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Introduction

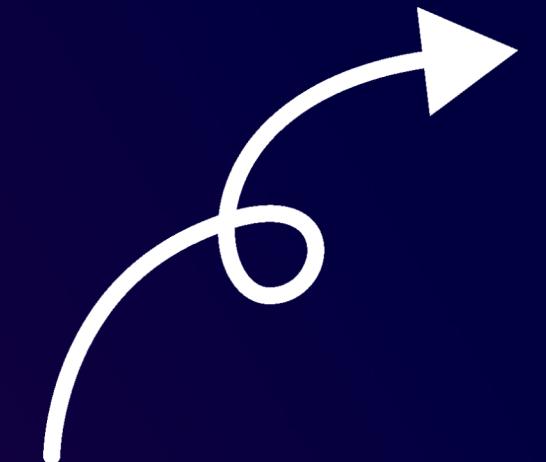
Welcome to our presentation on "Enhancing Expo Experiences with Machine Learning." In today's rapidly evolving world, the success of expos and events hinges not only on their scale and scope but also on the ability to deliver personalized, engaging, and impactful experiences for attendees and exhibitors alike.

Expos serve as platforms for networking, knowledge exchange, and business opportunities, but navigating through vast venues and optimizing resource allocation pose significant challenges. Traditional approaches to expo management often fall short in addressing these complexities.

However, with advancements in machine learning and data analytics, we have the opportunity to revolutionize the way expos are organized, attended, and evaluated. By harnessing the power of machine learning algorithms, we can create intelligent systems that enhance every facet of the expo experience.

Recommender System

Recommender system to guide expo attendees to their stalls of interest



1. Navigating large expo venues can be daunting for attendees, leading to frustration and missed opportunities.
2. We aim to create a recommender system that guides attendees to their stalls of interest based on their preferences.
3. Personalized recommendations will enhance attendee satisfaction, increase engagement, and improve overall expo experience.

Collaborative filtering

We aim to create a recommender system that guides attendees to their stalls of interest based on their preferences.

1. **User-Item Matrix:** We construct a user-item matrix where rows represent attendees and columns represent exhibitors or sessions. Each cell in the matrix captures the level of interaction or preference of a user for a particular item.
2. **Cosine Similarity Calculation:** Using the user-item matrix, we compute the cosine similarity between pairs of attendees. This measure quantifies the similarity in preferences between users based on their interactions with items.
3. **Recommendation Generation:** For a given attendee, we identify users with similar preferences using cosine similarity. We then recommend exhibitors or sessions that have been positively rated by similar users but have not yet been explored by the target attendee.
4. **Personalized Recommendations:** By leveraging collaborative filtering with cosine similarity, we generate personalized recommendations tailored to each attendee's unique interests and behavior patterns.

Event Attendance Prediction

Event attendance is crucial for effective resource allocation and planning



1. We propose leveraging machine learning to forecast event attendance with higher accuracy.
2. Improved attendance prediction will optimize staffing, inventory, and space utilization, leading to smoother event execution.
3. Predictions are generated and used for resource planning and optimization.

Our event attendance prediction model goes beyond traditional approaches by integrating real-time dataset updates and attendee feedback ratings. This innovative approach ensures accurate attendance forecasts and continuous model improvement.

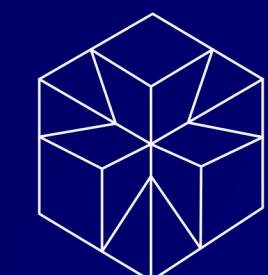
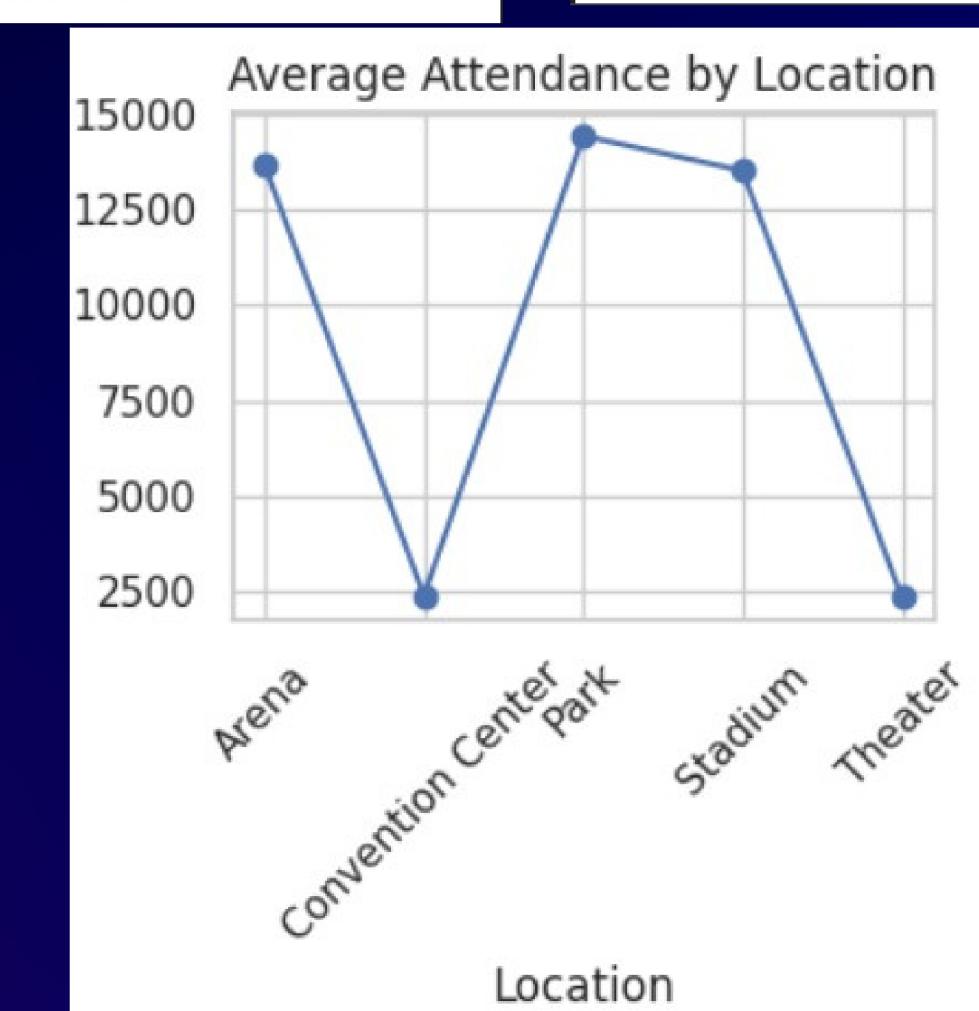
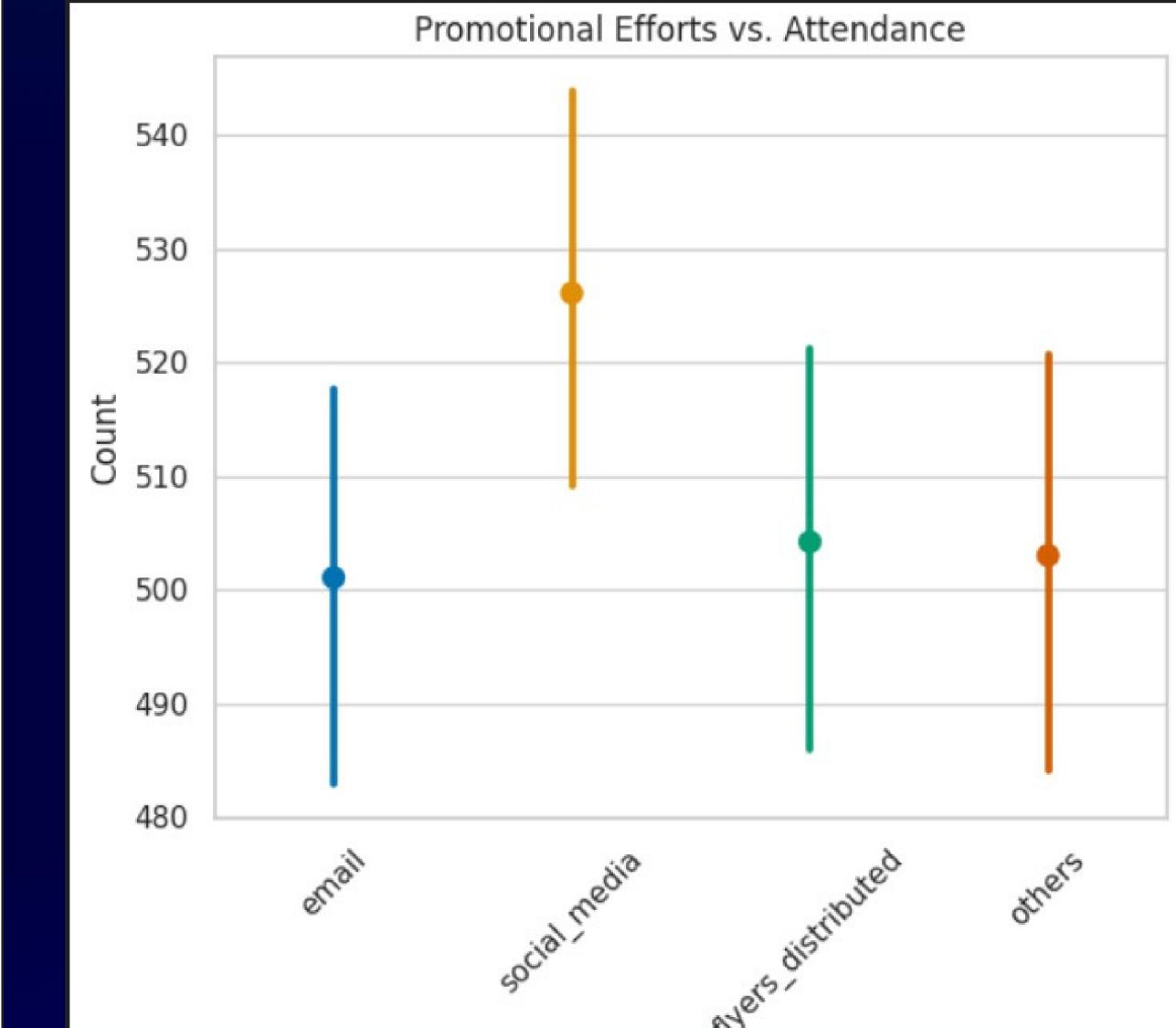
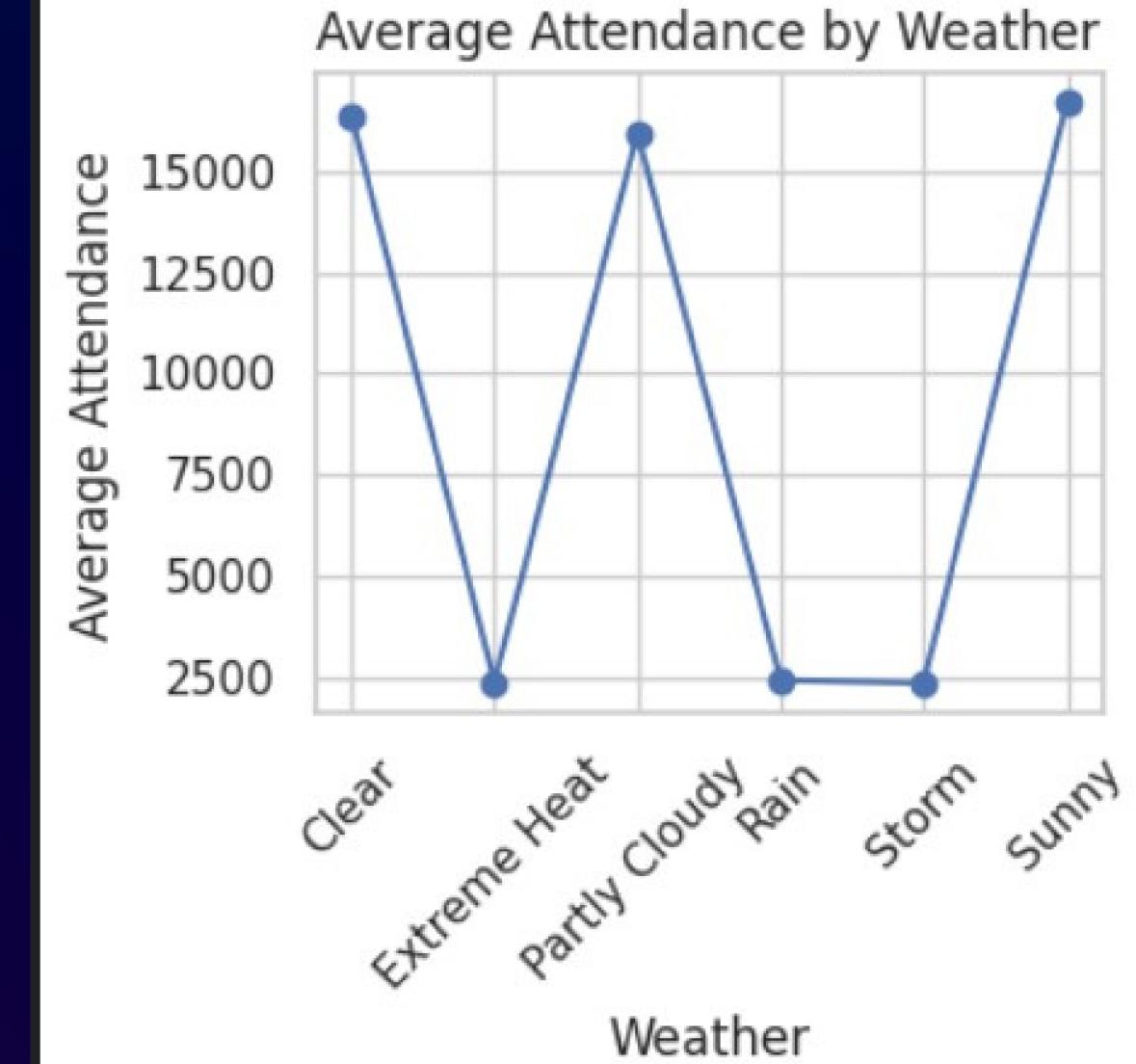
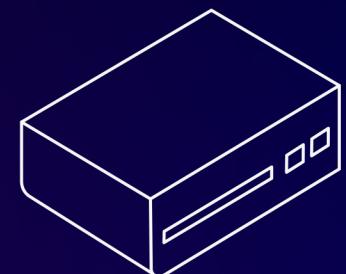
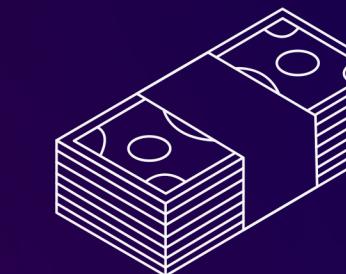


1. Real-Time Dataset Update: Our model leverages real-time data streams to update the attendance dataset dynamically.
2. Feedback Rating Mechanism: Attendees are encouraged to provide feedback on their event experience, including satisfaction levels, session relevance, and overall engagement. This feedback is captured through a rating mechanism embedded within the event app or registration platform.
3. Model Training and Feedback Integration: Attendee feedback ratings are integrated into the attendance prediction model as additional features.
4. Continuous Model Improvement: With each event iteration, our model learns from both historical attendance data and real-time feedback ratings.

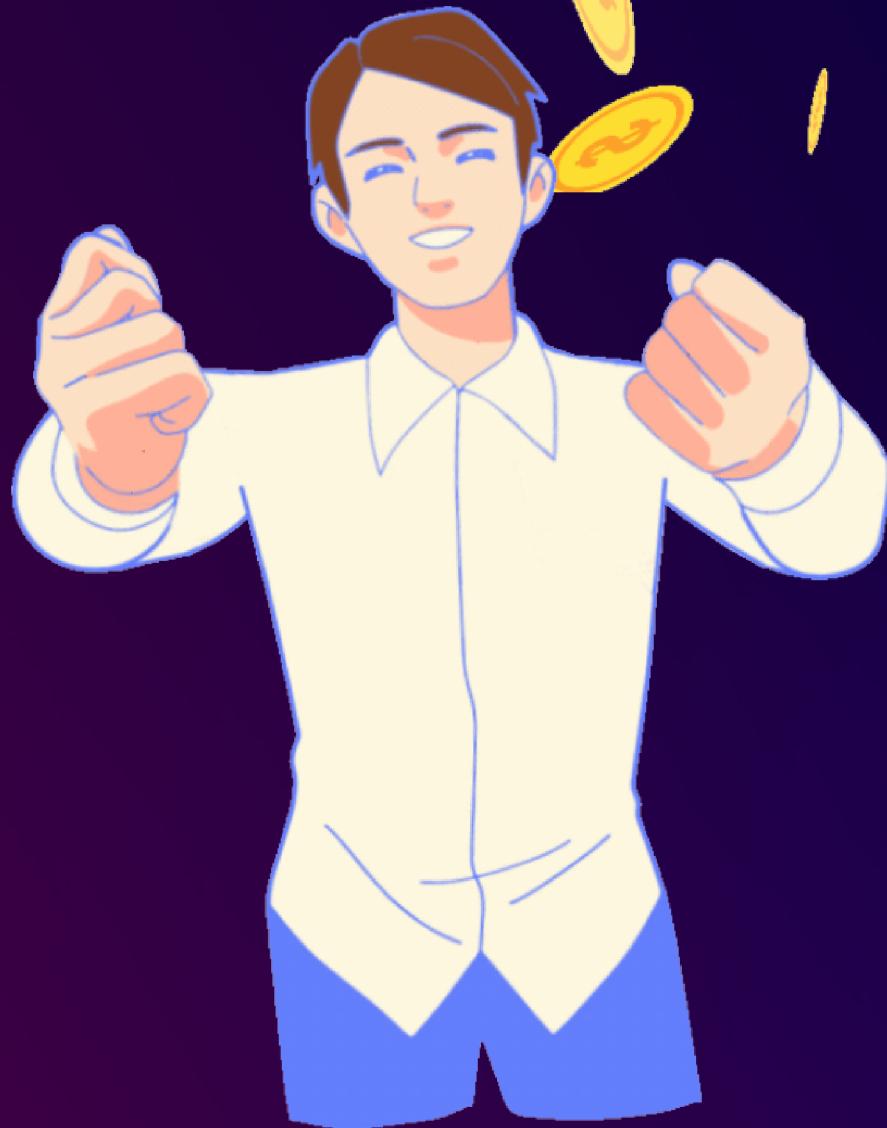
Event Attendance Result

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Fitting 5 folds for each of 16 candidates, totalling 80 fits
Best Model Parameters: {'model': RandomForestRegressor(max_depth=20, n_estimators=30, random_state=42), 'model__max_depth': 20, 'model__min_samples_leaf': 1, 'model__n_estimators': 30}
Best Model Score (MSE): 6234161.4203533335
Evaluation on the entire dataset:
Mean Squared Error: 853349.7370777777
Mean Absolute Error: 398.37919999999997
Root Mean Squared Error: 923.7693094478609
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Data Visualization in Event Attendance



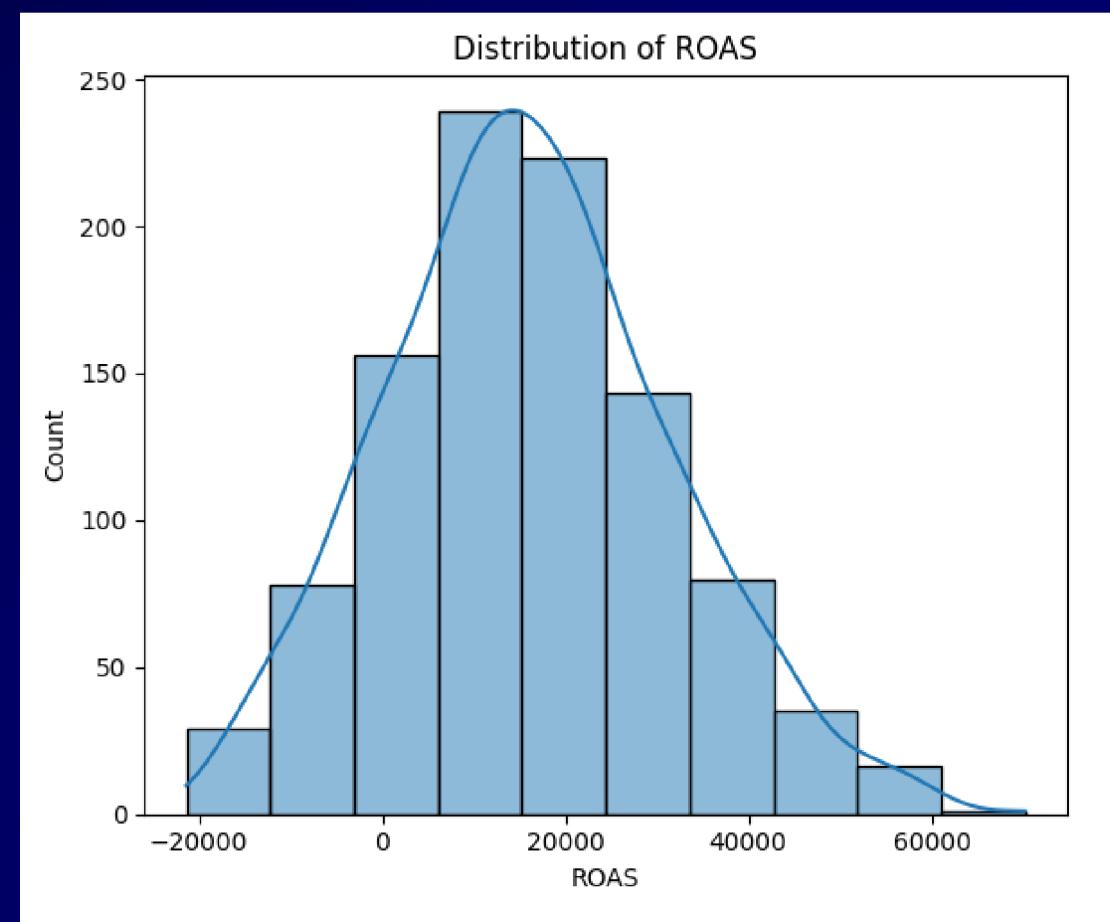
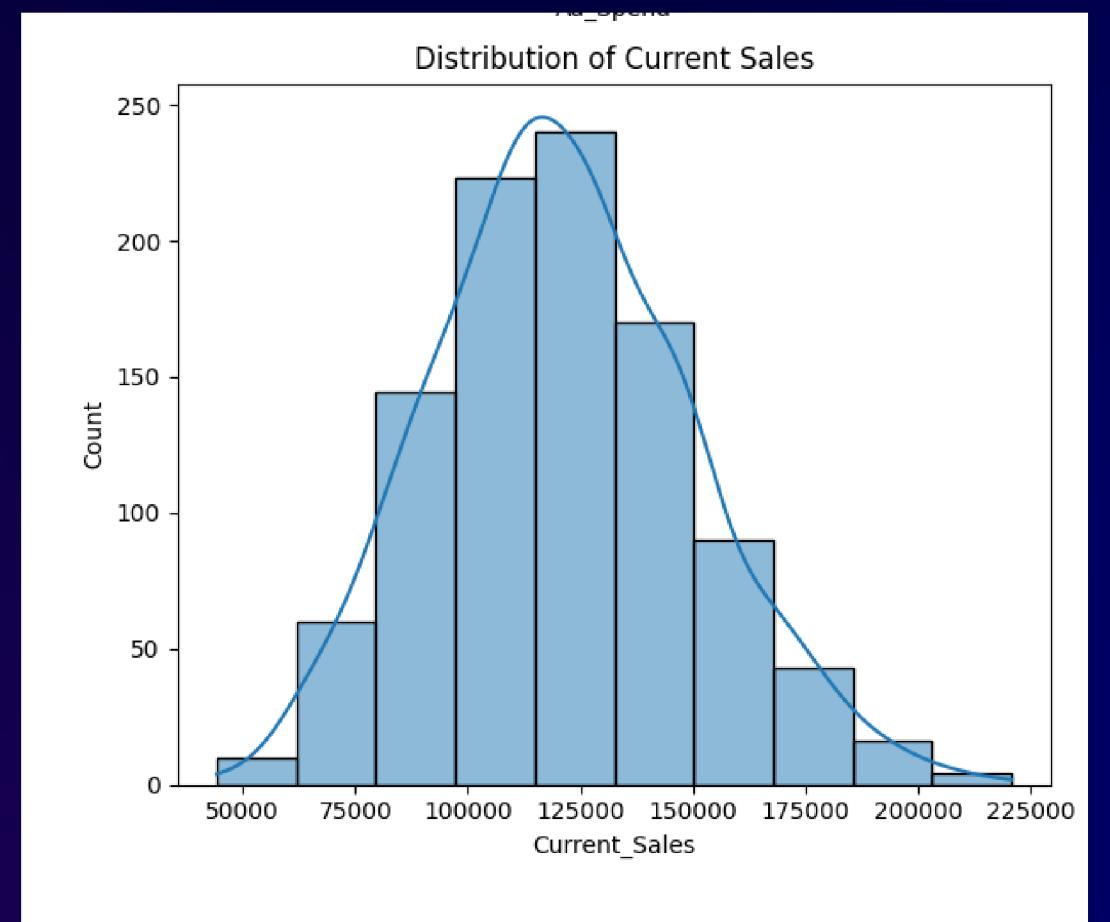
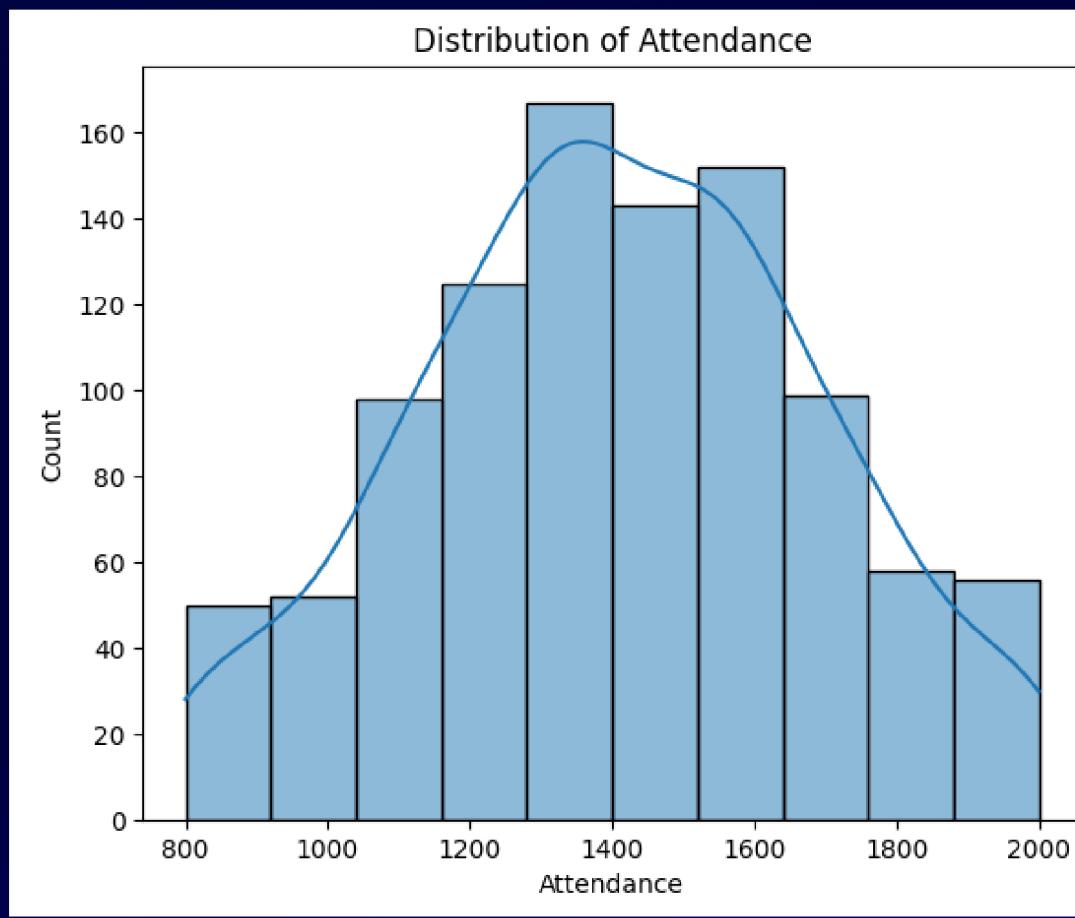
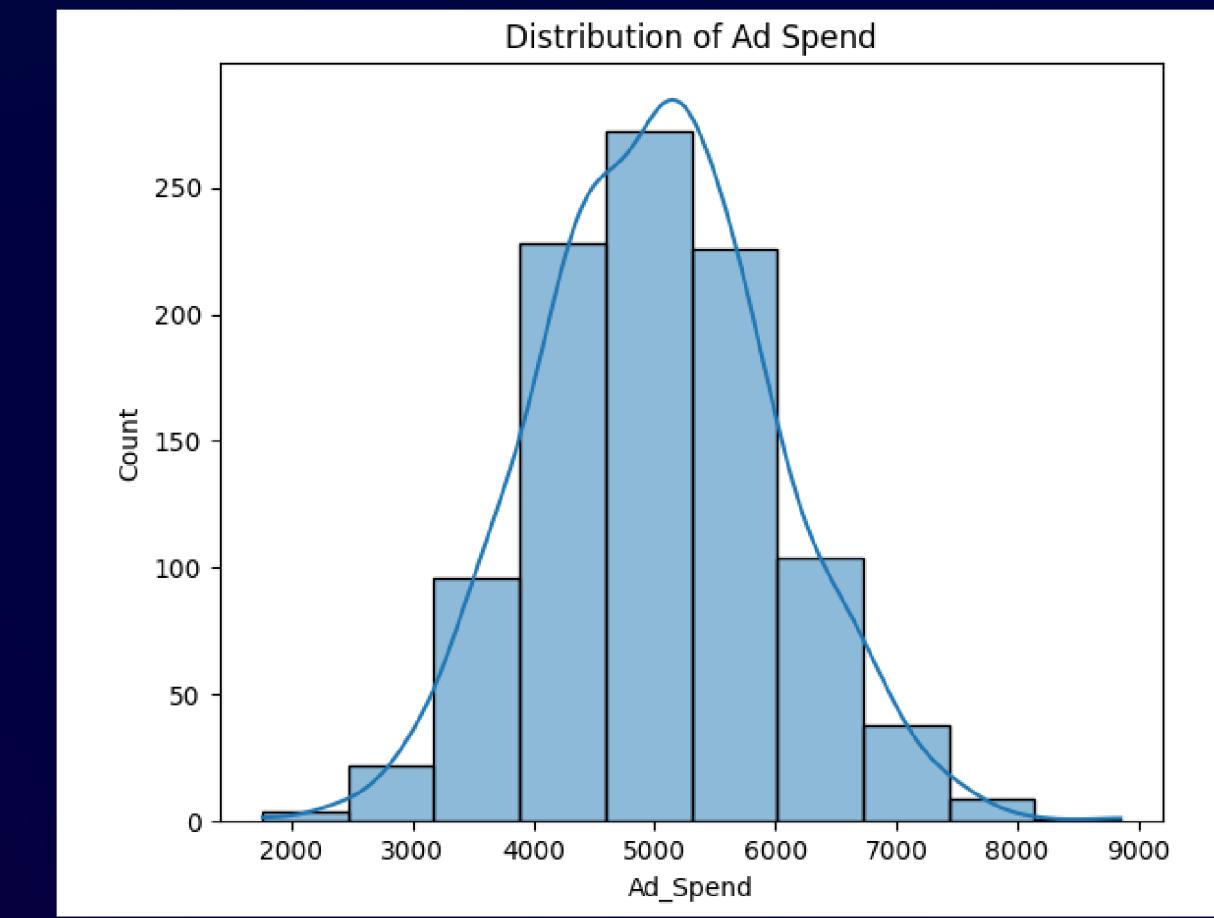
Return on Investment (ROI) Analysis



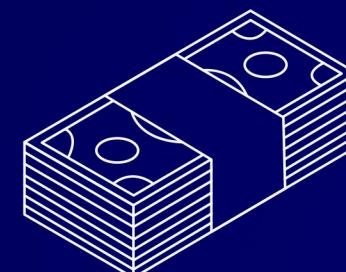
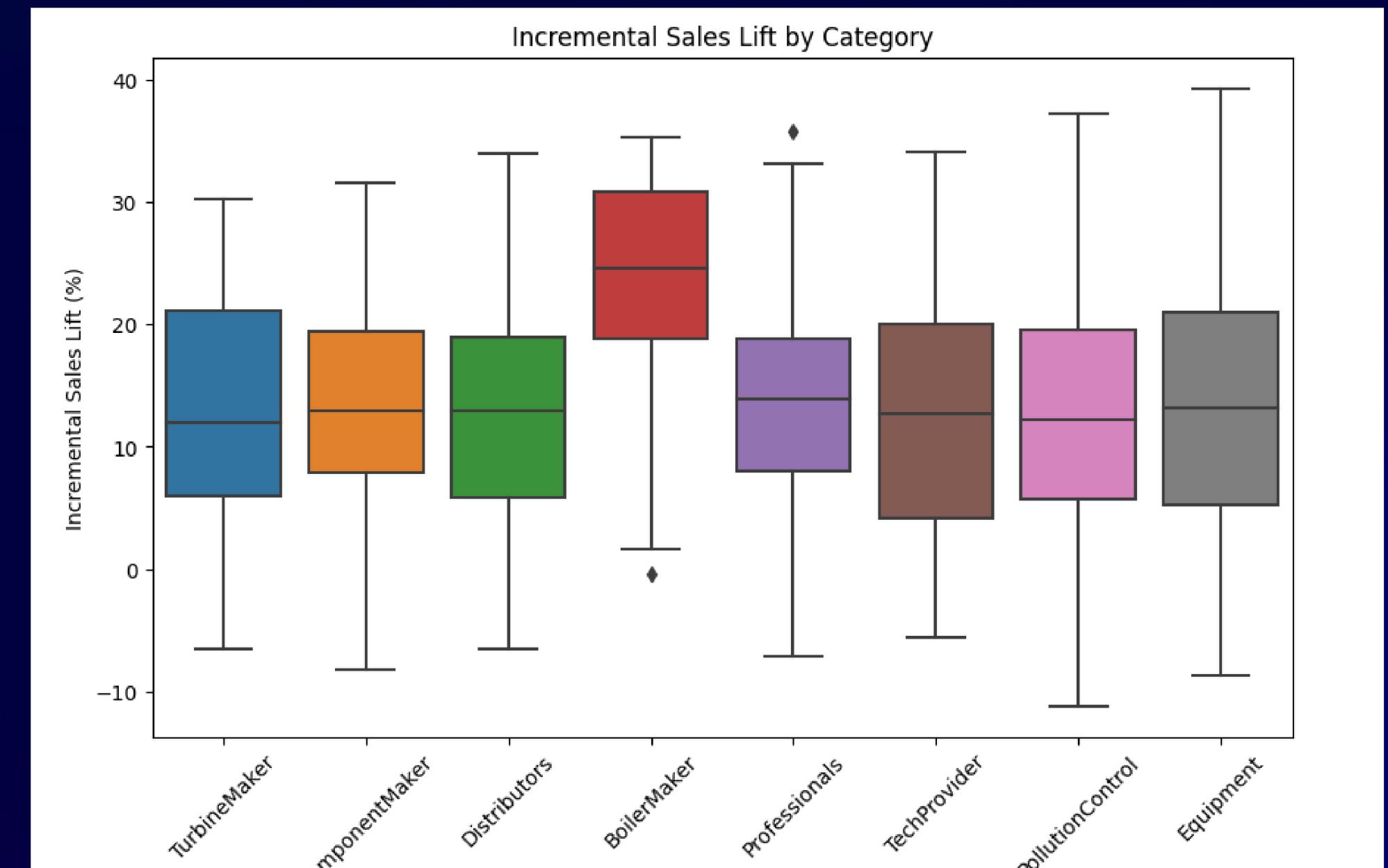
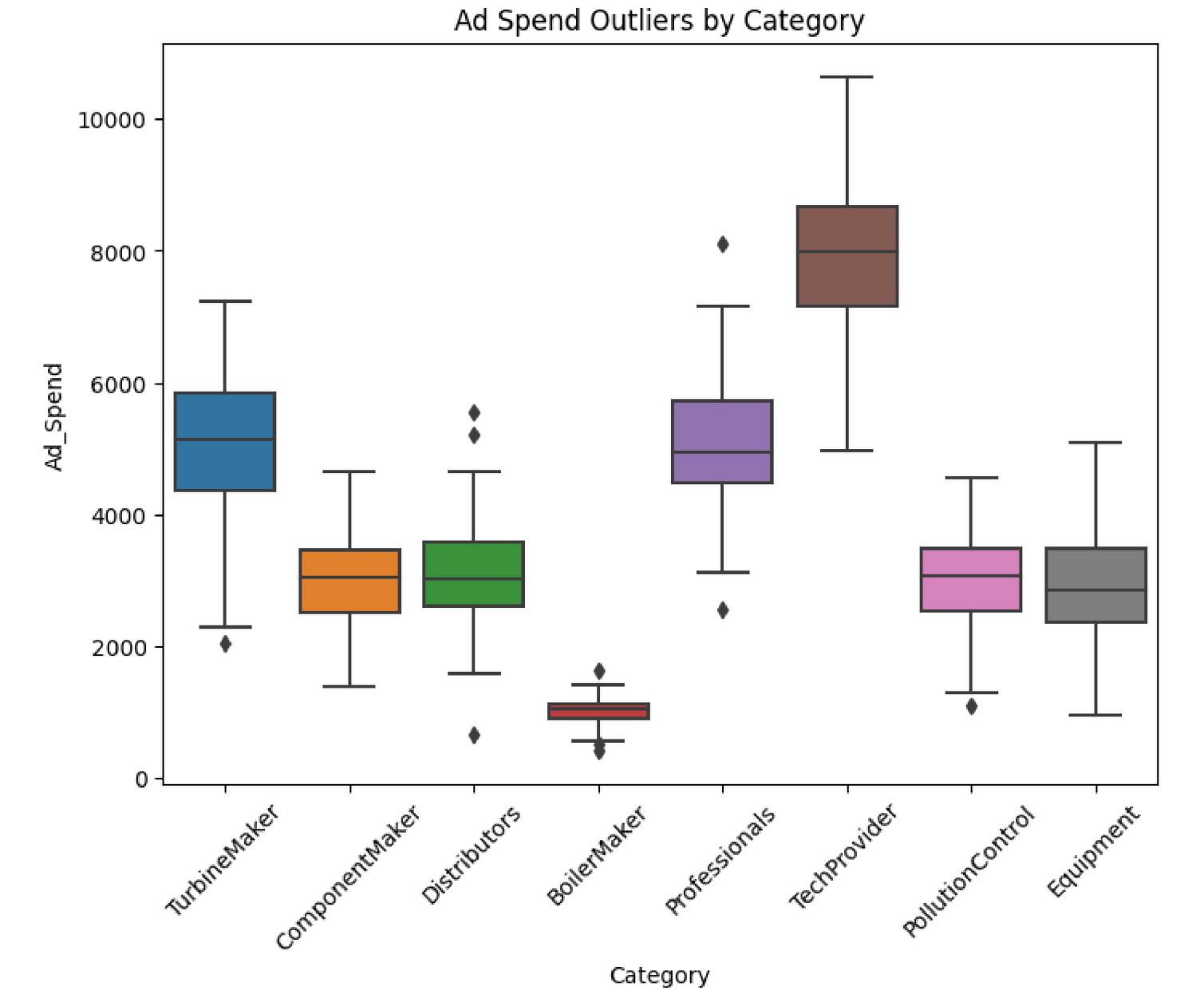
1. Exhibitors and organizers need to assess the effectiveness of their expo investments in terms of ROI
2. We propose using machine learning to analyze expo data and derive insights into ROI.
3. Data-driven ROI analysis will enable exhibitors to make informed decisions, optimize marketing strategies, and maximize returns on their investments.

- 1.Return on Advertising Spend (ROAS): ROAS measures the revenue generated for every dollar spent on advertising. By analyzing the relationship between advertising expenditures and resulting revenue, we assess the efficiency and effectiveness of marketing campaigns conducted during the expo.
- 2.**Customer Acquisition Cost (CAC)**: CAC quantifies the cost of acquiring a new customer through expo participation. By dividing total expo-related expenses by the number of new customers acquired, we determine the average cost per customer acquisition.
- 3.**Brand Awareness**: Expo participation presents an opportunity to enhance brand visibility and awareness among target audiences. Through surveys, social media mentions, and post-expo engagement metrics, we measure the extent to which expo activities contribute to brand recognition and recall.
- 4.**Incremental Sales Lift**: Expo participation can lead to incremental sales and revenue growth beyond baseline levels.

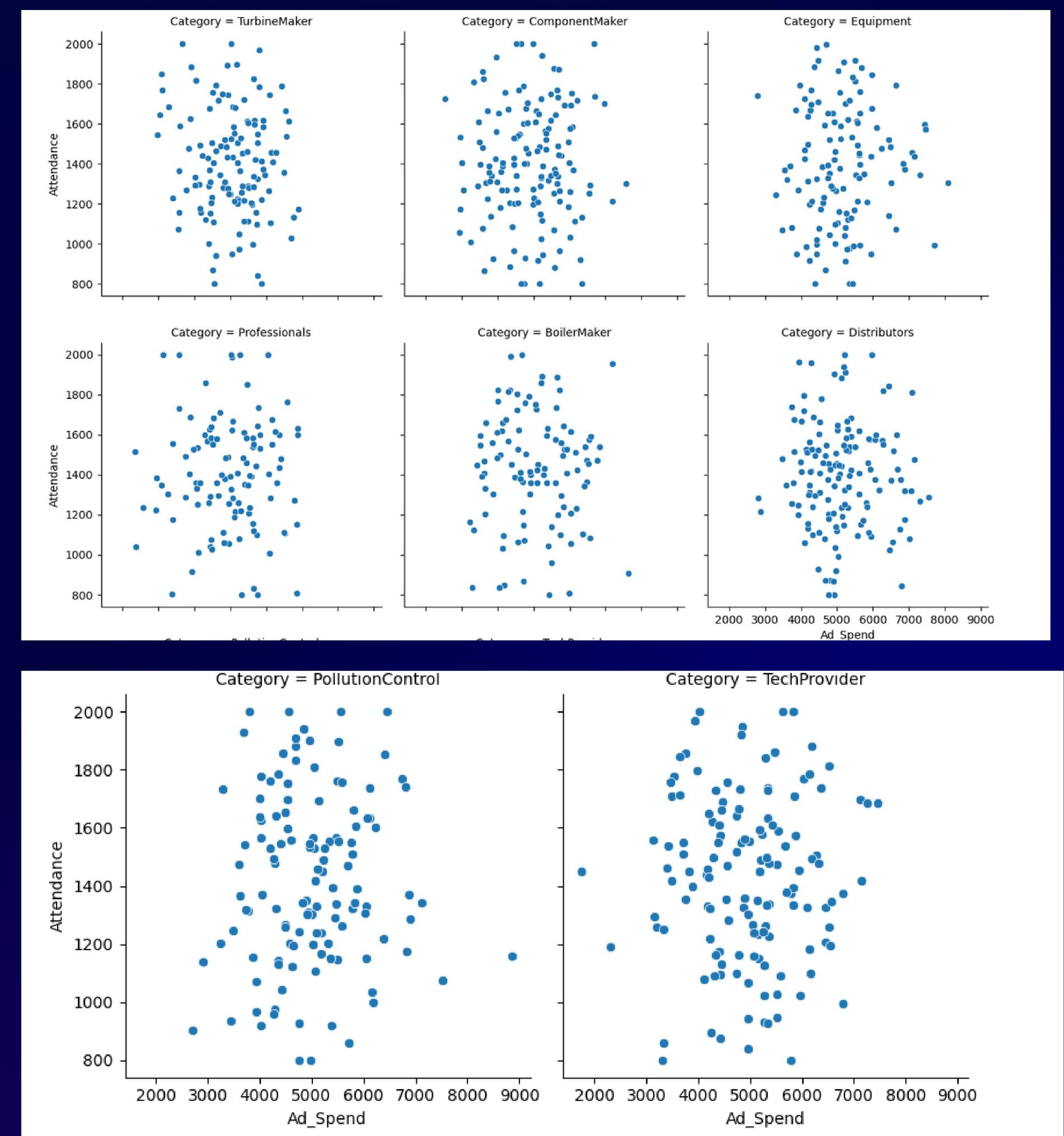
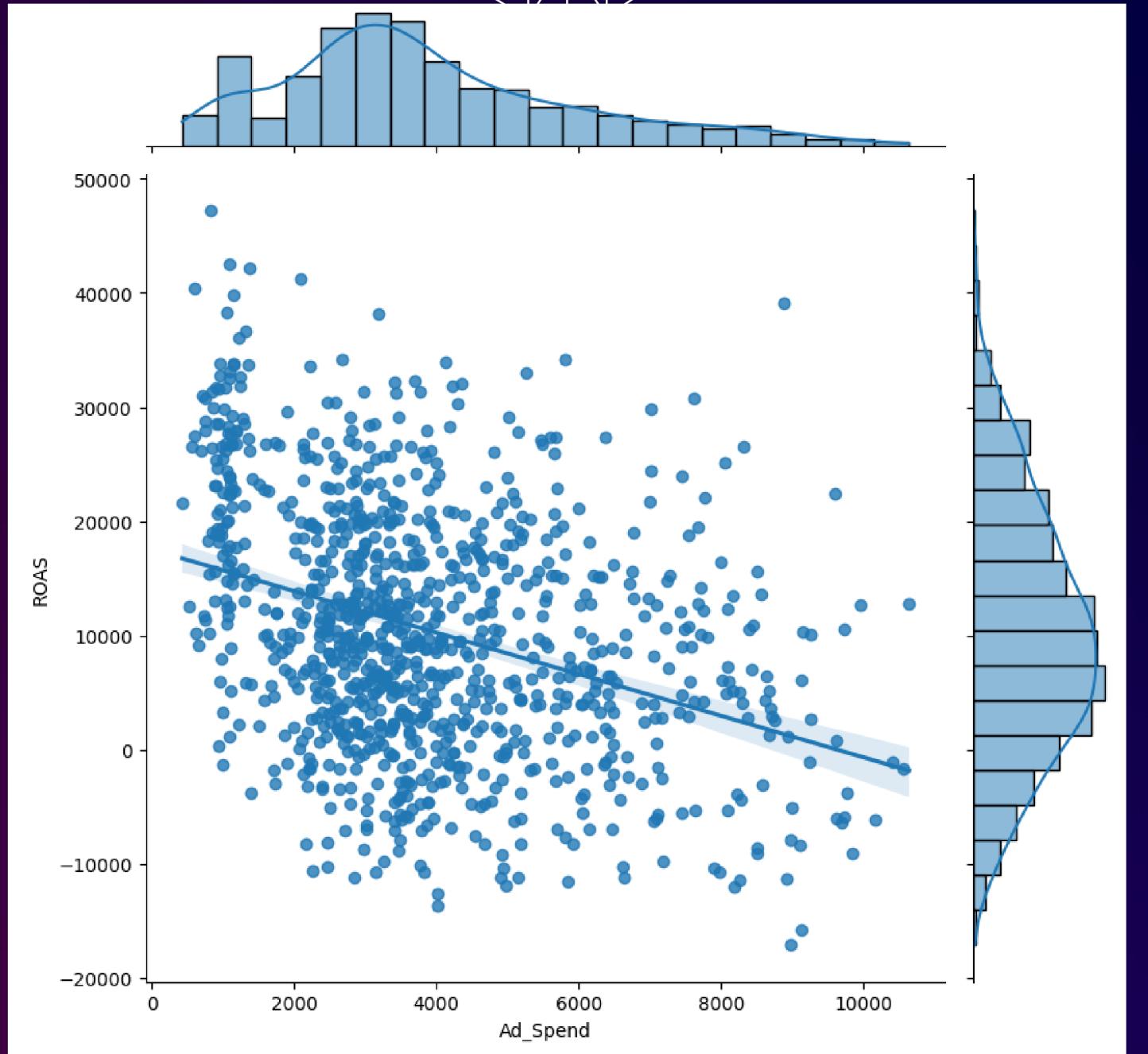
Data Visualization in ROI



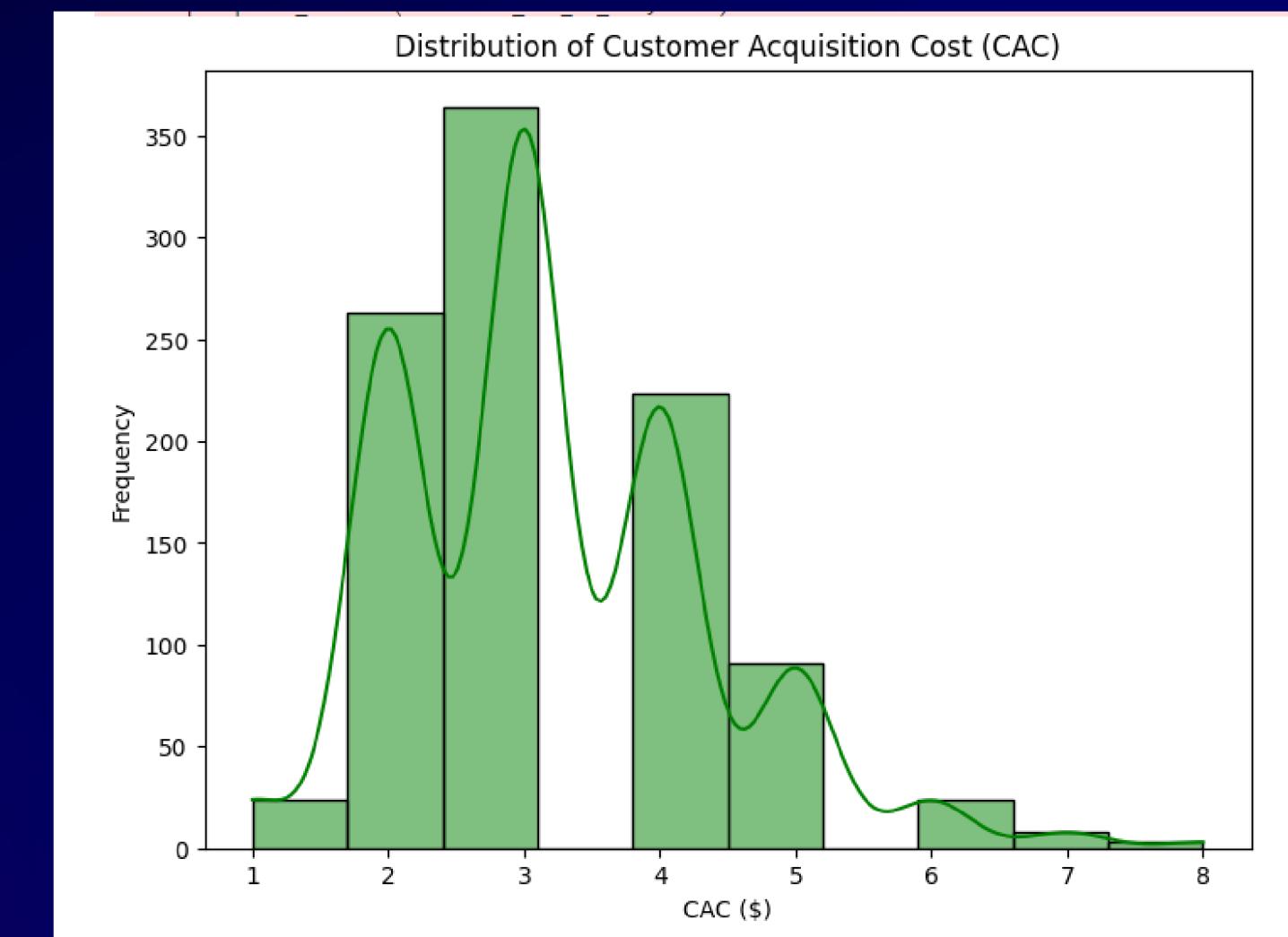
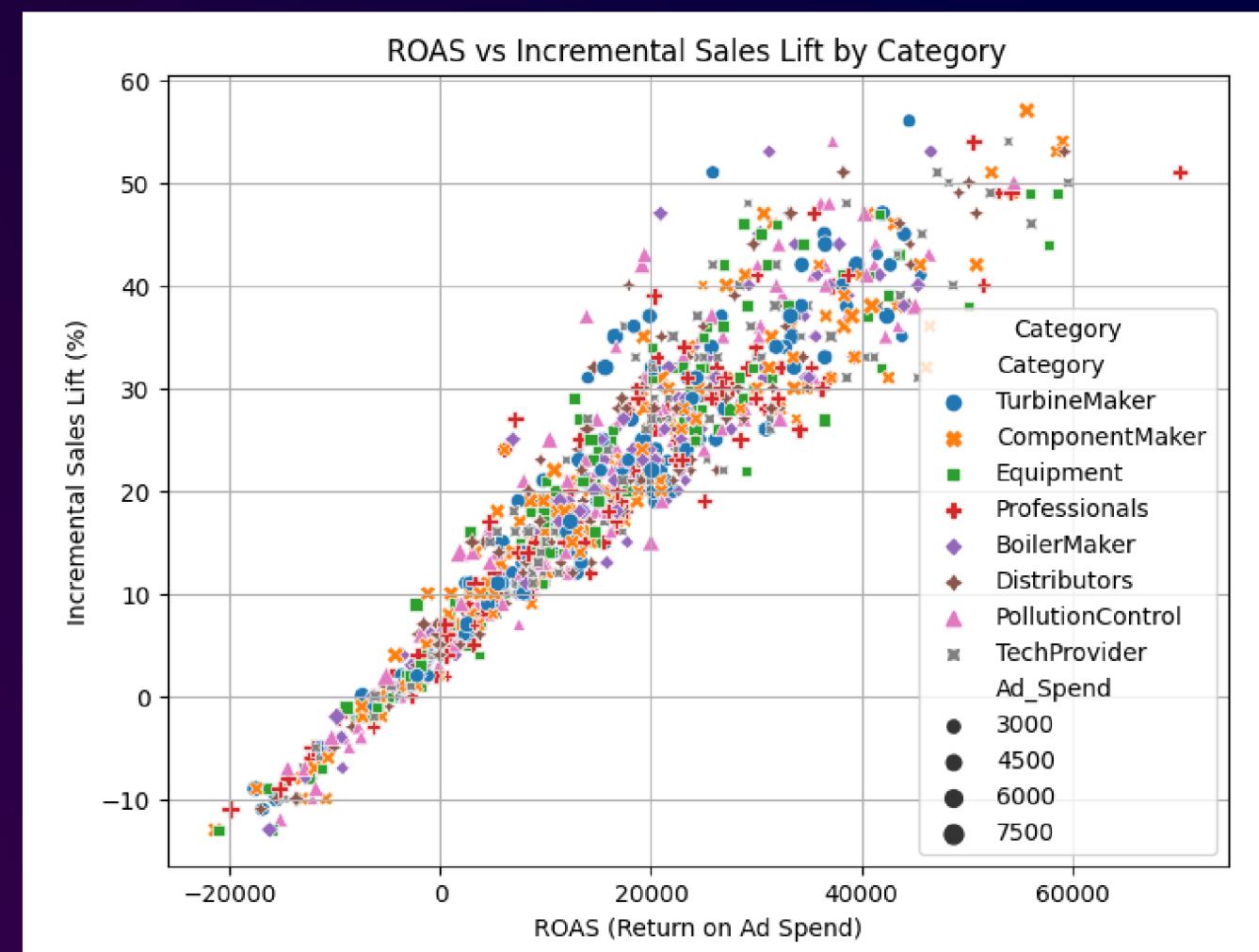
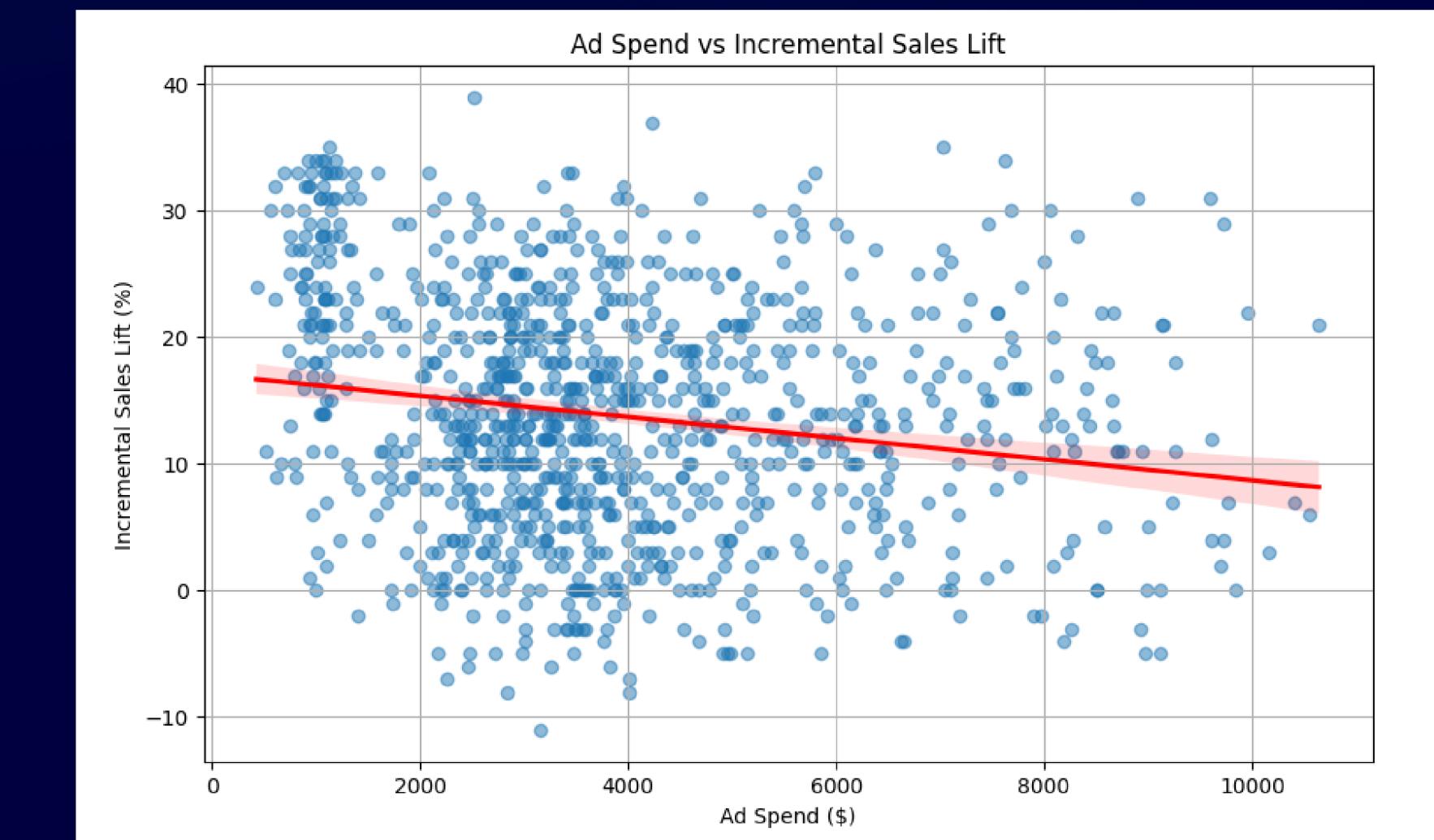
Data Visualization in ROI



Data Visualization in ROI



Data Visualization in ROI



Conclusion

The purpose of this presentation is to explore how machine learning can be harnessed to enhance the overall experience of expos for both attendees and organizers. By leveraging advanced algorithms and data analytics, we aim to address key challenges faced in three critical areas:

1. **Recommendations:** Developing a personalized recommender system to guide attendees to their stalls of interest, thereby improving navigation and maximizing engagement.
2. **Attendance Prediction:** Using predictive analytics to forecast event attendance accurately, enabling organizers to optimize resource allocation and enhance planning efficiency.
3. **Return on Investment (ROI) Analysis:** Employing data-driven approaches to analyze expo performance and assess the effectiveness of investments made by exhibitors, ultimately maximizing ROI.

THANK YOU

