

# How Auto Machine Learning (AutoML) Can Empower SMEs to Leverage AI

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## ABSTRACT

Small and Medium-sized Enterprises (SMEs) often struggle to adopt advanced technologies like Artificial Intelligence (AI) due to limited resources, expertise, and budgets. However, Automated Machine Learning (AutoML) is changing the game by making AI accessible to businesses without requiring deep technical knowledge. In this Article We examine real-world use cases across industries, highlight leading AutoML platforms, and provide actionable steps for SMEs to integrate AI into their operations efficiently.

**Keywords:** Machine Learning, AutoML, SMEs

## 1. INTRODUCTION

Small and medium-sized enterprises (SMEs) often face barriers in adopting artificial intelligence (AI) due to high costs, technical complexity, and a lack of in-house expertise. Automated Machine Learning (AutoML) presents a transformative solution by enabling SMEs to leverage AI without requiring extensive data science knowledge. This article explores how AutoML democratizes machine learning by automating key processes—including data preprocessing, model selection, and hyper-parameter tuning—allowing businesses to implement predictive analytics, customer segmentation, fraud detection, and more with minimal resources. We examine real-world use cases across industries, highlight leading AutoML platforms, and provide actionable steps for SMEs to integrate AI into their operations efficiently. By lowering the entry barrier to AI, AutoML empowers SMEs to enhance decision-making, optimize operations, and compete effectively in data-driven markets.

## 2. AutoML Defined

*AutoML (Automated Machine Learning) automates the process of applying machine learning to real-world problems. It handles complex tasks like:*

- Data preprocessing (cleaning and formatting data)
- Feature selection (identifying the most relevant variables)
- Model selection & training (picking the best algorithms)
- Hyperparameter tuning (optimizing model performance)

This means SMEs can build AI models without hiring a team of data scientists.

## 3. Why AutoML is a Game-Changer for SMEs

### 3.1 Lower Costs & Reduced Expertise Barriers

- No need for expensive AI specialists—AutoML platforms (ML.NET, AutoSkLearn) don't need extensive hyper parameter Tuning.
- Faster deployment means quicker Return of Investment. Faster Time-to-Market

### 3.2 Faster Time-to-Market

- Traditional ML projects take weeks or months; AutoML can deliver models in hours or days.
- SMEs can quickly adapt to market trends and customer needs.

### 3.3 Improved Decision-Making with Data-Driven Insights

- AutoML helps SMEs analyze customer behavior, sales trends, and operational inefficiencies
- Enables predictive analytics (e.g., demand forecasting).

### 3.4 Improved Decision-Making with Data-Driven Insights

- Start small and expand AI use cases as the business grows.
- Works across industries—retail, healthcare, finance, logistics, etc.

## 4. *Real-World AutoML Success: How AloPlay Boosted Nowruz Holiday Sales with ML.NET*

AloPlay, a fast-growing startup offering court reservation, tournament management and etc, wanted to capitalize on increased demand during Nowruz (Persian New Year) holidays.

### 4.1 The Goals

- Smart Court Recommendations – Suggest discounts and deals to users
- Dynamic Pricing – Adjust rates in real-time based on demand.
- Seamless Integration – Deploy AI without overhauling their existing ASP.NET MVC back-end.

### 4.2 The Solution: ML.NET AutoML

#### 4.3.1 Binary Classification – Smart Court Recommendations

- Goal: Predict if a user will book a court
- Data Used
  - User history (past bookings, cancellations)
  - Similar Users History
  - Booking Trends of Clubs
- AutoML Advantage:
  - Automated feature engineering (e.g., "peak hours" flag)
  - Selected best algorithm (SVM) in <1 hour

#### 4.3.2 Regression Model – Dynamic Pricing

- Goal: Adjust court prices based on real-time demand.
- Data Used
  - Booking velocity
  - Seasons

- Holidays
- Blocked Slots

#### 4.3 Key Advantages of This Approach

- Native .NET Compatibility
- Minimal Changes to Back-end
- Scalable

#### 5. Conclusion

AloPlay's success demonstrates that small and medium-sized enterprises (SMEs) can harness AI effectively without a data science team or major infrastructure changes—using Automated Machine Learning (AutoML). By leveraging ML.NET AutoML

#### ACKNOWLEDGMENT

*The authors thank AloPlay (<https://aloplay.io>) for their collaboration in demonstrating practical AutoML*

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