Using Business Rules Engines to drive complex customer decisions that boost profits

An Experian white paper

Contents

Executive Summary

Managing customers involves making many individual decisions throughout the relationship journey: 'Do we take this customer?'; 'What conditions are appropriate?'; 'When is the right time for an additional offer?'; 'How do we treat missed payments individually?'; 'How does my decision impact capital allocation?'

Accurate, timely and analytically managed customer decisions have become a distinctive source of competitive advantage, as well as a necessity out of regulatory compliance. And constant evaluation and adjustment have become ingrained into the daily operations of most organisations across business-to-consumer (B2C) industries, including finance, telecoms, insurance and utilities

Traditional Business Rules Engines (BREs) have been a game-changing tool at the core of this process, introducing automation and putting adaptable capabilities in the hands of the business users.

Today's increasingly complex environment, with fast changing customer demands, ever growing data assets, regulatory compliance and sophisticated mathematical predictive modelling, calls for a major advance in the technology of BREs to ensure organisations remain competitive.

The future of B2C business requires BREs to become the central hub, co-ordinating seamless integration of capabilities, providing clear business process management and customer decisioning in order to nurture and keep up with innovation, while delivering a much faster time to market and a reduced cost of ownership of the technology.

In this paper, we take a business perspective to describe how the new breed of Business Rules Engines have evolved to integrate analytics, execution and monitoring and evaluate the business case for adopting it.

Business Rules Engines

Integrated analytical design, execution and monitoring across the customer journey

Effective business rule management rests on three fundamental building blocks:

1. Advanced analytics to design such rules and strategies
2. Execution, encompassing the creation and deployment
3. Strategic monitoring of the performance and deviations against targets

Traditionally, Business Rules Engines have delivered the execution of the business rules and decision strategies. Analytics and monitoring have stubbornly remained separated from the BRE. The main reasons for this are the costs and difficulties in successfully bringing together the different disciplines (analytics, business, technology) under one single platform.

Advances in technology and best practice standardisation have made it possible to bring these three building blocks together within one single BRE, in a practical and cost effective way, with tremendous business user control.

These advances had materialised in the concepts of Assisted Design and Optimisation of rules and strategies, Content Management, Repository / Job Server Architecture, Data Connectivity and Enrichment, Workflow Management, specialised Analytical Data Marts or Strategic Monitoring.

The figure below shows the integrated nature of an advanced Business Rules Engine:

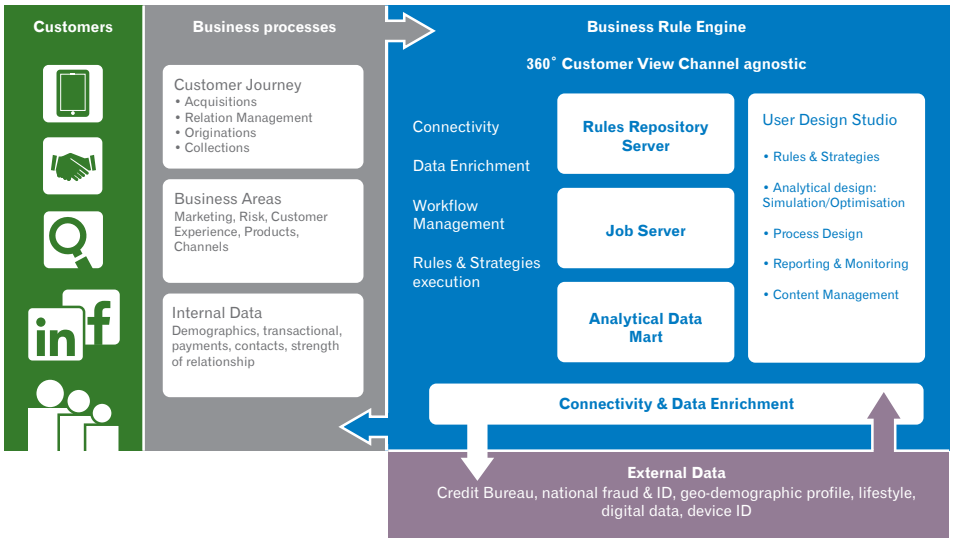

Figure 1: Advanced BREs have integrated Analytically Assisted Design, Advanced Operational Execution, and Reporting and Monitoring, all managed through a single user-friendly Design Studio

Moreover, different requirements across the customer life cycle (acquisition, origination, customer management and collections), products, channels, geographies and departments (commercial versus risk) have also driven a high degree of complexity and dispersion of deployment of BREs.[1]

The above mentioned advances in technology and integration make it also possible to gain a truly centralised approach, with an enterprise-wide decision centre, resulting in a much higher sharing of knowledge and best practices and an enormous increase in productivity.

Advanced Analytics to assist in optimised strategy design

Since analytics emerged as a distinctive competitive advantage decades ago, also fuelled by regulatory developments, we have witnessed the introduction of many different models and analytical techniques.

These, combined with access to larger data sources (internal and external) and hundreds of rules to deliver business decisions, have provided incremental benefits to organisations – but they have also become increasingly complex to manage.

The figure below illustrates such complexity as new models and innovations have been adopted in the banking industry for risk management:

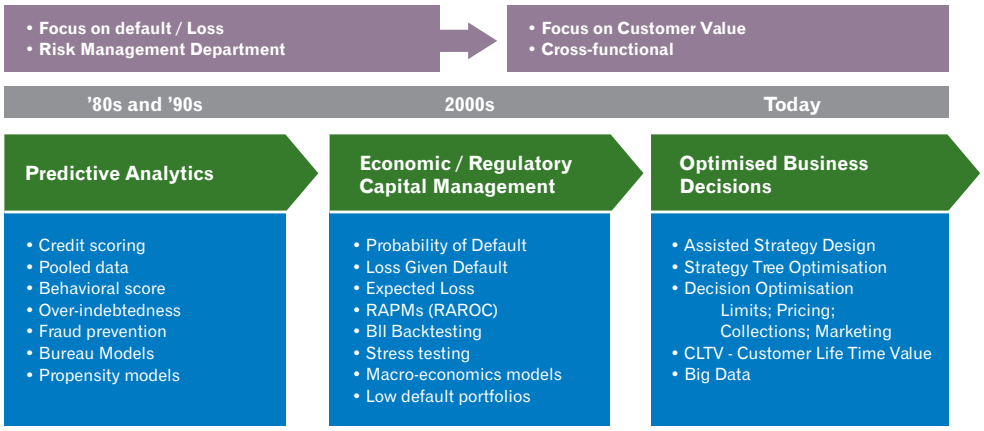

Figure 2: Analytics evolution in risk management of banks and evolution towards optimised business decisions

Business Rules Engines have provided tremendous functionality for the business user to handle developments, combining data, models, and rules into many individual customer decisions: customer acceptance, limits allocated, pricing or collections prioritisation, among many others.

However, the increased complexity, coupled with the need to reduce the business problem to a more manageable approach, have paved the way for the adoption of mathematical optimisation methods.

[1] We find an example of this in a large international banking group, running over 70 instances of BREs with different flavours and capabilities across the same organisation.

Business Rules Engines

Leading companies have already adopted an optimisation approach, long moved beyond just combining models and rules. They have:

- Built a complete and truly single customer view across the organisation
- Utilised multiple models to measure the current and potential customer value
- Applied optimisation techniques to drive decisions that maximise customer value within the business constraints and regain productivity in strategy design

Leading BREs now integrate the data, simulation and optimisation capabilities within the same tool to assist the design of optimal customer decision strategies.

Advanced analytics deliver significantly **improved key business performance indicators (KPIs)**. Optimised approvals, limits, offers, pricing, collection actions – to name a few – consistently provide improvements in the range of 5 per cent to 40 per cent in increased revenues, conversion rates, utilisation or bad debt reduction.

But also, integrating advanced analytics into the BRE for assisted strategy design has an enormous impact in increasing the productivity of scarce highly qualified business users, **reducing time to market** in generating optimised strategies, all at a **reduced cost.**

Without such integration it typically can take three to six months to update your strategies:

- Main steps: extracting and preparing data, designing improved strategies in a statistical package, documenting and obtaining senior approval, building, testing and implementing.

With those capabilities integrated within the BRE, the process can be reduced to weeks, even days:

- The business user is guided by the machine into the optimal set of decision strategies. The focus of the business user shifts into a more dynamic maintenance of optimal rules and strategies, and capturing the potential improvements in Business Key Performance Indicators from advanced analytics.
- The user only needs to set the business parameters, supervise or drive the results and their impact on the business metrics, print out graphically represented policies and results for senior approval, and sanction the new optimised strategies into the operational execution.

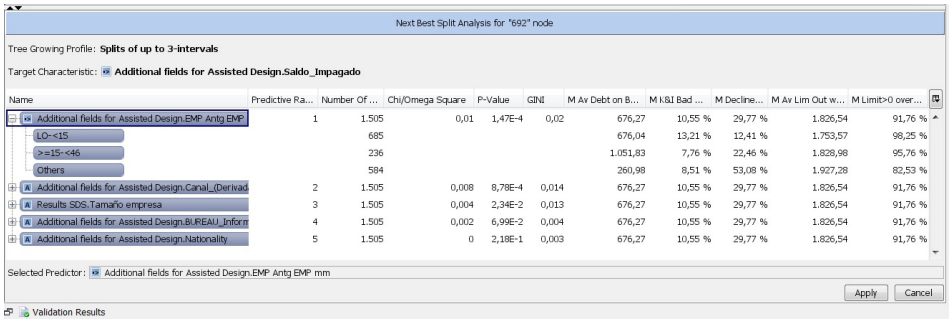

Figure 3: The business user is offered the best possible segmentation splits and outcomes according to the target KPI and 'tree growing' parameters

How much is three to six months of improved, optimised decisions worth when your mortgage portfolio shows a sharp increase in restructures, or your smartphone's conversion rate drops by 10 per cent, or your credit card average bad rate picks up by 15 per cent?

In addition, a reduced total cost of ownership of the technology derives from a reduced number of tools, data storage, technical infrastructure and technical integration; and optimal utilisation of scarce highly qualified personnel with a business analytical profile.

Execution with greater flexibility and IT independence

BREs address two major challenges in operational execution:

1. Parameterising of business rules and strategies
2. Deployment through operational integration within the business processes and applications

Parameterisation of business rules and strategies

Hundreds of fields and components (models, rules, calculations, decision flows, etc.) need a well organised, fully parametric and functionally rich environment to ensure smooth and controlled 'coding'.[2]

So, the first need BREs address is to properly cater for the way the business is structured.

Companies will develop organisational structures to handle large, complex customer orientated operations. For example, splitting responsibilities across the life cycle (originations, management, collections); segments (individuals, SMEs, corporates); products; geographies; or even channels (branch or shop with customer present versus electronic or phone non-present channels).

Therefore, the BRE has to properly handle such split of responsibilities among multiple individuals.

For instance, it is paramount to guarantee that any change to components in a multi-user environment is fully **auditable and traceable**. Controls must be in place within the BRE for keeping overall **integrity of the whole process**, which is continually updated by different individuals and business areas.

Also, **re-usability** is necessary in order to boost productivity and to strike the right balance between corporate policy compliance and local specific requirements (for example, across countries, across the customer life cycle or between products).

Here, advances in **content management** capabilities enable common components to be re-used with confidence across many areas. Any component that is to be utilised as a standard can be converted into a template to be consumed later by any other authorised business user. The need for re-testing proven components is removed.

The second need to be addressed is ensuring full user control, error free parameterisation. Integrated testing facilities, combined with simulation and assisted design techniques, based on data from the actual operational processes, are the backbone for confident parameterisation of the BRE.

[2] Through a BRE the business user does not need to use complex IT skills to code, but to parameterise the rules, models and any component that make up the customer decision strategies through a graphical user-friendly studio.

Testing facilities in advanced BREs include capabilities for tracing different test cases; unitary or batch-based through real data; applied to each individual component, selective subsets of the process, or the whole rule calculation process end-to-end, as required.

An architecture including separated repository and job servers is ideal for a centralised, multi-user BRE environment. While all the components are stored and shared centrally through the repository server, the job server carries the heavy tasks (such as batch testing, components imports or simulations) without interfering with the users work.

The gains in usability and productivity derived from such functionalities and architecture are quite sizeable, contributing again to the shift of focus of the user from time-consuming coding and testing tasks into the more valuable design and exploitation of the business rules and strategies. Again these gains can be measured in terms of reduced time to market and reduced total cost of ownership.

Operational deployment

Business processes where BREs are embedded pose an increasing number of challenges, which make operational execution ever more complex.

These business processes include customer acquisition, customer originations, on-going customer management, debt collection and recovery.

They involve customer interactions and, as such, they need to be highly automated and streamlined to ensure the best customer experience and the most cost-effective operation.

These are the most challenging processes that need to be addressed for smooth operational execution of the BRE:

- Connectivity to access internal and external data sources
- Data aggregation into enriched, meaningful information
- Fraud and ID authentication checks
- Multi-channel and multi-platform real-time integration
- Storage and operating an analytical data mart, incorporating generated data at specific customer touch points and business KPIs for monitoring, modelling, simulation, optimisation and testing
- Orchestration of batch files processing (exchange with the host applications, external debt collection agencies, or external data providers)
- Manual handling of exceptional cases e.g., referrals
- Workflow management, orchestrating the whole process with full business control to balance workloads and capacity planning and real-time response to unplanned events (e.g., bureau down errors, backlog prioritised clearance)

Very often, such challenges have limited the full potential of traditional BREs, resulting in organisations running sub-optimal decisions.

Modern BREs now integrate capabilities within user-friendly studios to address those challenges.

BREs that integrate **data connectivity** provide common standards to access internal and external data sources. Then **data enrichment** capabilities allow complex aggregations to be derived that are valuable for modelling or rule definition. For example, 'total mortgage exposure', 'telecoms payment behaviour', 'credit card in default' can be derived from raw bureau data for each individual customer.

Modern BREs also provide connectivity standards for integration with any business application platforms, to deliver consistent decisions across all business processes and platforms.

Data connectivity and enrichment, coupled with **operational workflow management**, provide the business user with a new level of flexibility and IT independence, way beyond business rules maintenance, for business growth and expansion.

This again dramatically shortens the time to market and evolution costs. In this case, the gains apply when the business expands into new products, channels or geographies, when new sources of data are required, or when new processes need to be incorporated.

For example, the time required for connecting to a new credit bureau, connecting to a national fraud prevention scheme, adding back-office screens for fraud prevention analysts, or simply adding new fields or calculations, is now reduced from a typical 6+ months IT development project into weeks, days, or even hours, of controlled and tested configuration.

Strategic monitoring

Any monitoring capability is about having the right data to produce insightful reports. For customer decisions made through BREs, frequent on-going monitoring is critical to quickly identify any deviation from expected results. But also, its role in proactively identifying areas of improvement opportunities is extremely valuable.

However, it is far too common to find sub-optimal situations.

Historically, reporting has been a clearly separated function from the BRE itself. This may sound a rational approach. In practice, this often results in:

- Inconsistencies between the data held for reporting and the data handled through the BRE, resulting in time-consuming data preparation and double testing
- Different sets of skills required to handle data management and advanced statistical programming-oriented packages has often forced a separation between reporting and business analysts, adding internal communication layers and procedures at best, or resulting in inadequate or insufficient information for the business user at worst

Moreover, previous difficulties in setting up and running a well-designed and cost-effective analytical data mart have time and again resulted in the lack of a common data repository for reporting, simulation, optimisation and model development, which again results in costly and time-consuming ad hoc data extractions and preparation per each of those functions.

Through a well-designed specialised analytical data mart, supported by a robust data storage process, and a flexible, user configurable set of advanced specialised reports, new breed BREs can now provide integrated monitoring capabilities.

Business case through innovation, speed and reduction in the cost of ownership

We have identified three business cases to speed up the adoption of an advanced BRE within the organisation:

1. **Innovation**: analytically driven strategies, incorporating assisted design and optimisation consistently deliver uplifts in the range of 5 per cent to 40 per cent in increased revenues, conversion rates, utilisation, bad debt reduction or other business KPIs
2. **Speed:** centralisation, re-usability, integrated analytics, execution and monitoring, reduces time to market from months to weeks, or even days, in both designing rules and strategies, and incorporating new operational processes
3. **Cost**: the reduction in tools required, advances in connectivity and workflow management and the integration of a specialised analytical data mart dramatically reduces the total cost of ownership of the technology

Conclusion

Better customer decisions are a powerful force for improving business performance. Precisely targeted, confident decisions, consistently delivered across the Customer Life Cycle, can really drive profitability in today's increasingly competitive environment

To increase the pace of improvement and accelerate return on investment however, you need efficient and effective methods of developing and deploying these insightful decision strategies to truly drive more business value from customer decisions.

This paper has demonstrated how an advanced, integrated Business Rules Engine can really drive profits, whilst improving productivity and reducing costs.

Business Rules Engines

Introducing PowerCurve

Advanced, automated, dynamic decisioning across the Customer Life Cycle.

PowerCurve™ is the advanced, integrated Business Rules Engine form Experian.

Combining advanced analytics, data and decisioning strategies, **PowerCurve™** helps organisations drive higher performance with more insightful and dynamic decisions to stay competitive and make better, faster and confident customer decisions to improve profitability.

PowerCurve™ is a powerful, innovative decision management platform which sits across the customer lifecycle, providing greater agility, flexibility, control and insight into your decision making process. With Experian's PowerCurve, you can unlock the value of your data to make accurate, analytics-based decisions quickly, efficiently and repeatedly, empowering your decision makers to better predict customer behaviour, anticipate change, reduce risk and drive strategic decision-making as you acquire, manage and grow customer relationships.

PowerCurve offers a unified set of software products that make the process of creating, implementing and improving customer decisions simpler, more efficient and more user-friendly, so you can really drive much more business value from customer decisions.

To find out more about integrated BREs and PowerCurve, visit www.experian.com/powercurve today.

About Experian Decision Analytics

Experian Decision Analytics offers more than three decades proven expertise in enriching customer data and building meaningful analytics to help organisations grow profitable customer relationships.

Our powerful decisioning products and services combine data intelligence, analytics, software, reporting and consulting to turn insights into actions that improve business performance. We have clients in more than 90 countries and local offices in more than half of these. Our expertise in credit decisioning technology and best practices is market-proven and thoroughly global with local impact.

To find out how Experian Decision Analytics can help your company drive more value from business decisions, visit www.experian.com/da

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