

Combining Data Enrichment and Predictive Analytics for Digital Marketing Campaign Impact Optimization

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Abstract

Digital marketing has evolved dramatically to connect efficiently with targeted audiences. Contextual relevance is crucial, making keyword research and campaign performance optimization essential for impact success and business profitability. In the field of marketing campaign management, optimizing campaign strategies through data analytics is essential for competitive advantage. This has motivated JOT to develop two innovative initiatives: Inma, a Smart Keyword data analytics Service predicting market trends, enhancing campaign efficiency through optimal keyword distribution and, EnRichMyData (EMD), marketing data enrichment with weather data, EMD enriches advertising data with contextual information like events and weather. The first uses advanced semantic analysis and machine learning to improve keyword research and monetization, adapting to market changes and consumer behavior. The second enriches campaign data with external variables such as weather and significant events to uncover hidden patterns and optimize campaigns. These combined strategies enable JOT to maximize engagement and Return of Investment (ROI) in its digital marketing campaigns.

The following advanced tools streamline our processes for managing our data volume and model:

- **SemTUI:** Provides meteorological information using location coordinates.
- **Ontotext Refine:** Essential for data standardization and cleaning.
- **Language Detection:** Adapting campaigns to linguistic nuances.
- **Category Classification:** Ensuring precise keyword classification.

Table 1: Prediction Results: Keyword by Language and Category

Keyword	Predicted Language	Predicted Category
Horarios autobus 671	es	BusServices
Cuisines en marbre ikea	fr	Kitchen
Cheap electronic drumset	en	Drums&Percussion
Kleiner Schreibtisch	de	Office&ComputerDesks

The evaluations carried out with data from July and December 2023 showed climatic factors and events influence user responses. These findings highlight the need for detailed investigations to capture seasonality and contextual factors. Our algorithms performed well, enhancing keyword segmentation and campaign updates based on semantics criteria. This aligns with industry trends that emphasize the importance of adaptive and responsive marketing strategies. Additionally, the integration of tools such as SemTUI and Ontotext Refine not only ensures data quality, accuracy and relevance but also significantly reduces the time and effort required for data processing, allowing marketing teams to focus on strategic decision making to improve campaign impact outcomes and higher ROI. As key question we can highlight:

1. **Increasing Keyword Selection Accuracy:** Analyzing performance history and market trends to select promising keywords, boosting relevance and conversions.
2. **Predicting Keyword Relevance:** Using predictive models to forecast trends, optimizing campaigns and leveraging future market changes.

In summary, business success in digital marketing relies on continuous evolution and integrating advanced tools and AI services. JOT’s InMa and EMD approaches address current and future challenges, ensuring service scalability for business profitability.

Keywords

Semantic Web, Data Integration, Web Technologies, Digital Marketing Optimization, Semantic Data Enrichment, Event-Influenced Marketing, Climate Data Analysis, Predictive Analytics, Semantic Pattern Recognition, Web Traffic Analysis.