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# Smart Spend, Bigger Gains: How Indium Empowered Ad Merchants with Upselling ML Models to Optimize the Budget and Increase Revenue

SUCCESS STORY

## Client Overview

The client is a global technology leader transforming urban transportation with its pioneering mobile application. Operating in over 900 metropolitan areas worldwide, the client offers convenient and cost-effective alternatives to traditional taxi services. With a vision beyond ride-hailing, the client is actively expanding into new logistics domains, driving innovation in smart mobility solutions.

## Building a High-Performance Ad Ecosystem: The Core Business Imperatives

To optimize the client's ad platform for higher profitability, the project focused on leveraging data insights to drive smarter ad spending and upselling strategies. By analyzing peer behavior and balancing return on ad spend (ROAS), the goal was to unlock greater ad revenue potential while ensuring sustainable growth.

### Key Business Requirements:

- ▶ **Boost Ad Revenue** – Utilize peer behavior data to predict upselling trends among individual merchants, enhancing overall ad revenue.
- ▶ **Optimize Spend Budget** – Propose a strategic budget allocation that maximizes ad revenue while maintaining a balanced and permissible ROAS for long-term success.

# Engineering a Data-Driven Ad Revolution: Solution Breakthroughs

To unlock greater ad revenue potential, a solution was built on a foundation of data intelligence, advanced machine learning, and strategic insights. The approach enabled precise predictions, smarter spending decisions, and tangible business impact by leveraging a powerful data ecosystem.

## Building a Unified Data Lake:

A robust, centralized data lake powered by a Hadoop Distributed File System (HDFS) was implemented to seamlessly ingest and store vast volumes of merchant data from multiple sources, ensuring a strong data foundation for analytics.

## Laser Focus on Local Merchant Segment:

The project strategically targeted the local merchant segment, which contributed 46% of the business. Apache Hive was leveraged for efficient data querying from the data lake, while Python libraries were used to process and refine input data, ensuring optimal preparation for the Machine Learning (ML) model.

## Smart ML-Powered Predictions:

An ML model was designed to identify optimal parameters through multiple iterative refinements to enhance accuracy. A combination of k-means clustering and polynomial regression was implemented—clustering similar merchants while polynomial regression pinpointed the most effective parameters. Key input factors, including merchant visibility, business scale, location, and spending behavior on the platform, were analyzed to predict gross booking values as the output parameter.

## Exploratory Data Analysis & Intelligent Insights:

Python libraries were utilized for exploratory data analysis, uncovering valuable insights from the dataset. Additionally, Google API was integrated to visualize and present the final output effectively.

## Real-World Validation Through Pilot Testing:

A two-month pilot program was conducted across two countries, testing the model's effectiveness on identified merchants. The results? A striking 76% accuracy rate, with predictions deviating by only +/- 7%—proving the power of precision-driven ad revenue optimization.

## Unlocking New Revenue Frontiers: The Power of AI-Driven Ad Optimization

- ▶ **\$6M in Additional Revenue with Exceptional Efficiency:**  
The ML model delivered a significant revenue uplift of USD 6 million, achieved with a comparatively small additional investment of USD 0.8 million. This resulted in an exceptional Return on Ad Spend (ROAS) of 7.5, demonstrating that the model generated high returns while maintaining cost efficiency.
- ▶ **Scaling Success for Bigger Gains:**  
Following a highly successful pilot, the model was scaled across a wider merchant base, unlocking new revenue opportunities and optimizing ad performance at a much larger scale. This expansion validated the model's reliability, effectiveness, and potential for continued business growth.
- ▶ **Boosting Merchant Lifetime Value:**  
As the model was implemented at scale, it drove a minimum 15% increase in the Lifetime Value (LTV) of merchants on the Ads Platform. This sustained impact demonstrated its role in enhancing merchant retention, improving profitability, and ensuring long-term revenue generation for the client.





## About Indium

Indium is an AI-driven digital engineering company that helps enterprises build, scale, and innovate with cutting-edge technology. We specialize in custom solutions, ensuring every engagement is tailored to business needs with a relentless customer-first approach.

Our expertise spans Generative AI, Product Engineering, Intelligent Automation, Data & AI, Quality Engineering, and Gaming, delivering high-impact solutions that drive real business impact.

With 5,000+ associates globally, we partner with Fortune 500, Global 2000, and leading technology firms across Financial Services, Healthcare, Manufacturing, Retail, and Technology—driving impact in North America, India, the UK, Singapore, Australia, and Japan to keep businesses ahead in an AI-first world.

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