


Chapter 1

Meta's AI Attribution Models Enhancing Customer Experience in Digital Ads

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ABSTRACT

Meta's AI-driven Multi-Touch Attribution system addresses the shortcomings of conventional models like last-click by better representing intricate consumer paths across multiple platforms. Meta evaluates the actual incremental effects of ad interactions using Shapley value analysis and counterfactual modelling combined with federated learning while maintaining user privacy protections. The new methods enable higher return on ad spend (ROAS), allow for dynamic budget adjustments in real time and facilitate customization for different platforms. Even though there have been quantifiable improvements in performance results algorithmic transparency issues along with regulatory compliance and bias mitigation challenges persist. The chapter promotes ethical use of artificial intelligence and highlights the critical role humans and AI must play together when planning media strategies. The conclusion calls for established attribution frameworks that are both standardized and interpretable to maintain responsible and effective marketing within the fast-changing digital environment.

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BACKGROUND

Traditional attribution models are proving inadequate because consumer behaviour has grown more complex across multiple platforms and devices. Modern customer journeys typically include 6–8 touchpoints across digital and physical platforms such as social media platforms, search engines, email campaigns and brick-and-mortar stores (Deshpande, 2024). The last-click attribution model inaccurately assigns over 60% of conversion credit to the final interaction while neglecting earlier awareness-building activities (Banik, Dey, & Gourisaria, 2024). Time-decay and linear attribution models provide some benefits but still exhibit fundamental flaws. The analysis lacks consideration for the order of touchpoints and the effects of device-switching and format impact (Hosahally & Zaremba, 2023). As a solution to attribution challenges AI-based multi-touch attribution systems including Meta's have appeared. Through machine learning and causal inference methods such as DCRM-TA and CausalMTA these systems improve the identification of individual touchpoints' contributions toward conversions (Tang, 2024; Yao, 2022). Attribution models utilize sophisticated algorithms such as LSTM and Random Forest to analyse complex user journeys (Pattanayak, Pati, & Singh, 2022). The Meta attribution system achieves more precise credit allocation by employing real-time signal processing together with Shapley value modelling and cross-device identity resolution (Sharma, Li, & Jiao, 2022). The system enables real-time optimization which results in 18–22% ROAS improvements while reducing ad waste by up to 30% (Ramnani, 2024). Meta's MTA systems help campaigns achieve acquisition efficiency improvements between 12% and 15% according to Yang et al. (2023). Still, challenges remain. The lack of transparency in AI attribution hampers marketers' ability to decode results (Castleman & Korolova, 2024). Compliance with legal standards presents a concern particularly in relation to GDPR and CCPA regulations (McGuigan et al., 2023). A majority of 68% of marketers identify legal risks associated with AI-based attribution systems (Castleman & Korolova, 2024). According to Tang (2024) algorithmic bias could lead to distorted attribution results. Meta applies federated learning that allows models to learn on-device while maintaining privacy standards and achieves 85–90% accuracy compared to traditional models (Yeh et al., 2024; Alkaeed, Qayyum, & Qadir, 2023). Additional privacy-preserving technologies including homomorphic encryption and secure multi-party computation provide secure methods for handling data according to Chen & Yang (2023). Despite cost barriers for smaller companies (Kosaraju, 2024), these advancements establish a fresh benchmark for ethical and accurate attribution through scalability. Meta's intelligent AI-based MTA showcases an industry-wide move towards more advanced and privacy-focused measurement methods for advertising (Gadiwala et al., 2024; Rashid & Yasin, 2025).

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