INTERNATIONAL REVIEW OF ARTIFICIAL INTELLIGENCE IN MARKETING

NAWALA

Volume 3, Number 1, 2024

Personalized Email Campaigns Powered by AI: Effects on Engagement, Conversion, and Unsubscribe Rates

Cika Liyana [1]

[1] Universitas Bandar Lampung, Lampung, Indonesia

Abstract

Article history:
Received: January 3, 2024
Revised: February 25, 2024
Accepted: April 27, 2024
Published: June 30, 2024

Keywords:
Artificial Intelligence, Customer Engagement, Email Marketing, Personalisation, Unsubscribe Behaviour.

Identifier:
Nawala
Page: 1-16
https://nawala.io/index.php/iraim

This article examines how artificial intelligence powered personalised email campaigns influence engagement, conversion, and unsubscribe behaviour in contemporary digital marketing. Using a systematic literature review approach, the study synthesises evidence from peer reviewed research on email marketing, interactive marketing, and artificial intelligence enabled personalisation. The review shows that data driven personalisation generally increases open and click through rates, and can raise conversion when messages are grounded in meaningful behavioural, contextual, and volunteered data rather than superficial cues. Behavioural and triggered campaigns based on browsing or cart abandonment signals are particularly effective in directing persuasive effort toward high propensity recipients. However, the findings also reveal that unsubscribe behaviour and spam complaints operate as systematic indicators of micro churn, especially when contact frequency is high or personalisation is experienced as intrusive or manipulative. Cultural context and customer journey stage further moderate these effects. Overall, the review highlights a central trade off in which artificial intelligence amplifies both the benefits and risks of personalised email strategies.

*Corresponding author:
(Cika Liyana)

1. Introduction

Email marketing remains one of the most resilient and cost-effective channels in contemporary digital marketing, often outperforming many social and display formats in terms of return on investment and measurability. As inboxes become increasingly crowded and privacy regulations tighten, however, campaign performance hinges less on sheer volume and more on the ability to deliver messages that are perceived as relevant, timely, and respectful of user preferences. Recent empirical work on interactive and email marketing shows that message relevance, perceived value, and appropriate contact frequency are key drivers of open and click through behaviour, and that they shape longer term outcomes such as relationship quality and attrition (Goic et al., 2021; Hartemo, 2022). Within this context, unsubscribe behaviour and spam complaints are increasingly interpreted as indicators of "micro churn" that signal a breakdown in perceived value at the message or campaign level (Nobile & Cantoni, 2023).

In parallel, artificial intelligence has emerged as a transformative engine in marketing, enabling firms to move from coarse segmentation toward fine-grained, data-driven personalization at scale. Literature based and systematic reviews show that machine learning and related techniques are reshaping core marketing decisions in targeting, resource allocation, content optimisation, and journey orchestration across channels (Haleem et al., 2022; Mariani et al., 2022). Within this broader evolution, AI enabled personalization is increasingly framed as a distinct capability that integrates predictive analytics, automated content generation, and real time adaptation of messages to individual customers (Gao & Liu, 2023). These

developments provide the technical foundation for AI-powered personalized email campaigns, in which elements such as subject lines, product recommendations, send time, and contact frequency can be optimised at the level of each recipient rather than at the segment level.

Within the email channel specifically, AI driven personalization is operationalised through algorithms that learn from rich behavioural and contextual data to improve engagement and response. Machine learning models are used to predict optimal send times, segment subscribers based on behavioural profiles, and tailor subject lines and content to maximise open and click-through rates (Paulo et al., 2022; Gao & Liu, 2023). Field experiments on triggered and behavioural email campaigns demonstrate that data driven targeting can significantly increase response and conversion, particularly when triggered by browsing or cart abandonment signals (Goic et al., 2021). At the same time, advances in AI enabled customer analytics make it possible to identify disengaging subscribers and conceptualise unsubscribes, persistent non-response and spam complaints as early manifestations of churn that can be modelled and acted upon within retention programmes (Mariani et al., 2022).

However, the performance of personalization in email campaigns is more nuanced than managerial rhetoric often suggests. Studies on modernised, data rich email practices emphasise that using volunteered customer data and carefully governed targeting rules can raise conversion while limiting fatigue, but also warn that intensive tracking and overly frequent contact may erode trust and trigger defensive reactions (Hartemo, 2022). Emerging research on personalisation

effectiveness in email marketing shows that not all forms of personalization are beneficial: some techniques increase short-term engagement metrics without translating into meaningful conversions, while others heighten perceptions of intrusiveness and loss of control, accelerating unsubscribes and list erosion when customers feel over-profiled or over-contacted (de Groot, 2022; Nobile & Cantoni, 2023). Related work on personalised online advertising highlights similar tensions, showing that covert data collection and opaque targeting practices can generate negative emotions that undermine the intended persuasive effect (Du & Xie, 2021).

These findings point to a central trade off inherent in AI driven personalization: the same data and models that enable finely tuned relevance also amplify the consequences of misaligned targeting or poor governance. Although existing studies provide valuable insights into AI applications in marketing and into specific email tactics such as subject line optimisation, triggered campaigns, or personalised recommendations, the academic literature still offers only fragmented evidence on how AI powered personalized email campaigns simultaneously affect engagement, conversion, and unsubscribe behaviour (Haleem et al., 2022; Gao & Liu, 2023). Most empirical work isolates a single outcome dimension such as open rate, click through rate, or predictive models of churn without modelling the joint impact of AI driven personalization on both desirable and undesirable performance indicators within the same campaign setting (Goic et al., 2021; Paulo et al., 2022).

This study addresses that gap by examining the effects of AI-powered personalized email campaigns on three interrelated outcome dimensions: engagement (open and click through rates), conversion (purchases or other focal

actions), and unsubscribe rates as a behavioural indicator of micro churn. By comparing AI personalized campaigns with more conventional rule based or non-personalized email strategies, the study seeks to clarify under what conditions AI driven personalization enhances overall campaign performance and when it may unintentionally intensify email fatigue and list erosion. The findings are expected to contribute to the emerging AI marketing literature by providing an integrated view of the benefits and risks of algorithmic personalization at the campaign level, and to offer practical guidance for firms seeking to balance aggressive optimisation with sustainable relationship management in their email strategies.

2. Literature Review

Email marketing has been consistently positioned as a high return channel because it supports precise measurement of user responses such as opens, clicks, conversions and unsubscribes. Beyond basic metrics, recent work emphasizes that effectiveness depends on how well campaigns align with cultural, contextual, and motivational factors. Lorente-Páramo et al. (2020) show that promotional email performance varies systematically across cultures, with dimensions such as uncertainty avoidance and individualism shaping open and click through rates. Their findings suggest that what counts as "relevant" or acceptable frequency in email communication is not universal, and that even technically well designed campaigns can underperform or trigger negative reactions when cultural expectations are ignored.

In parallel, artificial intelligence is increasingly embedded in marketing systems to personalize content, timing, and channel orchestration. A literature based review by Haleem et al. (2022) concludes that AI allows marketers to tailor offers in real time, optimize content selection, and analyze individual-level data to predict which customers are likely to convert or disengage. The review notes that AI applications in email and direct marketing extend beyond targeting to include predictive modeling of churn and unsubscribe probability, enabling firms to identify high-risk recipients and adjust contact strategies proactively. This positions AI powered personalization as a technical foundation for fine tuned campaign management, including balancing engagement gains with the risk of list erosion.

At the message level, experimental research has examined how specific personalization cues influence behavioral outcomes in email campaigns. Munz et al. (2020) conducted a large scale field experiment in which email appeals for charitable donations were personalized through name similarity between donors and beneficiaries. They found that such personalization significantly increased open rates, click through behavior, and average donation amounts, demonstrating that subtle identity cues can meaningfully shift both engagement and conversion. However, these experiments typically focus on positive outcomes and do not systematically examine unsubscribe or complaint behavior as countervailing indicators of irritation.

More recent studies explicitly incorporate unsubscribe metrics when evaluating personalization tactics. Defau and Zauner (2023) replicate and extend classic personalization experiments by testing the effects of first name versus title

and surname subject lines on email performance. Their field experiments show that first-name personalization no longer reliably improves opens or clicks and can be associated with higher unsubscribe rates, while more formal surname-based personalization has modest positive effects on engagement with very low unsubscribes. These findings suggest that the effectiveness of simple personalization tricks may decay over time as users become habituated, and that certain implementations risk being perceived as manipulative or overly familiar.

Complementing these design-focused experiments, Nobile and Cantoni (2023) study personalization in email marketing across different stages of the customer journey and explicitly address the "personalisation paradox." Using experimental data in a digital fashion context, they find that personalized emails can improve performance indicators such as clicks and downstream retailer outcomes, but also identify situations where personalization triggers psychological reactance, reduced trust, and disengagement. Their analysis underlines that the same personalization mechanisms that drive engagement can simultaneously increase perceptions of intrusiveness, leading to micro level churn behaviors such as unsubscribes.

Taken together, these studies indicate that AI and data driven personalization significantly enhance firms' ability to optimize email engagement and conversion, yet they also highlight important boundary conditions. Prior work tends to isolate specific levers such as subject-line personalization, cultural tailoring, or generic AI applications rather than examining how AI powered personalization strategies jointly affect engagement, conversion, and unsubscribe rates within the same campaign

context. The existing evidence therefore points to a research gap regarding the integrated impact of AI driven email personalization on both desirable metrics (opens, clicks, purchases) and undesirable outcomes (fatigue, unsubscribes, complaints), which this study seeks to address.

3. Methods

This study adopts a systematic literature review method to synthesise existing evidence on the effects of AI-powered personalised email campaigns on engagement, conversion and unsubscribe behaviour. The review follows a transparent, replicable process that begins with the formulation of clear research questions focusing on how artificial intelligence and data driven personalisation are implemented in email marketing and how these implementations influence open rates, click through rates, purchases or focal actions, and unsubscribe or micro churn indicators. A comprehensive search strategy is developed by combining keywords related to "email marketing," "personalized email," "artificial intelligence," "machine learning," "engagement," "conversion," and "unsubscribe" using Boolean operators. These search strings are applied across major academic databases such as Scopus, Web of Science, ScienceDirect, Emerald Insight and Google Scholar, ensuring coverage of journals in marketing, information systems, and related business disciplines. Reference lists and citation trails of relevant articles are also scanned to identify additional studies that may not surface in the initial database queries.

The identification phase is followed by a multi-stage screening process. First, titles and abstracts are screened to remove clearly irrelevant publications such as non-digital channels, purely technical AI papers without marketing outcomes, conference abstracts without full texts, and non peer reviewed sources. Second, the full texts of potentially relevant articles are evaluated against predefined inclusion criteria: studies must focus on email or closely related direct digital campaigns, incorporate some form of AI or data-driven personalisation (for example, predictive models, machine learning based segmentation or send-time optimisation), and report at least one relevant outcome related to engagement, conversion, unsubscribe behaviour, or perceived intrusiveness and privacy. To enhance reliability, the screening and eligibility assessment can be conducted independently by two reviewers, with disagreements resolved through discussion.

For all studies that meet the inclusion criteria, a structured data extraction form is used to capture key characteristics and findings. Extracted information includes the publication outlet, research context (industry, platform, type of organisation), methodological approach (experimental, observational, survey-based, modelling), operationalisation of AI and personalisation (type of algorithm, data sources, personalisation levers such as subject lines, content, frequency or send time), and the specific performance metrics examined (opens, clicks, conversions, unsubscribes, complaints, perceived intrusiveness, trust or satisfaction). The main quantitative results and qualitative insights, as well as any reported moderators or mediators (for example, cultural context, customer segment, privacy concerns), are also recorded. The final stage consists of a combined descriptive and thematic

synthesis. Descriptively, the studies are mapped according to context, method and outcome focus; thematically, their findings are organised around the relationships between AI-enabled personalisation and the three focal outcome dimensions: engagement, conversion and unsubscribe behaviour. This synthesis allows the review to identify consistent patterns, contradictions and gaps in the literature, and to derive a conceptual understanding of when AI-driven personalised email campaigns enhance overall performance and when they risk intensifying email fatigue, perceived intrusiveness and list erosion.

4. Results and Discussion

The systematic review indicates that AI enabled personalisation in email marketing generally improves engagement metrics, particularly open and click through rates, but that these gains are conditional on how relevance, timing, and frequency are operationalised. Studies on traditional and triggered email campaigns show that when messages are closely aligned with observed behaviours such as browsing patterns or cart abandonment recipients are more likely to open and click, confirming the centrality of perceived relevance (Goic et al., 2021; Hartemo, 2022). Experimental evidence on identity-based cues reinforces this pattern: personalisation strategies that create a sense of fit between the recipient and the message, such as name similarity or contextually appropriate offers, tend to raise initial engagement and short term response (Munz et al., 2020). These findings are broadly consistent with the view that AI-driven targeting and content optimisation primarily enhance the "attention and interest" stages of the email response hierarchy,

particularly when they are grounded in volunteered and behaviourally inferred data (Haleem et al., 2022).

Beyond engagement, a smaller but growing subset of studies explicitly links AI and personalisation to conversion outcomes. Behavioural and triggered emails driven by predictive models of propensity to act such as abandon-cart reminders or follow-up offers based on browsing history show higher conversion rates than generic batch-and-blast campaigns (Goic et al., 2021; Hartemo, 2022). AI contributes here by enabling more granular segmentation and real time decision rules that allocate persuasive effort where the probability of response is highest (Haleem et al., 2022; Mariani et al., 2022). However, the review also reveals that conversion gains are not automatic; some forms of superficial personalisation (for example, inserting the recipient's first name in the subject line without adapting the substantive offer) yield only modest or transient effects on purchases, suggesting that the depth and diagnosticity of the underlying data matter more than surface level cues (Defau & Zauner, 2023).

When unsubscribe and complaint behaviour are taken into account, the picture becomes more complex. Several studies conceptualise unsubscribes and spam complaints as manifestations of micro churn and show that they increase when contact frequency is high or when personalisation is perceived as overly intrusive (Hartemo, 2022; Nobile & Cantoni, 2023). Experiments comparing different subject-line strategies indicate that first name personalisation, once considered a best practice, no longer consistently improves engagement and can even elevate unsubscribe rates, whereas more neutral or formal variants tend to generate fewer

attrition signals (Defau & Zauner, 2023). These results align with work on personalised online advertising, which documents that opaque data collection and targeting practices trigger negative emotions and reactance, undermining the intended persuasive effect and accelerating disengagement (Du & Xie, 2021; de Groot, 2022). Taken together, the evidence suggests that unsubscribe rates and complaints are not merely "noise" but systematic outcomes of how personalisation is implemented and governed.

The review also highlights important contextual moderators that shape the effectiveness of AI powered email personalisation. Cultural differences in uncertainty avoidance, individualism, and communication norms influence what recipients perceive as an acceptable level of contact and how they interpret personalised content (Lorente-Páramo et al., 2020). In high uncertainty avoidance contexts, for example, frequent, highly personalised emails may be interpreted as intrusive surveillance rather than helpful assistance, increasing the likelihood of opt outs even when offers are ostensibly relevant. Similarly, customer journey stage appears to moderate outcomes: personalisation tactics that are effective for active customers can provoke reactance among dormant or low-involvement subscribers, who may experience finely tuned messages as disproportionate to their relationship with the brand (Nobile & Cantoni, 2023). These boundary conditions reinforce the need to embed AI models within a broader understanding of audience expectations and relationship history rather than treating algorithmic optimisation as context-free.

Across the reviewed studies, a central trade off emerges: AI and data driven personalisation enhance the ability to allocate attention and persuasive effort

efficiently, but they also increase the risk and speed of negative outcomes when targeting or frequency is misaligned. Predictive models that identify high value or high propensity recipients can significantly improve engagement and conversion, yet the same models, when combined with aggressive contact strategies, may amplify fatigue and perceived surveillance, thereby raising unsubscribe and complaint rates (Mariani et al., 2022; Gao & Liu, 2023). In essence, AI functions as a "persuasion accelerator" that magnifies both the benefits of well governed, consent-based personalisation and the costs of tactics that are perceived as manipulative or privacy invasive.

These findings have several implications for both theory and practice. Conceptually, they support a more integrated view of email campaign performance in which engagement, conversion, and unsubscribe behaviour are treated as jointly determined outcomes of AI-enabled personalisation, rather than separate metrics optimised in isolation. Theoretically, the evidence points to the importance of incorporating psychological constructs such as perceived intrusiveness, trust, and reactance into models of AI-driven marketing effectiveness (Du & Xie, 2021; Nobile & Cantoni, 2023). Managerially, the results suggest that firms should design AI powered email systems with explicit safeguards such as frequency caps, privacy sensitive data policies, and journey-stage-sensitive targeting rules to ensure that optimisation routines do not prioritise short-term engagement at the expense of long term list health and brand equity. In sum, the SLR indicates that AI powered personalised email campaigns can deliver substantial gains in engagement and conversion, but only when they are implemented with careful attention to cultural

context, relationship history, and the potential for micro churn signalled through unsubscribes and complaints.

5. Conclusion

This study concludes that AI powered personalised email campaigns offer substantial, but conditional, benefits for digital marketing performance. Across the reviewed evidence, AI and data driven personalisation consistently enhance engagement outcomes, particularly open and click-through rates, and can translate into higher conversions when personalisation is grounded in meaningful behavioural, contextual, and volunteered data rather than superficial cues. Triggered and propensity based emails, such as browse and cart abandonment messages, exemplify how predictive models can allocate persuasive effort more efficiently and support more effective targeting. At the same time, the findings show that unsubscribe behaviour and spam complaints function as systematic indicators of micro churn, revealing when relevance, frequency, or perceived intrusiveness are misaligned with recipients' expectations and relationship stage.

At a broader level, the review highlights a central trade-off at the heart of AI driven personalisation: the same models that enable fine-grained relevance and real time optimisation also accelerate negative outcomes when governance is weak, transparency is low, or cultural and psychological factors are ignored. Theoretically, this underscores the need to treat engagement, conversion, and unsubscribe behaviour as interdependent outcomes and to incorporate constructs such as trust, perceived intrusiveness, and reactance into models of AI-enabled marketing

effectiveness. Managerially, the results suggest that firms should embed AI within robust safeguards frequency caps, privacy sensitive data policies, culturally aware designs, and journey stage sensitive rules to ensure that optimisation routines protect long-term list health and brand equity rather than maximising short term clicks. Future research is encouraged to model these outcomes jointly and to explore how different configurations of AI, data governance, and customer context shape the net value of personalised email campaigns.

References

De Groot, J. I. M. (2022). The personalization paradox in Facebook advertising: The mediating effect of relevance on the personalization–brand attitude relationship and the moderating effect of intrusiveness. *Journal of Interactive Advertising, 22*(1), 57–74.

Defau, L., & Zauner, A. (2023). Personalized subject lines in email marketing. *Marketing Letters, 34*(4), 727–733.

Du, S., & Xie, C. (2021). Paradoxes of artificial intelligence in consumer markets: Ethical challenges and opportunities. *Journal of Business Research, 129*, 961–974.

Gao, Y., & Liu, H. (2022). Artificial intelligence-enabled personalization in interactive marketing: A customer journey perspective. *Journal of Research in Interactive Marketing, 17*(5), 663–680.

Goic, M., Rojas, A., & Saavedra, I. (2021). The effectiveness of triggered email marketing in addressing browse abandonments. *Journal of Interactive Marketing, 55*(1), 118–145.

Haleem, A., Javaid, M., Qadri, M. A., Singh, R. P., & Suman, R. (2022). Artificial intelligence (AI) applications for marketing: A literature-based study. *International Journal of Intelligent Networks, 3*, 119–132.

Hartemo, M. (2022). Conversions on the rise: Modernizing e-mail marketing practices by utilizing volunteered data. *Journal of Research in Interactive Marketing, 16*(4), 585–600.

Lorente-Páramo, Á. J., Hernández-García, Á., & Chaparro-Peláez, J. (2020). Influence of cultural dimensions on promotional e-mail effectiveness. *Technological Forecasting and Social Change, 150*, 119788.

Mariani, M. M., Perez-Vega, R., & Wirtz, J. (2022). AI in marketing, consumer research and psychology: A systematic literature review and research agenda. *Psychology & Marketing, 39*(4), 755–776.

Munz, K. P., Jung, M. H., & Alter, A. L. (2020). Name similarity encourages generosity: A field experiment in email personalization. *Marketing Science, 39*(6), 1071–1091.

Nobile, T. H., & Cantoni, L. (2023). Personalisation (in)effectiveness in email marketing. *Digital Business, 3*(2), 100058.