

## PHAROS ANALYTICS LAB: HEURISTIC APPROACH TO SELF LEARNING APPROACH

## UNDERSTANDING: CHALLENGES AND CONSTRAINTS

Self learning algorithm and scoring system.

**1) Regarding the self learning algorithms:** However, the type of algorithm chosen will depend on the type of problem. One may approach it from a heuristic manner or an AI way. Self learning algorithms take many iteration for attaining stability and usefulness. In a data maximum state, we can have a self learning model development from neural network. However, where there is lesser availability of data, a heuristic approach might work better.

**2) Regarding development of a heuristic self learning scoring system:** In a data minimal state, the scoring system can be developed using heuristic methods that leverage statistics metrics such as Information Value or Weight of Evidence. Such score card development approach is used for credit risk scoring.

# 1) NEURAL NETWORK OPTION

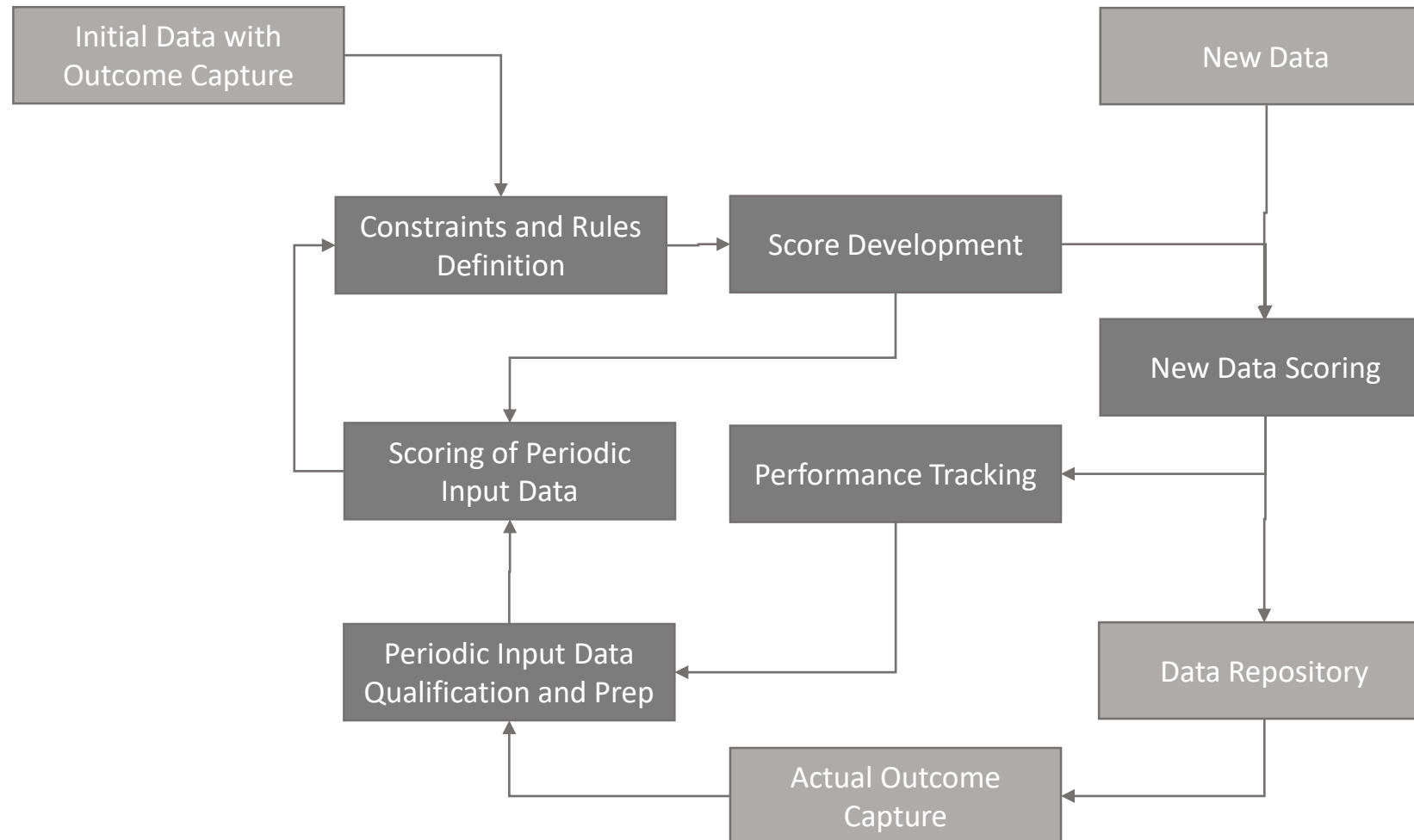
Given adequate information and suitable computing power and software, a reinforcement model can be used. The reinforcement model learns by trial and error. Therefore, in the case of scoring of geo projects, the actual outcome has to be continuously captured and fed back for the model to learn. The schematic below shows a neural network model design



<p>The configuration of a neural network is done based on the input sequences with patterns of values and target sequences. The network is set up for processing inputs and outputs such that will enable best network performance.</p>	<p>Bias values and weights are initialized for the hidden layers and the output layer.</p>	<p>The network provides outputs using the weights and functions in the hidden layers, then compares the resulting outputs against the desired outputs.</p>	<p>The network is evaluated for the goodness of fit on validation data set to estimate the performance level of the model.</p>
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------

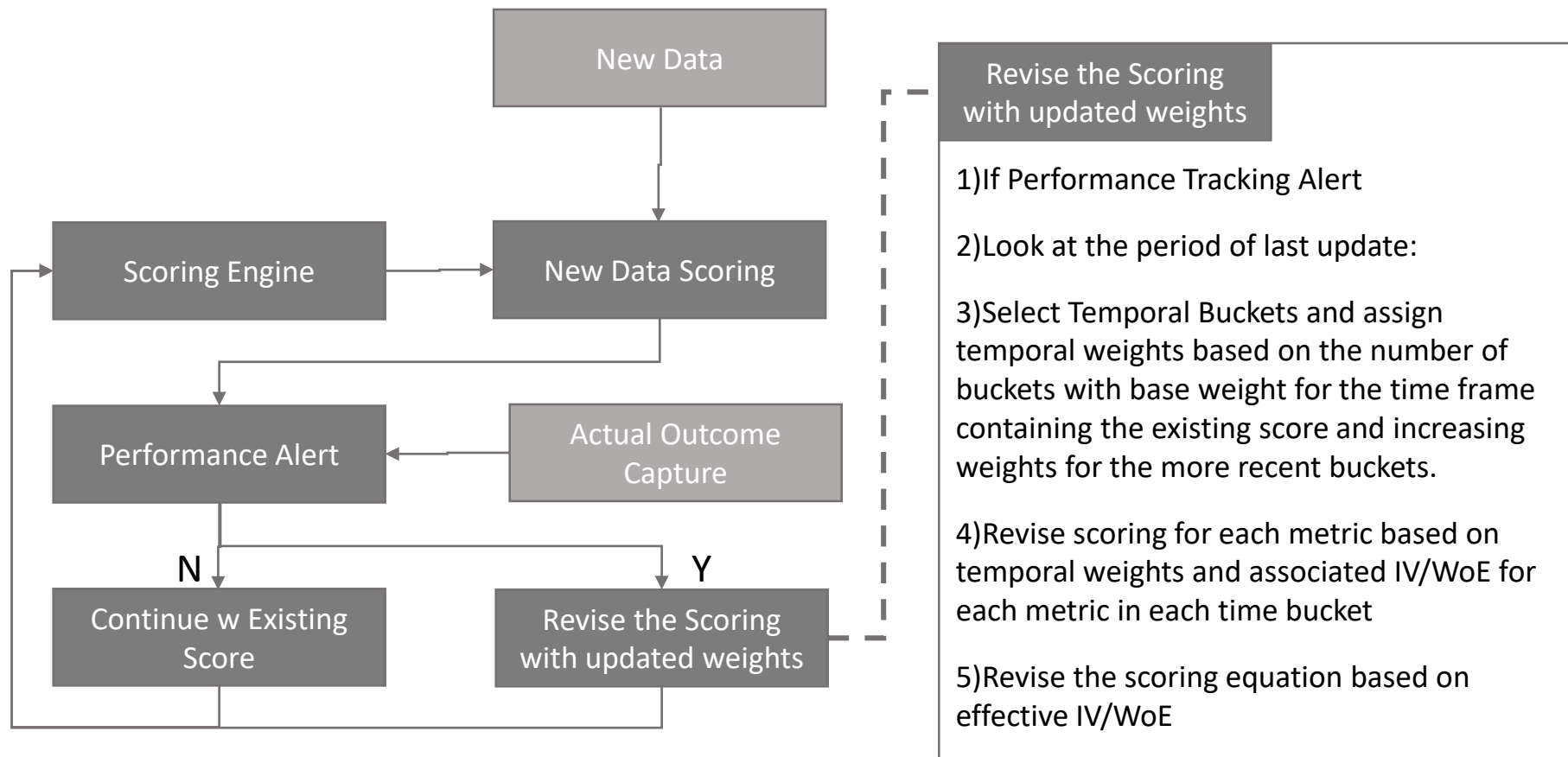
## 2) CONCEPTUAL ALGORITHM (SCORING SYSTEM)

Given that there are no details about the solution constructs, constraints and data, the following approach is merely indicative of the broad steps involved in setting up a score based learning system.



## 2) CONCEPTUAL ALGORITHM (WEIGHT REVISION)

A high level algorithm for updating the weights and learning from change should ideally be triggered by the lowering of performance accuracy. The weights assigned to each metric can then be reassigned based on temporal buckets and their associated WoE or IV. A high level algorithm for the same is shown below:



## PROJECT EXECUTION TASKS

- Data and Requirement Understanding
- Data Capture and Work Repository Set Up
- Solution Execution
- Performance Tracking
- API Set Up

# THANK YOU

#34, 31<sup>st</sup> A Cross,  
Jayanagar 7<sup>th</sup> Phase  
Bangalore: 560011  
[sales@pharosanalyticslab.com](mailto:sales@pharosanalyticslab.com)  
+91 9880332789