



## A CONCEPTUAL STUDY ON ALGO TRADING TEST FACILITY

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### ABSTRACT

This study focuses on the algorithm trading test facility launched by BSE On 18 th January 2016.This facility is for investors on its equity and derivatives markets..This new service is free of cost for market participants. The main objective of this study is to understand the concept of algo trading test facility and to know about the benefits of this facility. By using this facility the members will be able to test their trading strategies with live market data and past market data. BSE made a provision to generate data analytics reports to check the performance of those trading strategies. The new service for algorithm trading test environment has been established in partnership with Symphony Fintech Solutions.

*Key words: Algorithm, Trading*

### INTRODUCTION

Algorithm Trading is also called Automated Trading, Black-Box Trading or Algo-Trading. Electronic platforms were used for making trading orders. This is driven by algorithms which use huge volumes of data that modern trading facilities generate and evaluate it in ways and at speeds that human beings cannot. It mainly focuses on speed and gains profit by cutting out the human involvement from decision-making. The algorithms used pre-programmed trading instructions whose variables may include timing, price and quantity of the order. This is most widely used by investment banks, pension funds and mutual funds. The advantages and disadvantages of this facilities are as follows

The advantages of Algorithm Trading are: giving better market insights and generate additional profits .They can be programmed to have better sense than some human traders .It helps to reduces the trading emotions and thus makes it easier to stick to the plan. It also helps to keep proper discipline even in volatile markets also. It increases the order entry speed.

The disadvantages of Algorithm trading are as follows: Works faster than human trading. Trading machines usually react to uncertainty conservatively, dropping their positions and exiting the market. The exit of machines in a flock can exacerbate the negative human sentiment prevailing in markets. This is a sophisticated method of trading, but this is not infallible.

### OBJECTIVES OF THE STUDY

- To understand the concept of algorithmic trading test facility
- To know about the benefits of this facility
- To study about the algorithmic trading test strategies.

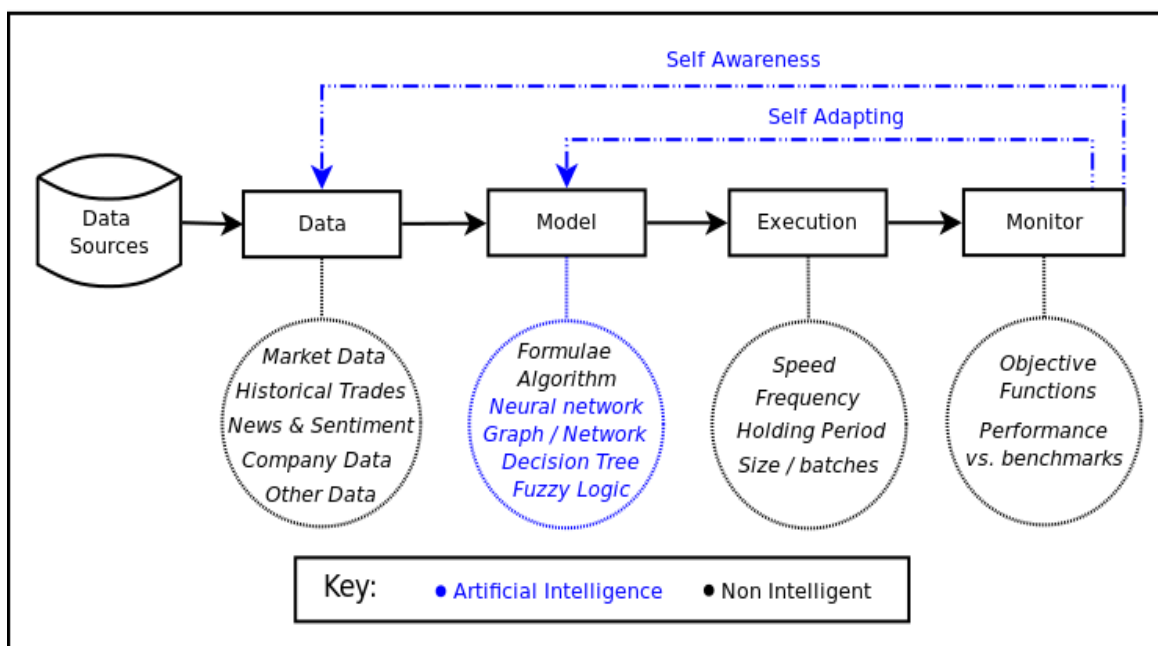
### RESEARCH METHODOLOGY

This study is conceptual in nature. Secondary data has been used for conducting this study. Data has been collected from news papers and websites.

### CONCEPT OF ALGORITHMIC TRADING

In today's electronic financial markets algorithmic trading are used to set up trading decisions. Algorithmic trading is the process of placing orders by using a defined set of computer programs and generates profit. This facility works faster than human trader. The defined sets of programs include timing, price, quantity or any mathematical model. More than profit opportunities algorithmic trading makes the markets more liquid, systematic and minimises the human impact on trading activities.

## Conceptual Model of Algorithmic Trading



Source: [www.turingfinance.com](http://www.turingfinance.com)

### Steps need to be followed in BSE for algo approval.

- The member has to obtain one IML Id's from BSE for placing the orders.
- In the case of sanctioned algorithms the member has to submit an Intimation letter to BSE.
- Along with the dealer details, the member has to upload 16 digits, through BSE Zero Terminal and the system should send the same with each order to the exchange.

### BENEFITS OF ALGO TRADING

- Mostly trades are executed at the best possible prices
- Instant and accurate trade order placement
- ,In order to avoid significant price changes trades are timed correctly and instantly
- Reduction in transaction costs
- Continuous automated checks on multiple market conditions
- Minimises the risk of manual errors while placing the trades
- Reduced possibility of mistakes by human traders based on psychological factors.

### Algorithmic Trading Strategies

The following are common trading strategies used in algo-trading:

- **Trend Following Strategies:**

The most commonly used strategy in algorithmic trading is trend following strategy. This is the earliest one. These strategies do not follow any predictions or price forecasts. Under this strategy traders can easily implement algorithms without including the complexity of predictive analysis.

- **Arbitrage Opportunities:**

This is similar to arbitrage pricing .i.e. .buying a security at a lower price from one stock exchange and sell the same at a higher price in another stock exchange and earns profit. In order to identifying the price differentials and placing orders algorithms are used.

- **Index Fund Rebalancing:**

This strategy has defined periods of rebalancing to bring their holding to par with respect to the corresponding bench mark indices. This creates profitable opportunities for algorithmic traders, who capitalize on expected trades that offer 20-80 basis points profits depending upon the number of stocks in the index fund, just prior to index fund rebalancing.

- **Mathematical Model Based Strategies:**

A lot of proven mathematical models, like the delta-neutral trading strategy, which allow trading on combination of options and its underlying security, where trades are placed to offset positive and negative deltas so that the portfolio delta is maintained at zero.

- **Trading Range (Mean Reversion):**

This is basically based on the idea that the price changes of an asset is a temporary phenomenon that reverses their mean value periodically .Identify and define a price range and then implement in algorithm trading allows the

traders to place their orders automatically when price of an asset breaks in and it is out of the particular trade range.

- **Volume Weighted Average Price (VWAP)**

The main aim of this strategy is to execute orders close to the Volume Weighted average price and by benefiting on average price.

- **Time Weighted Average Price (TWAP):**

Time weighted average price strategy breaks up a large order and releases dynamically determined smaller chunks of the order to the market using evenly divided time slots between a start and end time. The aim is to execute the order close to the average price between the start and end times, thereby minimizing market impact.

- **Percentage of Volume (POV):**

Under this strategy algorithm continuously sending partial orders until the trade order is fully filled in accordance with the participation ratio and the traded volume in the markets. The “step strategy” related to this send orders at a user defined percentage of market volumes. This may increase or decrease the participation rate when the stock price reaches a user defining level.

- **Implementation Shortfall:**

Under this strategy minimization of execution cost of an order by trading off the real-time markets, saves the cost of the order and also gets benefit from the opportunity cost of delayed execution. When the stock prices moves favourably, adversely or unfavourably the targeted participation rate of this strategy will also increase.

### Technical Requirements for Algorithmic Trading

- Computer programming knowledge to program the trading strategies or pre-made trading software.
- Hire persons with programming skills.
- Network connectivity for accessing trading and placing trade orders.
- Access to market data feeds that will be monitored by the algorithm for opportunities to place orders.
- The ability and infrastructure to backtest the system once built, before it goes live on real markets
- Historical data required for back testing, depending upon the complexity of rules implemented in algorithm

### CONCLUSION

It may be concluded that this new service will enable all market participants to test their algorithms trading in equity, equity derivatives and currency derivatives segments free of cost. More over this facility can create profitable opportunities also.

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