

↓ INFORMATION TECHNOLOGY

Keywords

Distributed processing  
Independent decision engines  
Legacy systems integration  
Small lender solutions  
XML network

# Integrated Decision Systems

\_by Jalal Khoylou and Mark Stirling

How do lenders with a plethora of old but functional operational systems make the transition to full customer management? How do small lenders who can't justify such sophistication, remain competitive? New technology may provide the solutions.

Long-established lenders, large and small, all have any number of operational and support systems, which are product-based, work independently from each other and may also be using different IT platforms. This is particularly true for multi-product lenders, where legacy systems will exist for credit cards, personal loans, mortgages etc, as well as for multiple functions such as applications processing, account management, collections, and fraud prevention.

Occasionally these functions are out-sourced making them even more remote from the lender's direct control. They tend to use independent suites of scorecards, which are all monitored and managed in isolation from each other. Old systems tend to have a disproportionately high number of systems patches applied over the years (and details of the older ones will have been long forgotten), with the risk that if any new patch is applied in ignorance, it could bring the whole system down.

Despite the age of these systems, they continue to perform the basic functions quite adequately. New versions bring increased sophistication and functionality (particularly in the areas of strategy design and testing) but they are a major and costly undertaking. Besides, "if it isn't broken, why fix it"?

But increased competition, particularly from United States banks which have set up European operations in recent times, means

there is a real need for this increased sophistication. Customer-based management systems allow new lenders to offer customers an integrated approach to managing finances, and the challenge for lenders with legacy systems is one of customer retention in the face of this threat. There may also be new systems catering for the more recent delivery channels like the internet and email. This independent configuration does not provide any basis for integration or customer-focused management strategies. Opportunities are missed and customers take business elsewhere.

### Integrated decision engine

Faced with this problem, lenders can:

- Do nothing.
- Replace the legacy systems with an integrated, all-encompassing customer management system.
- Install a customer management system on top of the legacy systems with feeds from these systems.
- Install an independent decision engine which will communicate with all the existing operational systems irrespective of platform and provide additional sophistication.

The first option is no longer viable, and can be ignored. The second and third options are variations on a theme; both will bring enormous opportunities for designing, testing and implementing highly complex strategies at

customer level. But they are extremely expensive, represent a major enterprise-wide undertaking requiring significant senior management commitment, will bring enormous operational upheaval, and will take years to reap the benefits of maximum customer retention – possibly longer than the perceived window of opportunity. For larger and newer lenders starting out in new markets with new products, this is the ideal time to introduce these systems, but conversely, for smaller lenders, the capital investment is just too great.

There is now another choice. Installing an independent decision engine that will work with, and integrate, all the existing systems irrespective of functionality, product or IT platform, is a cost-effective solution.

So exactly what is a decision engine? In essence, it is a piece of complex software designed to make decisions about appropriate actions to take for any given customer situation, or any delivery channel through which customer contact is made. It has two primary business objectives that are illustrated in Figure 1:

- To take raw customer data and translate it into reliable predictions about the customer's future financial behaviour, and, having determined the likely outcome,
- To then determine and optimise the most appropriate action or response to the customer.

These will apply to both proactive customer-generated activities (for example, a request for an increased credit limit, in beige above the dotted line) or to actions taken by the lender in response to analysed customer data (for example an account in arrears, in light blue below the line).

From Figure 1 it can be seen that the systems sourcing these inputs could come from any number of existing operational functions, for example applications processing, the many aspects of customer management, collections or recoveries, or marketing new products. Both the inputs and resultant actions could be delivered through any channel ranging from a phone call, statement message, through to the

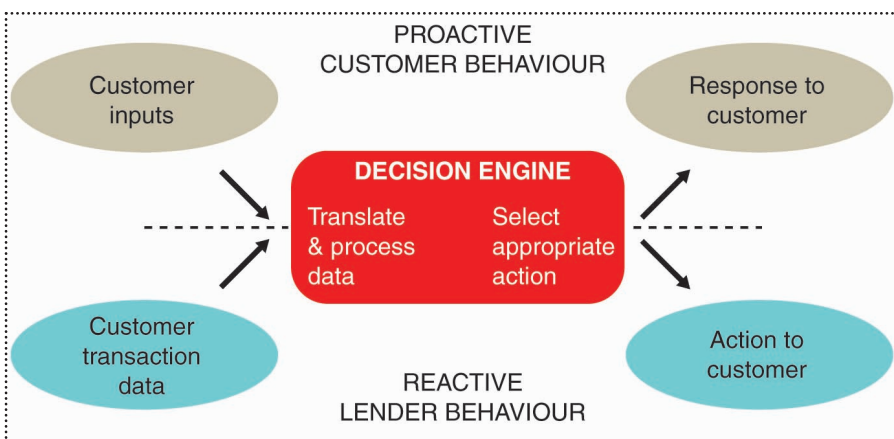


Figure 1: Decision engine functionality

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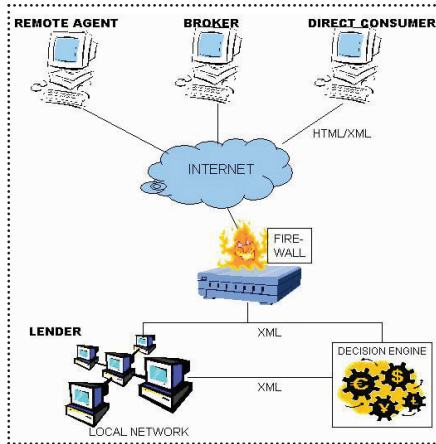


Figure 2: Distributed computing network

internet, email or an ATM cashpoint message.

The decision engine will comprise many components but the significant ones will include some, or all, of statistical models, rule-based technology, neural networks, structured databases and interfaces to all the existing systems with which it interacts, draws data and returns responses.

Decision engines work by intermingling their functionality with those of the existing systems. Specific functions in the legacy systems can be replaced/extended, by the equivalent but more sophisticated and up-to-date version in the decision engine, while leaving the front-end user interfaces unchanged for maximum ease of implementation. This approach can be applied to a single product to integrate the functionality, but another dimension of sophistication can be added by interfacing multiple products in the same way. For a single product the new structure could:

- Leave the legacy applications processing systems in place but replace the component which does the credit scoring and/or performs the policy rules with a link to the strategy manager equivalent in the decision engine.
- Keep the existing operator screens for the customer-contact system, but in the background, link to the decision engine to generate a customer-based behaviour ranking and credit limit sanction.
  - Access data relating to other accounts and products, behavioural information, application details, etc. so that limit increase decisions can be made on a customer-wide basis.
  - Become the basis for call centre activities, regardless of whether the function is telemarketing or collections.

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- Implement other new software for front-end functions and keep the same decision engine in the background for all the decision-making processes.

A single decision engine that can be implemented for all customer decisions across all products and delivery channels brings immeasurable benefits in the drive for customer satisfaction and therefore customer retention. It:

- Increases the efficiency of business processes by automating best practices, allowing for better targeting of those accounts that truly need manual handling.
- Provides the ability to personalise each interaction with a customer so that they receive the highest level of individual service.
- Increases the responsiveness to, and the consistency of, decisions.
- Decreases costs by managing more customers with same number of staff.
- Adds new delivery channels with minimum cost or operational upheaval.

In terms of using the decision engine, there is only one interface to be learnt, the skills are spread across all customer-facing departments and there is huge scope for experimentation with new strategies. Since these are not hard-coded it is possible to test a new strategy, monitor and review it, and adapt it or discontinue it, almost in real time. Maintenance and upgrade costs are reduced (to one system) and legacy systems are maximised as customer-facing staff do not have to learn new input screens.

### Distributed computing

Many of the major lenders will already have decision engines in place and others will be in the middle of implementing them. So where does that leave the numerous smaller lenders for whom such systems are outside their reach? The answer may well lie in distributed computing. Two developments have quietly been happening in parallel in the background. Firstly is the development of a new, internet-based communications language (called XML) which allows applications to communicate with other applications over the internet, regardless of operating system or platform, input device, or programming language. The current concept of internet usage is based around clients and servers. XML (and software company Microsoft's use of XML to provide its

.NET services) means that this concept will be widened out to a distributed-computing concept of loosely coupled services in which the processing occurs wherever it makes the most sense, whether that is on a server, PC, handheld, or other smart device.

Secondly the supply and availability of broadband communication links has grown significantly, and in line with this, the cost of using them has, and continues to, reduce. If processing is going to occur at any point in the communication chain, ie large volumes of data need to be moved, rapidly and reliably, then broadband links are an essential component in the chain.

This new paradigm means that small lenders, which have older and relatively simple systems in place, can now use this technology to avail themselves of the latest sophistication, simply by plugging into a third party processor's decision engine (as illustrated in Figure 2). In this way they could benefit from access to the full capabilities of credit and behavioural scoring, integrated customer management, experimentation with new lending strategies, and rapid, proactive collections techniques. (To allay fears about data privacy and data protection, all data transmitted in this manner can be depersonalised.) Lenders are not be restricted to using a third party in their own countries and may be able to gain competitive advantage by linking into new cross-border state-of-the-art systems.

For lenders concerned about the computational requirements imposed by the Basel accord, a decision engine, accessed in-house or remotely, would be the ideal place to manage and control this activity.

Customer retention is now the primary goal for all lenders. With increased competition bringing more innovative products to market, and a growth in customer awareness, technology must be harnessed to stay in the game. With the rapid expansion of new technologies, accompanied by the decreasing cost of accessing them, then the only realistic way to achieve this corporate goal of customer retention is to embrace the technology.

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