



# DERIVE ACTIONABLE INSIGHTS FROM YOUR INTERCONNECTED DATA

With Sonata's AI & ML Solutions & Services



## SONATA AI & ML SOLUTIONS

**Apply artificial intelligence & machine learning methods coupled with digital technologies to help businesses make informed, intelligent and faster decisions.**

From Sonata Software - [The Platformation Company](#)



# Are you able to derive actionable insights by leveraging your historical and current data sets?

Many business functions are forced to make decisions, without access to the necessary facts and intelligence, from their own data set to achieve alignment with business objectives. Further, in this digital age, massive amounts of data is being produced by information systems, user devices and IoT devices. Traditional methods of applying business intelligence are not adequate to process large amounts of data (structured and unstructured) and convert them into actionable insights.

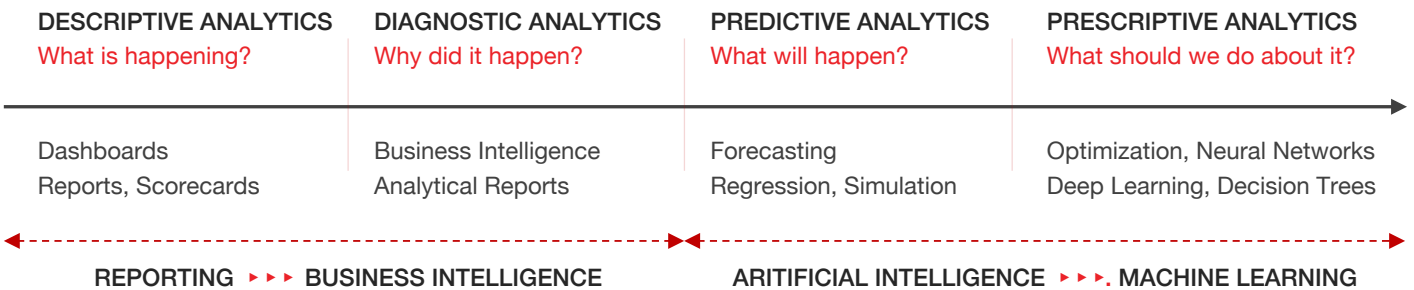
Artificial intelligence and Machine learning (AI & ML) methods leverage the superior computational capabilities of machines that can process large amounts of data, and find patterns and associations through sophisticated algorithms.

Sonata can help businesses by applying AI & ML methods besides the traditional business intelligence solutions to analyze complex data with inter-connected entities & attributes, derive meaningful value and produce insights & recommendations.

Our expertise helps us to select an appropriate algorithm based on the data structure, patterns and desired outcomes. Coupled with our experience in digital technologies, platforms and the business domain, we can offer comprehensive solutions and services for business and technology teams of enterprises to apply AI/ML in various lines of business.



## Business Solutions

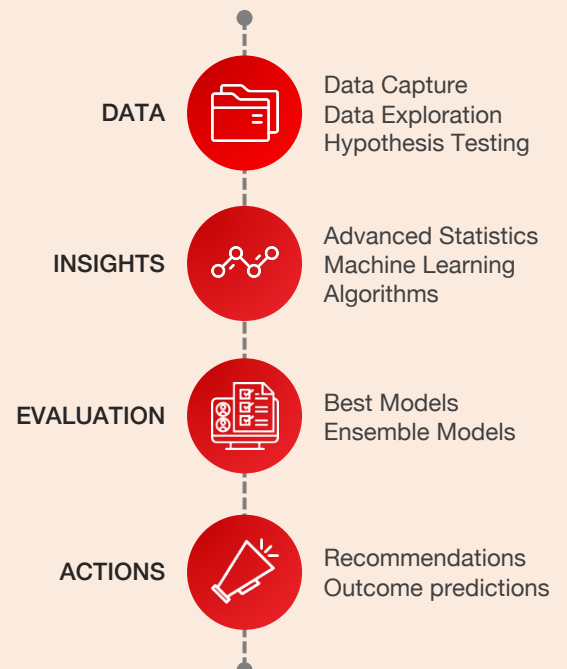


## SONATA OFFERINGS

Solutions with sophisticated & large-scale models that combine artificial intelligence, machine learning and NLP techniques to recommend actions for the planned business outcomes

<p><b>PLATFORMS</b></p> <ul style="list-style-type: none"> <li>• UDAP (Sonata)</li> <li>• R &amp; Python (cross-platform)</li> </ul> <p><b>PRODUCT SOLUTIONS</b></p> <ul style="list-style-type: none"> <li>• Product Recommendation</li> <li>• Sentiment Analysis</li> <li>• Route Optimization</li> <li>• Face &amp; Mood recognition</li> <li>• Market basket analysis</li> <li>• Behavior Mining</li> <li>• Resume Parser</li> </ul>	<p><b>SERVICES</b></p> <ul style="list-style-type: none"> <li>• Machine Learning             <ul style="list-style-type: none"> <li>○ Regression techniques</li> <li>○ Deep Neural Network</li> <li>○ Pattern Recognition</li> </ul> </li> <li>• Cognitive Intelligence             <ul style="list-style-type: none"> <li>○ NLP / Text Mining</li> <li>○ Visual / Audio</li> <li>○ Entity tagging, Text captioning</li> </ul> </li> </ul>
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### OUR METHODOLOGY



We are helping our clients to make operations efficient and reduce time & effort by automating processes through advanced algorithms and machine learning models. We analyze the data patterns and apply relevant models to recommend possible course of action for our clients.

We apply advanced algorithms and machine learning models to automate processes and reduce time & effort

**PERSONALIZED RECOMMENDATIONS:** User based Collaborative filtering (Jaccard coefficient, Pearson's coefficient) | Markov Process probabilistic recommendations

**OPTIMIZATION FOR PERISHABLE GOODS:** News Vendor Model

**SOCIAL SENTIMENT ANALYSIS:** AVA (adverb verb adjective) approach (bag of words)

**RESUME PARSER:** Regex | Open NLP

**DEMAND FORECASTING:** Time Series Analysis | Random Forest

**TARGETED PROMOTIONS:** Item based collaborative filtering Hybrid approach i.e. IBCF + UBCF (Item based + User based collaborative filtering) | Decision Tree | Naïve Bayes

**CUSTOMER SEGMENTATION:** K-Means | Hierarchical clusters

**MARKET BASKET ANALYSIS:** A priori | Eclat

**CHURN PREDICTION:** Decision tree | Naive Bayes

## How to reduce wastage of on-board perishable foods on flights?

### CLIENT

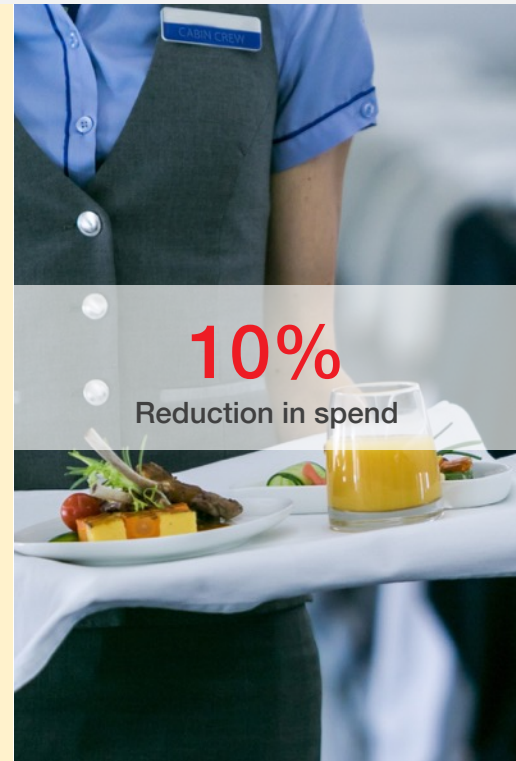
A leading tour operator in Europe provides holiday packages and hotels, and operates their own airlines.

### CHALLENGE

Inability to plan the quantity of perishable food due to the fluctuating demand from the passengers on-board, resulting in over-stocking.

### SOLUTION

- ❖ Conducted hypothesis testing on the available data, and evaluated relevant algorithms such as time-series analysis, random forest and Newsvendor to forecast the demand
- ❖ Applied the Newsvendor model as it is analyzed to be best suited for single-period perishable goods with probabilistic demand
- ❖ Determined the optimal level of replenishment of fresh food units for multiple in-stock probabilities with the objective of reducing wastage



## How to save recruiter's time and improve quality of new hires?

### CLIENT

A global firm providing consulting, outsourcing, recruitment, HR and outplacement services

### CHALLENGE

A lot of time and effort is spent in manually screening a high volume of resumes to short-list the candidates.

### SOLUTION

- ❖ Collected data from different sources, stored the data in cloud / in-premise, and applied NLP techniques such as Name entity recognition to convert the text into structured format (JSON)
- ❖ Developed a dashboard for the users to query the required information by selecting key topics and other related attributes
- ❖ Reduced the time-to-hire by automating the resume screening workflow and seamlessly integrating with the current recruitment stack

## WHY SONATA?



### BUSINESS & DOMAIN EXPERTISE

Domain experts to help identify relevant pain-points  
Evaluation of Business impact of the solution



### MODELING EXPERTS

Access to IISc Professors and Research Scholars  
Data, Statistics, Mathematics and Econometrics Modeling



### VISUALIZATION

Creative ways at looking into the data and insights  
Streamlined Insights through Dashboards



### SOLUTION INTEGRATION

Comprehensive Data Science Solutions  
Integration and feedback loop for reinforced learning

Sonata Software is a global IT solutions firm focused on enabling platform based digital business and technology transformation for enterprises in the Travel, Retail, Distribution and Software industries. Sonata's products and platforms, anchored on its proprietary Platformation methodology, reflect the company's commitment to enable connected, intelligent, open and scalable business systems.

Sonata's portfolio of products and platforms include Rezopia Digital Travel Platform, Brick & Click Retail Platform, Modern Distribution Platform, Kartopia E-Commerce Platform, Halosys Unified Enterprise Mobility Platform and RAPID DevOps, CloudOps and Testing Platform. These platforms have been deployed by leading enterprises across the globe to achieve future ready digital businesses.



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