: weak targeting, poor search visibility, ineffective landing pages, or unclear calls to action can all reduce financial returns. Similarly, cost measures such as CPC, CPL, and CPA make the economics of digital process design visible. Their managerial use is strongest when analytics is linked to decision routines and marketing agility (Tarn & Wang, 2023; Akter et al., 2023).

4.4 Qualitative Indicators as Mechanisms of Process Learning

Qualitative indicators explain why particular patterns occur. A/B testing compares alternative designs, user-flow analysis reveals movement sequences, surveys and forms provide direct feedback, and UX diagnostics examine whether structure and content support usability. Their contribution is therefore not simply descriptive. They help managers move from observing behavior to testing alternative explanations and designs. Research on conversion-rate optimization and digital customer experience supports this learning-oriented interpretation (Zimmermann & Auinger, 2023; Kandil et al., 2024).

The distinction is important for digital process innovation. Quantitative analytics can show that users abandon a page, while qualitative diagnostics can help identify whether the problem is message relevance, interface complexity, trust, navigation, or another friction point. This is consistent with research showing that analytics becomes valuable when organizations possess the capacity to absorb, interpret, and apply data rather than merely collect it (Proença & Martins, 2023).

4.5 Causal Logic and Boundary Conditions of Analytics-Based Value Creation

The synthesis identifies five mechanisms through which KPI and web analytics can contribute to marketing value: visibility, diagnosis, experimentation, redesign, and learning.

Visibility makes behavior observable. Diagnosis turns patterns into actionable problems. Experimentation compares alternative designs or messages. Redesign translates insight into changes in customer-facing processes. Learning institutionalizes repeated insights into routines and resource-allocation decisions. This logic aligns with process-oriented analytics capability research and with evidence that analytics-driven capabilities strengthen agility and competitive performance (Ravat et al., 2024; Agag et al., 2024; Hossain et al., 2022).

The process is conditional rather than automatic. First, data must be reliable and relevant to the decision. Second, organizations require interpretive capability because identical metrics may have different meanings in different contexts. Third, analytics must be connected to decision routines; otherwise dashboards remain descriptive. Fourth, marketing, technology, content, and operations must coordinate. Fifth, privacy, ethics, bias, and responsible data use must be considered. These conditions are increasingly important as digital marketing becomes more data-intensive and as analytics expands into AI-enabled decision systems (Akter et al., 2023; Brüggemann et al., 2025; Manis & Madhavaram, 2023). (Petrescu & Krishen, 2025).

4.6 Integrative Framework for Marketing Value Creation

The evidence supports an integrative proposition: KPI and web analytics create marketing value when they are embedded in a cycle of visibility, diagnosis, experimentation, redesign, and strategic learning. The value of analytics therefore resides not in reporting alone, but in the organization's ability to convert digital signals into process adjustments that improve performance over time. This proposition is consistent with research on marketing analytics, customer agility, and digital marketing capability (Basu et al., 2023; Agag et al., 2024; Homburg & Wielgos, 2022).

4.7 Integrative framework for marketing value creation

When synthesized across the reviewed studies and theoretical literature, the evidence supports an integrative proposition: KPI and web analytics create marketing value when they are embedded in a cycle of visibility, diagnosis, experimentation, redesign, and strategic learning. The value of analytics does not reside in reporting alone. It resides in the firm's ability to convert digital signals into process adjustments that improve performance over time.

Table 4. Analytics-enabled process innovation cycle

Mechanism	Managerial question	Analytics role	Expected process outcome
Visibility	What is happening in the digital journey?	Capture traffic, source, reach, navigation, and interaction patterns.	Customer behavior becomes observable.
Diagnosis	Where does friction occur?	Identify drop-off points, weak channels, low conversion, poor UX, or ineffective CTA.	Problem areas become actionable.
Experimentation	Which alternative performs better?	Use A/B testing, source comparison, landing-page tests, and message variation.	Design choices become evidence-informed.

Mechanism	Managerial question	Analytics role	Expected process outcome
Redesign	How should the process be improved?	Translate insights into journey simplification, content adjustment, UX improvement, or channel reallocation.	Customer-facing processes become more efficient.
Learning	What should be institutionalized?	Convert repeated analytics insights into routines, guidelines, and resource-allocation logic.	Marketing capability becomes stronger over time.

5 Conclusion

This article has reframed KPI and web analytics as mechanisms of digital process innovation that create marketing value. Building on the review evidence contained in a previously reported digital marketing and web analytics corpus, it argues that digital metrics should not be understood solely as instruments of control or post hoc evaluation. Rather, they function as process intelligence that helps organizations diagnose friction, experiment with alternatives, redesign user journeys, and improve resource allocation.

The review shows that quantitative indicators such as traffic, CTR, conversion rate, ROI, leads, source type, and keyword ranking illuminate the efficiency and direction of digital marketing processes, while qualitative indicators such as A/B testing, user flow, UX diagnostics, surveys, forms, and calls to action enable deeper process learning. Their strategic value lies in combination. Together, they form an architecture of continuous optimization. The central conclusion is that KPI and web analytics create the most marketing value when they are embedded in a broader system of digital process innovation. Firms that treat analytics as an active capability for redesigning acquisition, conversion, interaction, and learning processes are better positioned to generate relevance, efficiency, accountability, and sustained value in digital markets.

This article remains limited by its reliance on a previously reported core corpus and by the conceptual nature of the present reframing. It does not claim to measure causal effects between analytics use and firm performance. Future research may extend this argument empirically by testing how analytics capabilities influence customer journey performance, experimentation speed, conversion efficiency, customer agility, and value outcomes across industries and platform settings.

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