

# Personalized stock recommendations for better client engagement

Top 50 Best Companies to Work for in India 2016 – Silicon Review Magazine

Predictive Analytics Company of the Year 2014 – CIO Review Magazine

Top 20 Company in India - TIE Lumis Entrepreneurial Excellence Awards 2013

Top 50 Big Data Analytics Companies in India 2013 – CIO Review Magazine



# Introduction

Analytics based interventions can be designed and implemented across the client lifecycle from targeted client acquisition to increased client activity to proactive client retention to better price realization. However, engagement and retention remain two major challenges today.

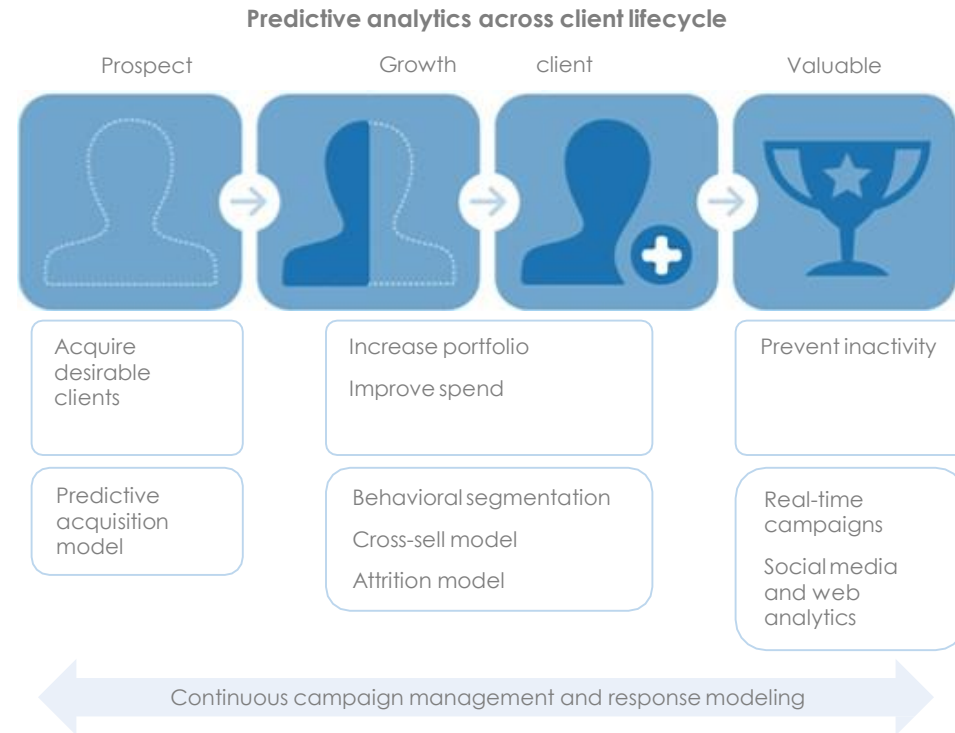
Amazon, one of the world's largest ecommerce retail players, ensures that relevant offerings are made based on parameters such as a client's historical purchases, virtual cart composition, items rated and liked in the past. Over 35% of sales at Amazon are generated based upon recommendations, proving the indisputable value of a good recommendation system.

Similar analytics solution can be extended to various industries. In this paper, we will talk about how to develop a stock recommendation engine that boosts "buy-side" self-directed trading.

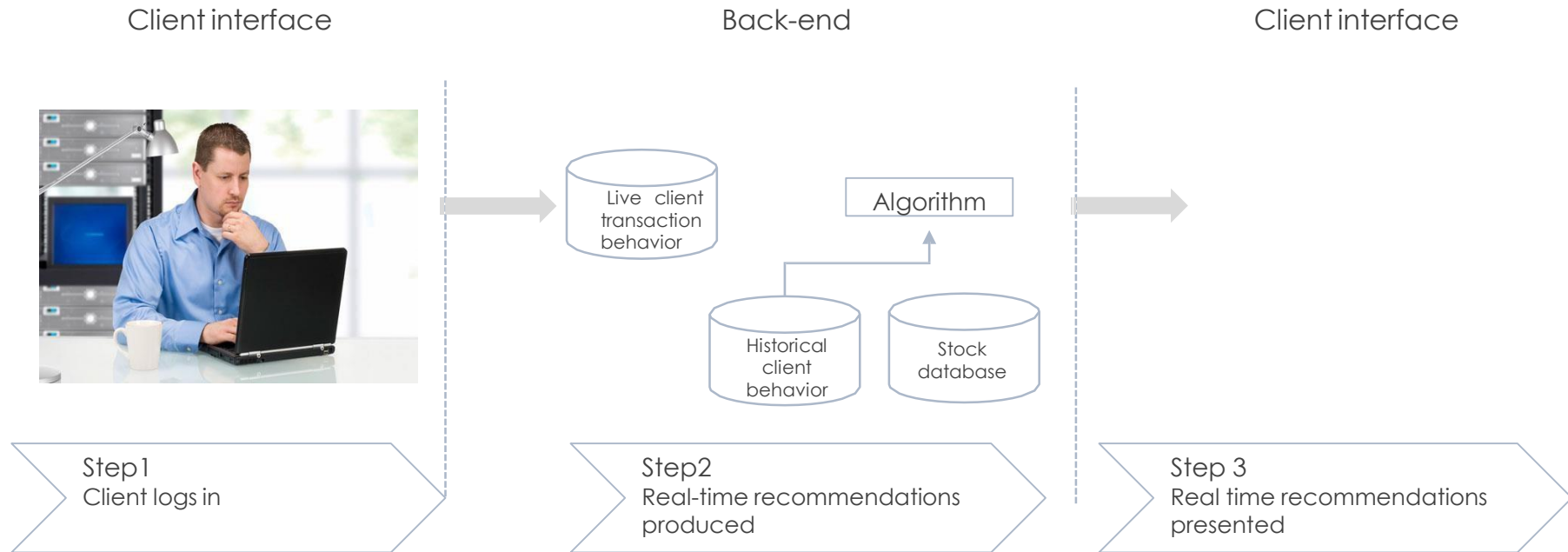
## Business Opportunity

In retail broking, client's investment decisions are heavily influenced by peer and expert recommendations. A recommendation engine can exploit this need for information discovery to provide real-time client-specific "buy-side" recommendations without manual interventions. However, this requires analyzing vast amount of data on a real-time basis to ensure an effective recommendation.

Brokerage houses generate vast amount of data on the buying patterns and preferences of their clients. This is a unique opportunity of reducing dealer dependency of their clients for either trade execution or decision making on investments, resulting in higher client engagement, and increased revenues.



# How does a stock recommendation engine work



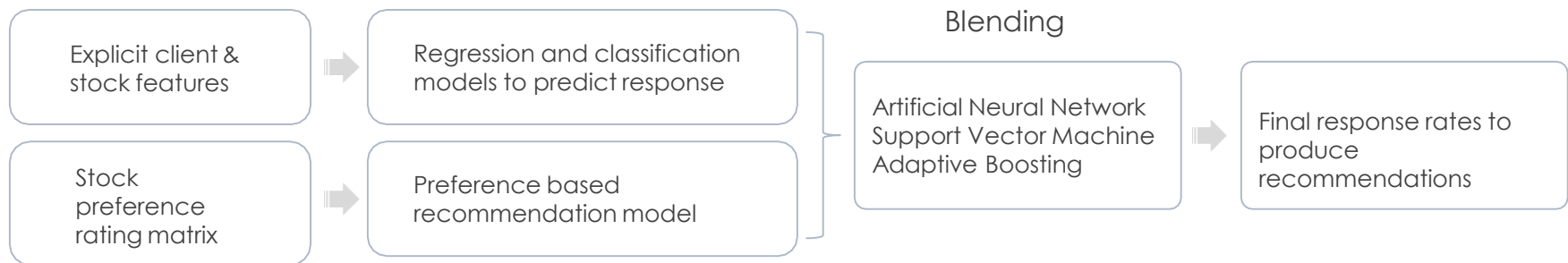
In the back-end, the following operations are executed on a near real-time basis:

- Ranking the set of stocks a client has invested in the past
- Basis the preference ranking determined above ranking all the stocks in which the client has not invested in
  - Ranking can be done based on factors such as turnover, investment holding value, holding time, watch list
  - Calculating similarity between the stock in consideration and the rest of the stocks based on the rankings assigned by all clients
- Computing propensity of a client to respond to the recommendation
  - Developing propensity to respond to an offer on a stock based upon analysis of responses to prior recommendations
  - Over time recommendations are refined by measuring the number of times a stock has been purchased in lieu of recommendation given to the client



# Approach and Conclusion

The two-step approach as explained below blends the recommendations produced on the basis of stock preference similarity with the response prediction models.



Recommendations can be enhanced using other important parameters of a client's buying behavior such as strong preferences for either a particular sector or preference for small, mid or large cap stocks. Further, recommendations can be refined based upon research calls produced by the brokerage house before being presented to the clients.

## Conclusion

The stock recommendation engine presented in this paper offers retail brokerage houses with some real opportunities to enhance their profits:

- A positive impact on clients' trading activity levels thus enriching traditional client engagement efforts
- Uplift in revenue through increased turnover generated from clients trading in the recommended stocks
- Reduced dependence on dealers' expertise as clients shift from dealer-based assisted trading to online self-directed trading



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