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Leveraging Multi-Touch Attribution for Optimizing Pharmaceutical Content-Level Messaging



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White Paper

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Evolution of Pharmaceutical Marketing Strategies:

The pharmaceutical industry has adapted its marketing strategies in response to the digital era, embracing multi-channel approaches to engage healthcare providers (HCPs). This shift has necessitated a re-evaluation of Multi-Touch Attribution (MTA) methodologies, which traditionally assess the impact of various tactics on New-to-Brand prescriptions (NBRx). However, the existing MTA solutions lack the granularity required to provide actionable insights beyond the tactic level, highlighting the need for a novel approach.

Enhanced Granularity in Attribution:

This paper proposes a methodology that delves into tactic messaging and content levels, offering insights beyond traditional MTA frameworks. By leveraging granular data, this approach aims to provide a comprehensive understanding of how marketing strategies, personalized messaging, and content influence NBRx within specific HCP cohorts. By aligning performance metrics to estimate NBRx against marketing effectiveness at both the tactic and granular levels, this methodology enhances the precision and effectiveness of pharmaceutical marketing strategies.

Advocating for Statistical Rigor:

In navigating the complexities of channel attribution, this innovative approach advocates for a statistically robust methodology. By considering the nuances of marketing tactics, messaging, and content, it provides tailored insights for different HCP cohorts. This enables brand marketing teams to make informed decisions and optimize their strategies effectively, ultimately driving better outcomes in the pharmaceutical domain.

2

Advancing MTA Framework for Tailored HCP Engagement through Promotional Content and Messaging Analysis

The current utilization of the MTA approach to assess the impact of various marketing channels (such as Sales Calls, Samples, Speaker Programs, Digital Ad, and other HCP non-addressable tactics) on HCP NBRx behaviour. The proposed solution aims to address the necessity of evaluating impact at a more granular content level within each channel.

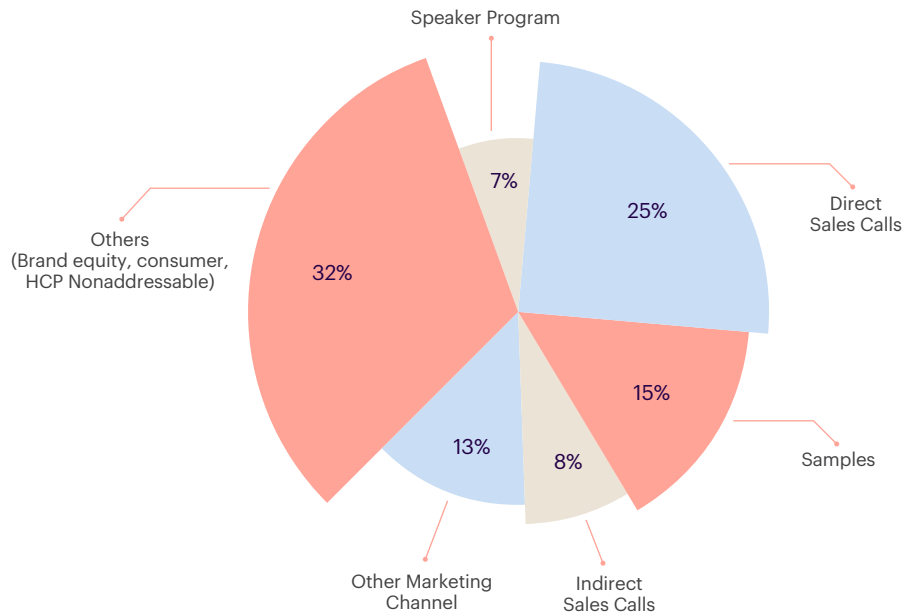
The formula for calculating the impact is:

$$\text{Impact} = \frac{\text{Estimated Brand NBRx}}{\text{Total Brand NBRx}} \dots\dots\dots (1)$$

This formula measures the impact by comparing the estimated NBRx at a channel for a specific brand to the total NBRx for that brand.

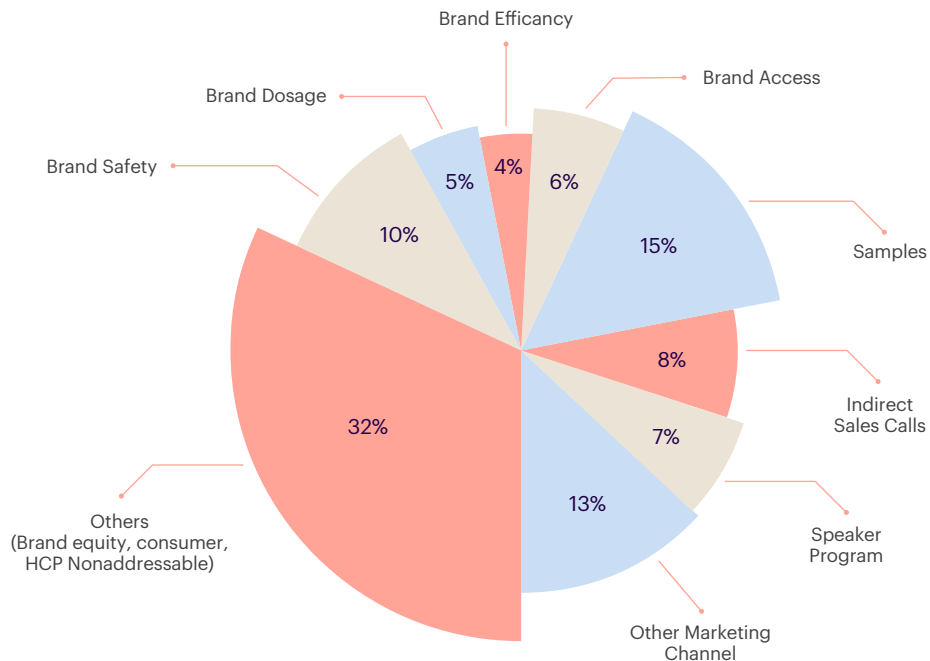
In Figure 1, the illustration depicts the current and future state of MTA approaches. For instance, in the existing framework, the overall impact of direct sales calls is determined to be 25% using equation 1, whereas in the proposed methodology, direct sales calls are further dissected into message and content categories like Brand Safety, Brand Efficacy, Brand Dosage, and Brand Support. This model is constructed based on these specific features, with the impact being distributed as follows: 10% for Brand Safety, 8% for Brand Efficacy, 4% for Brand Dosage, and 3% for Brand Support.

CURRENT STATE NRBX IMPACT



Derive impact of individual channel on HCP NBRx behavior

FUTURE STATE NRBX IMPACT



Derive impact of individual channel on HCP NBRx behavior

Figure 1: Enhancing the MTA Framework to Isolate the Influence of HCP Promotional Content and Messaging for Personalization Purposes

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The Importance of MTA in HCP Promotional Content and Messaging

Advancement in data volume and processing capabilities, along with advent of technology, have transformed the landscape of pharma analytics. MTA plays a crucial role in identifying the most effective channels for HCP promotional content and messaging by providing a comprehensive view of the customer journey and attributing credit to each touchpoint based on its actual impact. Advancement in data volume and processing capabilities, along with advent of technology, have transformed the landscape of pharma analytics. MTA plays a crucial role in identifying the most effective channels for HCP promotional content and messaging by providing a comprehensive view of the customer journey and attributing credit to each touchpoint based on its actual impact.

Identifying Effective Channels

- Understanding Customer Interactions
- Attributing Conversions
- Optimizing Channel Allocation
- Personalization and Engagement

Enhancing Personalization

- Understanding Individual Interactions
- Tailoring Content to Preferences
- Optimizing Engagement Strategies

Measuring Campaign Performance

- Course Correction and Optimization
- Enhancing Effectiveness
- Optimizing Channel Allocation
- Vendor performance over a time

Optimizing Digital Engagement

- Granular Insights for Personalization
- Enhanced Targeting and Engagement
- Efficient Resource Allocation

Figure 2: Optimizing Healthcare Marketing Strategies Through MTA model with Personalization and Digital Engagement with HCPs

In Figure 2, we encounter a depiction of the potential business questions that can be effectively tackled through the utilization of the MTA model, coupled with message and content level features. This model stands as a pivotal tool in deciphering the intricate dynamics of customer engagement, shedding light on the effectiveness of various promotional strategies and content elements. By delving into message and content level features, the MTA model offers a nuanced understanding of how different marketing messages and content components influence customer behaviour across multiple touchpoints. With this comprehensive insight, businesses can discern which aspects of their promotional efforts yield the most significant impact, enabling them to refine their strategies for enhanced customer engagement and ultimately, greater business success.

4

Utilizing the Multi-Touch Attribution Model to Assess Marketing Effectiveness via Shapley Analysis

In leveraging the MTA model for assessing marketing effectiveness, the integration of Shapley analysis emerges as a powerful approach. By employing Shapley values, businesses gain a deeper understanding of the impact each marketing touchpoint makes to overall customer conversion. This method allows for a more granular examination of the impact of various marketing channels and interactions on consumer behaviour. Through the MTA model enhanced with Shapley analysis, organizations can pinpoint the most influential touchpoints along the customer journey, enabling them to optimize their marketing strategies for maximum impact and return on investment.

3.1. Data Collection

The proposed MTA approach relies on amalgamating data from four distinct sources, laying the groundwork for a thorough analysis. These sources encompass HCP cohorts, claims data, patient interaction data, promotional data, and sales data, offering a comprehensive perspective on the marketing terrain. The promotional data comprises direct sales calls, indirect sales calls, sales rep Email, In-house Email, Digital Ad, Speaker program, and Samples. It is essential to acknowledge that while certain tactics offer message and content level information, others do not. Specifically, detailed message and content data are available for specific tactics such as direct sales calls, indirect sales, sales rep email, Digital Ad, and In-house email, enhancing the comprehensiveness and depth of the analysis. By synthesizing data from these varied sources, the MTA approach enables a holistic understanding of marketing effectiveness, empowering decision-makers to optimize strategies across both personal and non-personal promotional channels. This comprehensive approach ensures that marketing efforts are finely tuned to resonate with target audiences, ultimately driving improved engagement and conversion rates.

3.2. Methodology

Step 1: Data Collection

Gather data on Healthcare Providers (HCPs) including activity levels, message categories, and subcategories.

Step 2: Data Preprocessing

Preprocess the data to streamline features and categorize subcategories based on activity volume. Label categories with activity volume below a certain percentage threshold as 'custom_others_' + 'original category' to effectively identify predominant features through rigorous technical analysis.

Step 3: Model Training

Train the Multitouch Attribution (MTA) model using the reduced number of features.

Step 4: Calculate Base SHAP and Zeroed SHAP

Compute the SHAP values for the model's base predictions.

Calculate the SHAP values with zeroed inputs to understand feature importance.

Step 5: Calculate Adjusted and Calibrated SHAP

Adjust the SHAP values to account for any discrepancies.

Calibrate the SHAP values to improve accuracy.

Step 6: Calculate Impact Scores

Calculate impact scores for each tactic or message and content level using the calibrated SHAP values.

Step 7: Aggregate Results

Aggregate the results to determine the overall impact of each message category and subcategory on conversions.

Step 8: Evaluate Model Performance

Evaluate the performance of the MTA model using metrics such as accuracy, precision, recall, and F1-score.

Step 9: Refinement and Iteration

Refine the model based on performance evaluation results.

Iterate the process to improve model accuracy and effectiveness.

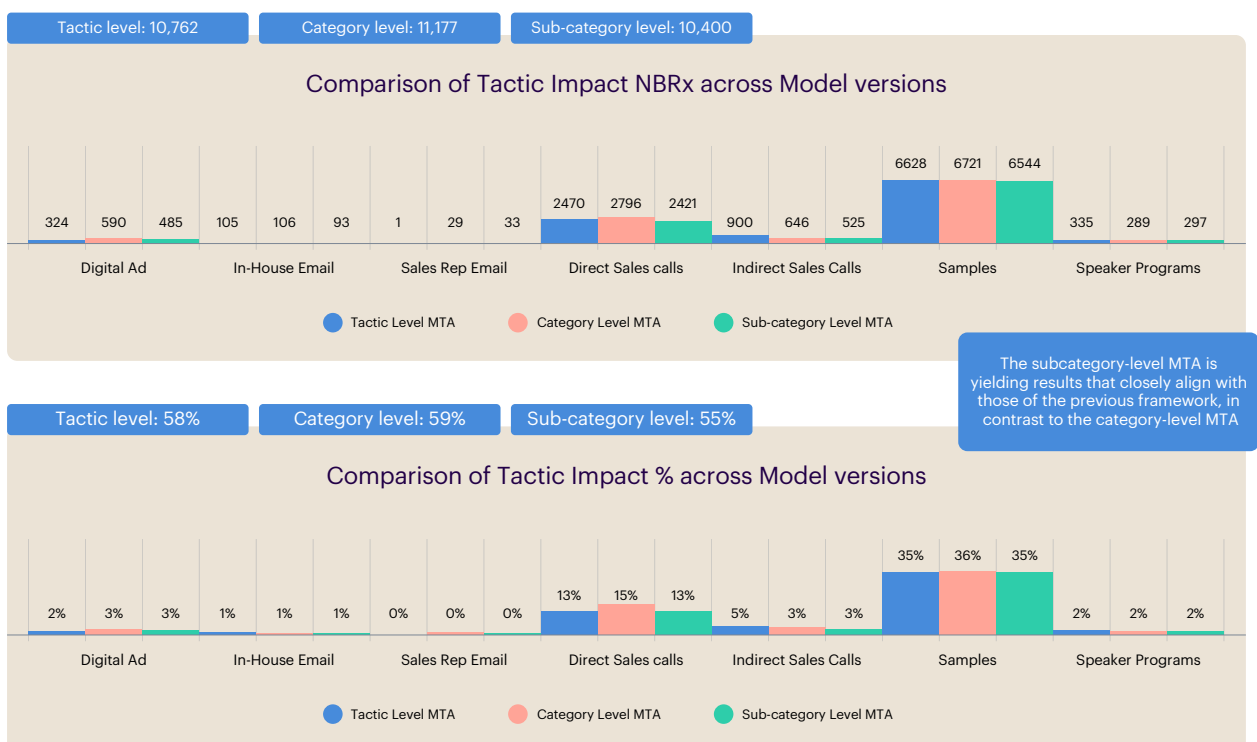
Step 10: Deployment

Deploy the finalized MTA model for use in analysing and optimizing marketing strategies.

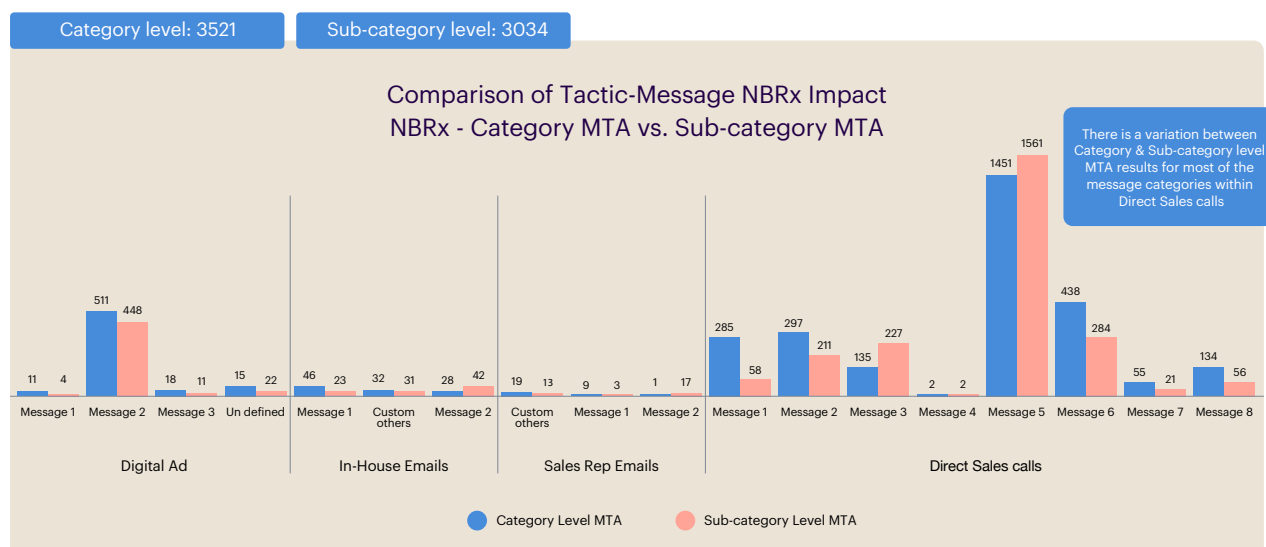
3.3. Results

The current MTA framework is augmented with the integration of category & sub-category related features, ensuring that tactic-level results remain undisturbed.

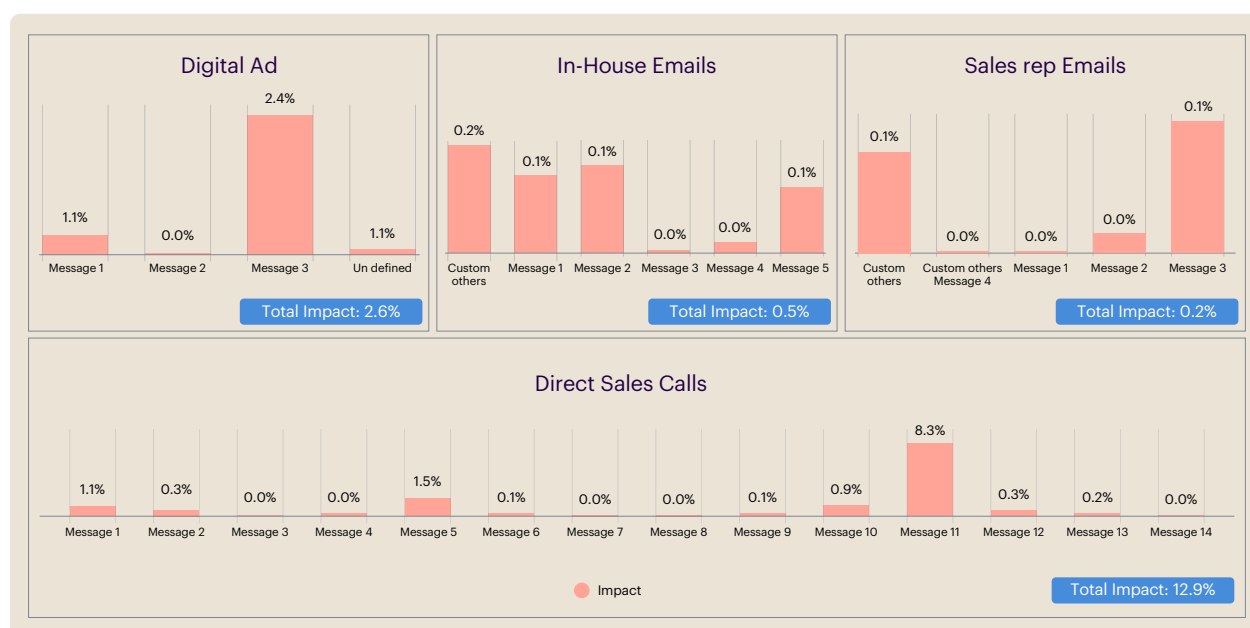
Findings: In evaluating our approach, we have observed significant impact numbers and percentages across key metrics: Tactic level impact number: 10,762 (58%), Category level impact number: 11,177 (59%), and Sub-category level impact number: 10,400 (55%). These comparisons underscore our commitment to demonstrating substantial impact and ensuring alignment with established frameworks. This approach not only validates our strategy but also enhances transparency and reliability in our findings.



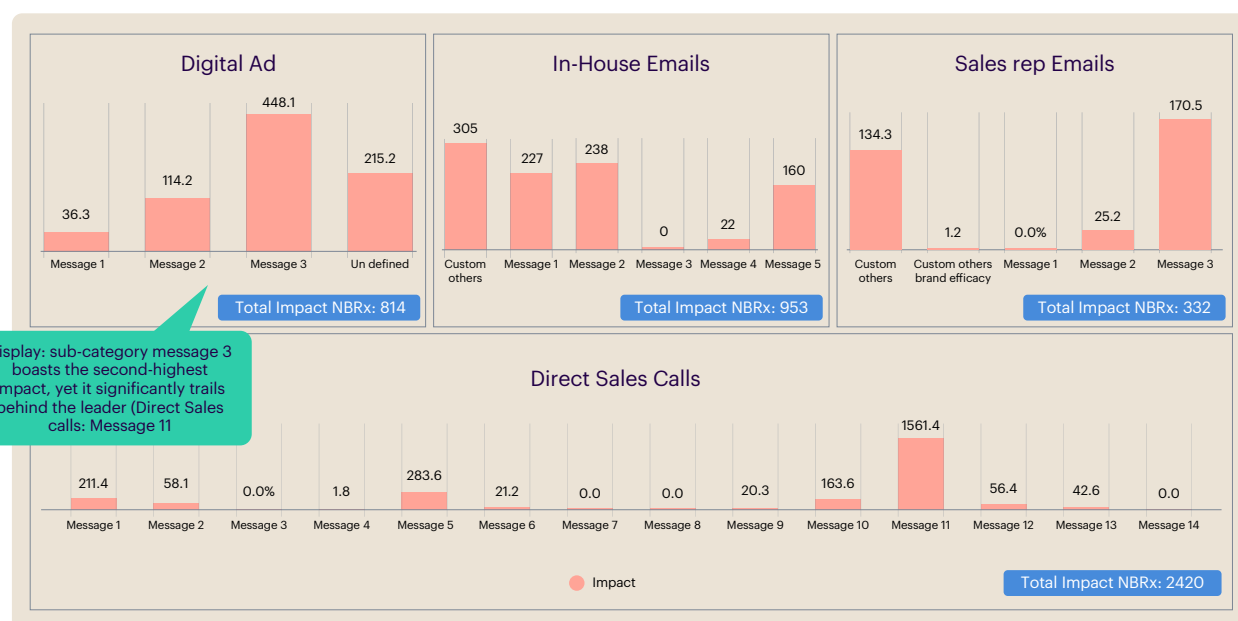
Message Category Impact Analysis: Category vs. Subcategory Level MTA



Impact Analysis: Direct sales calls sub-category 'Message 11' (Brand Safety) is the top performer with impact of 8.3%, followed by Digital Ad sub-category 'Message 3' (Digital Ad Campaign for New Product Launch) at 2.4%. For instance, 'Message 11' (Brand Safety) in direct sales shows an 8.3% increase in NBRx prescriptions compared to 'Message 3' in the digital ad campaign for a new product launch.



Impact Analysis: In the Direct Sales Calls sub-category, 'Message 11' (Brand Safety emerges as the leading performer, significantly influencing outcomes of NBRx prescription by HCPs. Following closely in the Digital Ad sub-category, 'Message 2'(Digital Ad Campaign for New Product Launch) also demonstrates considerable effectiveness.



The digital era has transformed pharmaceutical marketing, necessitating multi-channel approaches to engage healthcare providers (HCPs). Traditional Multi-Touch Attribution (MTA) lacks the necessary granularity for actionable insights. This paper proposes a novel methodology focusing on tactic messaging and content levels, enhancing the precision of NBRx estimation and marketing effectiveness. By leveraging detailed data and aligning performance metrics, this approach provides a comprehensive understanding of personalized marketing strategies' impact.

Advocating for statistical rigor, this methodology offers tailored insights for different HCP cohorts, enabling better targeting and engagement. The advantages of this approach are multifaceted: it improves marketing performance, optimizes resource allocation, and enhances relationships with HCPs. Additionally, it allows for more precise measurement of marketing tactics' effectiveness, facilitates data-driven decision-making, and supports the development of more effective, personalized marketing campaigns. Ultimately, these benefits contribute to better patient care outcomes and a more efficient and impactful pharmaceutical marketing strategy.

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Enhance your pharmaceutical marketing with our precise, data-driven approach. Connect with us to get started!

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<https://mathco.com/contact-us>

