



SIMPLY TAKE CONTROL



SmartScore[®] v1



The Business Challenge

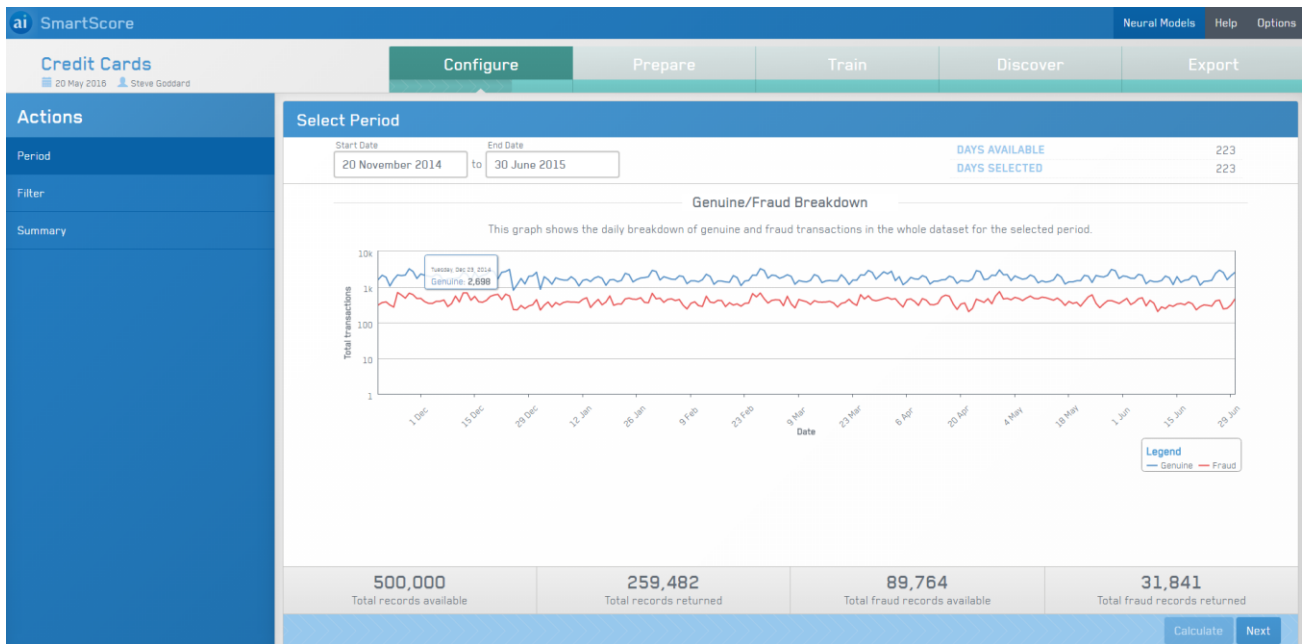
New technology is allowing customers to engage with businesses in a real-time, self-service manner through more and more channels. This new multifaceted engagement model, coupled with the rapid evolution of new payment types, is creating a complex point-of-sale revolution. This in turn is creating more and more data and the need to be able to make decisions quickly and accurately.

Many businesses find themselves overwhelmed by the sheer size, scale and cost of identifying risk – particularly during seasonal spending periods. In addition, there just aren't enough skilled analysts to keep up with the demand. Current estimates suggest there is a shortage of more than 1 million data specialists worldwide.

The Solution

SmartScore® is a self-service neural modelling tool that creates multiple-models (for omni-channel management) in hours rather than months. A new modular product that allows our customers to create neural models for reducing fraud, quickly and precisely.

SmartScore® enables fraud teams (in-house or outsourced) to respond quickly to threats by building multiple neural models and using them to protect millions of transactions, in real-time, on the same day. It also ensures in-house data specialists spend more time on fraud prevention and less on data crunching, helping them deal with ‘threat information overload’ without having to outsource.



SmartScore® is an industry first, self-service tool that demystifies the process of modelling. It is designed to integrate seamlessly into existing fraud systems (fraud platform and rule engine agnostic), significantly enhancing the fraud detection system and reducing the impact on existing operations.



SmartScore® empowers users to build their own neural models, thereby shrinking model development and deployment timeframes from up to 6 months to less than a single day. Case studies have shown it can also slash associated operating costs by 70% which was achieved by a reduction in rule set size, complexity and false fraud alerts generated.

In addition, SmartScore® simplifies workflow processes for security operation teams, reducing false positives and verifying real threats automatically. This minimises error and quickly focuses attention on the threats that matter most, dramatically improving the effectiveness of fraud prevention measures, thereby reducing lost revenue and better safeguarding brand reputation.



Business Benefits

SmartScore[®] neural models are created using automated machine-learning techniques to recognise patterns and trends in fraud. These provide transaction risk scores that are used in conjunction with user-defined rules and parameter-mapping,

Self-service

There is no requirement for the original vendor to be involved in the model creation.

Being self-service significantly reduces the neural model production costs and overall total cost of ownership, enabling multiple neural model support to be not only technically feasible, but also economically viable.

SmartScore[®] can be added to any existing fraud system and will reduce the need for constant manual reviews, hence allowing clients to focus on more complex business matters

SmartScore[®] will take the pressure off organisations and make it harder for criminals to go 'under the radar' when there is data overload or slow processes. Using machine learning to analyse payment data, we can now automate workflow and decisions, making fraud detection quicker and more efficient. At the same time, we are giving banks, merchants and payment provider's greater flexibility and control so they can launch new models fast, recognise new patterns of fraud and optimise alert levels to match their review capacity.



High-speed rule model creation and deployment

Rule model creation and deployment would otherwise have to be completed manually, often taking many hours, days or even weeks, assuming the resource was there in the first place.

Simplified rule management and performance monitoring

Removing the need for extended teams of people or committees to meet and discuss the rule strategy for the next period.

Ease of use

SmartRule™ has been designed to be operable by anyone. The user does not have to be an advanced statistician or programmer. Using its simple to use wizard, the system will take a user through a range of steps to reach the desired outcome.

Throughout this process the user will have a clear view of which step they are on, what data is being used and any relevant key criteria and results, shown both in text and graphical format. Whilst settings are pre-defined, there is also an advanced mode, should a user have the skills to use the tool at even more granular level.

24/7 system availability

SmartRule™ can be used at any time, as long as the user has the relevant controlled system access, this means that work schedules can be optimised accordingly. Rule sets and can be reviewed and refreshed outside of core hours if desired, to allow the fraud analyst teams to focus on the task of fraud detection, rather than reviewing existing rules at a time where their business faces maximum risk of fraud losses.



A re-usable asset

Optimising and deploying rule sets doesn't have to be kept solely for fraud detection. Businesses can also use the technology to manage other areas of the business such as credit/risk management, or more positively, identifying and marketing to the highest value (VIP) customers.

A fraud-platform agnostic solution

SmartRule™ can be integrated with any existing fraud platform, or other data management systems. This allows organisations to take advantage of the benefits of the solution even if they are not already using ai's industry-leading rules engine, RiskNet®.

Automated Exploratory Data Analysis (EDA)

In the event that the user does not have the resource to understand their fraud patterns, SmartRule™ automates the exploratory step, making suggestions to the user on which sections within their data to focus on, to ensure they maximize the number of frauds identified.

Impact Analysis

Research has proven that by combining multiple rule sets together increases the detection capability and reduces false alerts. Impact analysis provides an assessment of the combined affect these rulesets would have if deployed together, allowing the user to pick and choose their own strategy based on the results provided.



Technical Overview

All of ai's solutions can be deployed as licensed software or in the Cloud in a wide range of SaaS (Software as a Service) models from hosted managed services to comprehensive end-to-end fraud services including rule and alert management.

Exploratory Data Analysis

This stage of the process is to identify patterns within the data that correlate with fraudulent behaviour, targeted fraud data sets are created according to the fraud problems found by initial analysis.

Each data set is then divided into these targeted fraud subsets for further analysis

Data Evaluation - Data is "noisy", often incomplete at the time of transaction and has many pieces of associated information. Such data usually has uneven distributions and contains a mixture of categorical and numeric variables. Data evaluation is completed to extract the most useful parts of the data so that the models and rule sets created from it are as accurate as possible.

Model Training

SmartScore[®] neural modelling algorithms are then used to assess the data constructed by the evaluation process and produce a model that most effectively detects fraudulent behaviour.

For each transaction a neural fraud score between 0-1,000 is generated; the higher the score the more likely it is that the transaction is fraudulent.



SmartScore® then illustrates the performance of a model against data that has not been seen by the modelling process providing a true representation of the performance the model would achieve when deployed.

Performance is defined by the number of fraudulent transactions detected each day, the number of false positives generated each day as well as the total value of fraud detected and missed.

A list of the top 3 reasons behind the generated neural score is also provided; this is based on the input fields and indicates which input field and its value had the most impact on the score.

Solution Deployment

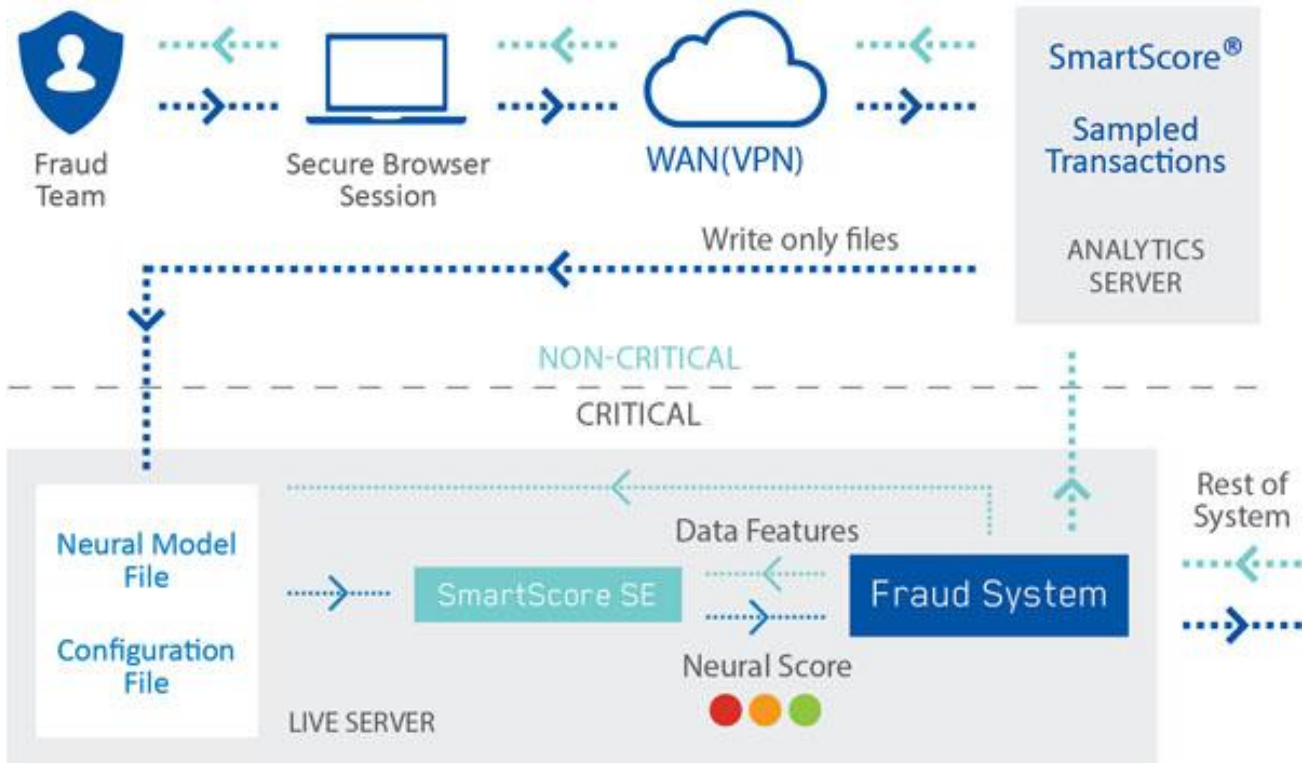
SmartScore® is a component of the ai SmartSuite and it can be deployed on a customer site or in the ai cloud.

SmartScore® is a data agnostic platform that only requires data with a pattern of behavior highlighted to generate a rule set.

This data is posted to the SmartScore® platform in the ai file format as often as required.

Models that are then created using the SmartScore® web interface are exported to the scoring engine, which is deployed alongside the rules processing platform, the scoring engine is then able to accept transactions from the rules platform for scoring against the generated models.

Each model then provides a score back to the rules platform alongside the top data points that contributed to the score, providing additional insight into the transaction risk.



Security

SmartScore® can be deployed in a PCI DSS environment utilising card holder data to determine transaction behavior or if a card reference, such as a token or key, is available outside the PCI DSS environment.

SmartScore® enables administrators to manage user access and permissions enforcing strong password policies.

SmartScore® also provides full auditing capabilities required to monitor user behaviour or if required can be integrated into auditing platforms.



Contingency and Disaster Recovery

SmartScore® can be deployed to comply with the contingency and redundancy requirements your organisation requires. SmartScore® can be deployed as a single instance or additionally with cold or warm standby.

Software Architecture

SmartScore® software is based upon Ruby on Rails, Java and SQL frameworks operating against the Linux platform and is implemented using a single tier architecture that is primarily self-contained on a single server. All software, including user interface are held on the central server and all processing is performed on that server.

The system is intended to be self-maintaining in that the full life cycle of data is supported – on a daily basis new data is loaded into the system and aged data is removed. This includes database held data, data files and log files.

Hardware

SmartScore® is deployed on a single server instance and ai work with each client to define the specification of the environment based upon:

- Volume of data processed daily
- The retention period of processed data
- Forecast growth in data volumes for the next 3 years
- The number of concurrent users to support

Executive Summary

In today's omni-channel global marketplace a 'consumer self-service' revolution is well underway. Together with the move to 'instant mobile access', it means that large multinational organisations face a real dichotomy of needing to implement first class front-of-house services, but instead are using ageing back-office systems. Add to that a plethora of new security and compliance requirements, as fraudsters and criminal gangs become ever more sophisticated.

It is quite evident to most observers that large multinational institutions back-office systems are under ever increasing strain. Financial organisations and large merchants are taking a piecemeal approach to integrating creaking legacy systems with new digital solutions. This amalgamation of real-time and batch applications, often creates high cost human endeavour and complex processes that simply dilutes profit and adds cost.

It is clear that agile, flexible and real-time tools and software are essential, for future success. ai has a long and exciting heritage as one of the world's leading companies in risk management. For over 20 years, ai has provided solutions to some of the world's largest financial institutions, international merchants and other major payment service providers.

ai believe that machines will make more decisions in the future, with human intervention being left to more complex decisions. SmartScore® behavioural models are unique, as clients can train them quickly with no need to send them off to a supplier. These unique self-learning products can be added to an existing fraud system and will reduce the need for constant manual reviews, hence allowing clients to focus on more complex business matters.



ai's global customer base, enjoy outstanding products and services which are based on making things simple for them – they are truly self-service and easy to use. This means customers can make decisions and implement them immediately, unlike many of the competitor's products.

Today, ai's self-service fraud detection rules engine is considered by many industry thought leaders to be the best in the world. ai's unique solutions, including new state-of-the-art neural technology, protect and enrich the whole payments experiences for more than 100 banks, as well as some of the largest merchants and processors across the globe.



What Next

Please contact ai for a demonstration, if like others, you like the tool, ai will discuss the options regarding a benchmark. With the growing concerns about sending data, ai has developed a tried and tested benchmark methodology that can be adopted to simplify the process.

SmartScore[®] will be available as 'software as a service' or on a licensed basis. It can also be supplied as a 'white label' solution for third party fraud and payment services.



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