Our Mission

Take advantage of new technologies to create risk management solutions that are simple to operate, easy to customise, out-perform “existing-bank-systems”, at a very cost effective price due to improved software technologies.

Why use software designed and priced to run on these...  ...when there’s software that harnesses the power and cost-effectiveness of these?
Who We Are

• Business established by Financial Services practitioners to address gaps in current industry solutions
• Experience driven out of the global best practice standards in Australia’s banks
• Complementary solutions and teams
• Based in Melbourne, Australia and Silicon Valley in Mountain View, California

• Modular, flexible origination solution for complex Non Retail lending.
• Used across an organization by Lenders & Credit; or
• Customers, Brokers and others for direct lending approvals

• Advanced risk modelling capability to highest regulatory standard for lenders
• Technology able to seamlessly deploy into bank environment
Many ‘big’ Problems Solved

**THE PROBLEM**

- Slower approvals causing opportunity costs to borrowers through delayed time to market.
- Demand for higher productivity and automation in banks in high-wage countries to reduce operation costs.
- Model changes slow, costly to test. High regulatory cost overhead
- Client data still maintained through hard copies. This data has enormous value in establishing credit worthiness of borrowers and is underutilized.

**OUR SOLUTION**

- Achieve Faster Turnaround Time
- Lower Cost to Income
- Increase Net Interest Margins and Fee Income
- Support introduction of Basel standard Risk processes
- Maximise advanced data and analytic processes

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What We Do
– Loan Origination Integrated with Advanced Risk Management

- Front line bankers use our solution to capture data for the credit process
- Our framework supports an SME front end UX accessible by borrowers, brokers or others for direct approvals.
- Complex Risk models can be applied and managed seamlessly
- Analytics and model development, monitoring and validation all in the same environment

Identify
- Demographics & Profile
- Aggregation Group
- Accounts & Limits

Analyse
- Financial Analysis
- Segment Template

Quantify & Price
- Ratings/Prob. Default
- Collateral/LGD
- Relationship Pricing

Approve
- Approval Authorities
- Covenants & Terms
- Document Generation

Risk Governance, Compliance and Audit
- Risk Discovery
- Gap Analysis
- Remediation/Transformation
- Audit and Monitoring
- Regulatory Review

Stress Testing
- Reporting
- Model Management
- Model Development
- Analytics Workbench
- Model Validation
- Performance Monitoring
- LGD/EAD Data Capture
Key Solution Capabilities – Flexibility

• RFM is designed to be flexible and underpinned by a strong modular philosophy
  – All modules can integrate seamlessly together as a complete end-to-end Commercial Credit Origination and Risk Decision System OR;
  – Integrate with Bank’s own Origination systems in a seamless fashion

• This ensures that all aspects of model assisted commercial credit decision making is integrated.

• Leading to productivity enhancements, better risk management and regulatory credibility.
Key Solution Capabilities – Agility

• RFM is designed to integrate all data sources required for non-retail credit in one environment.

• The data binding interface allows data to be accessed from any internal relational, multi-dimensional, text-based or web-service-based data source and even spreadsheets.

• A visual decision modelling engine that allows objects and cause-and-effect relationships of any kind between them to be modelled and quantified.

• A what-if simulator that allows users to “drag and drop” proposed plan changes, and while dragging, impact and outcomes are updated. This reduces in-flight change impact analysis from weeks to hours.

• An “over the horizon” risk analyser that uses the rules base and simulation to provide managers with early warning of potential risks.

• Highly customizable visualisations to provide the clearest information in the most intuitive way.
Model Management – Efficiency

RFM is underpinned by a revolutionary new architecture that allows:

• Credit models to be developed in a powerful visual environment.

• Validation and stress/unit testing to be carried out in the same environment.

• When production ready and following internal and regulatory approvals, new models can be brought online extremely quickly.

Property panels capture enterprise application configuration and functions within the model.

Application panels built by enterprise server by reading configuration information from model.

Manage Models

Deploy Applications

Enterprise Model Repository

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Integrated Model Management / Line of Business Operations

Model Development and Maintenance Lifecycle:
- Model check-in/check-out and change history
- Model workflow lanes (development, validation, production)
- Visual model editing
- Binding to multiple data sources and formats
- Stress Testing
- Automated documentation management.
- Integration with BI and Analytics tools (e.g. R).
- Automated Credit rating and re-rating
- PD/LGD/EAD including modeling.

Line of Business Application Lifecycle:
- Automated model selection logic based on borrower and loan details
- Loan origination screens auto-configure to capture data required by model
- Model changes instantly propagate to LOB applications

Automates propagation of risk model changes to line-of-business applications **without** requiring IT resources or months of development.
Model Authoring

World Modeler Analyst

Desktop

Model Management Repository

RFM Enterprise Server

Configuration management ensures only authorized models are accessible in production.

Manage model elements from Tree view or diagrams.

Directly interface with enterprise software, including R.
Data Integration

World Modeler
Analyst
Desktop

Integrate with enterprise data sources

RFM Enterprise Server

Dynamically define queries and bind query results to model elements.
Automated Model to Application Propagation

World Modeler Analyst Desktop

Model manager includes application metadata needed to run the LOB applications

RFM Enterprise Server

RFM Server constructs screens and executes operations by requesting information from the model repository.

Changes made in the model...

... are automatically reflected in all application screens and logic...

... without needing IT resources and months of delay, and at a fraction of the cost.
Automated “Injection” of Model Fields Into Existing Applications

1. Identify areas in existing forms that input model parameters.

2. Remove existing model input fields from forms and replace with RFM stub.

3. RFM Code Stub dynamically creates model input fields by reading RFM model without affecting the rest of the application. Allows complete model flexibility with no application impact.
Previous Experience

- Our dual sets of experience in Commercial Credit Risk Management and Enterprise Software Engineering provides us with a unique set of advantages for assisting Banks.
- In addition we are data science pioneers, having developed key algorithms in machine learning and today, are sought-after global thought leaders in this field.
- With our successful track record of real-world enterprise solutions, our team creates practical and robust solutions for our customers’ data, analytical, process and decision-support needs.
Loss Capture System Benefits and Value-add

- Loss Capture system that can adapt to a Bank’s processes rather than constraining you to a pre-defined;
  - Workflow
  - Credit Culture
  - Sophistication

- Agility & Flexibility
  - Business Rules
  - Policy Rules
  - LGD Model Deployment (not just current generation)
    - Collateral Spreading Optimisation

- Integrated Development and Deployment
- Integrated Model Registry (Regulators)
- Stress Testing or more general Scenario Analysis
- Rapid ability to solicit ad-hoc manual data (For developer’s)
- Performance Monitoring and Report Writing
- No Coding for model changes
Loss Given Default Module

- The RFM system is engineered to be modular and integrate seamlessly on its own.
- It has enterprise-grade security and role specification to ensure that organisations get maximum operational flexibility in house or in a cloud-hosted environment.
- All delivered via web optimised interactive screens.
Loss Given Default Module

• The front end displays each user’s workflow so they can jump back in to the work they were doing with minimum effort

• Has all the features you would expect
  – Record locking
  – Audit trail
  – Multimodal search
The Group hierarchy is then exposed and the user can start to fill the required data gaps.

The data model will preserve the hierarchy.

It can be configured to target the Bank's processes.

The data can be populated from core systems or binding to them as thus bringing together all the loss data.
Loss Given Default Module

Each of the important recovery inputs can be reconstructed from the manual files in a structured manner to bridge the data gap for model development and validation.

Benefits

• Banks understand the default situation and this process while laborious initially can be migrated to the workout area.
• Cures can be accurately determined to provide the basis for the cure model.
• Other post-default paths are also better understood.
• This process also shows up any issues in the EAD estimation.
• Regulatory comfort with the process can be demonstrated thus assisting with model approvals.
• Ability to integrate with large variety of systems to capture partial data automatically, hence improve productivity
STRESS TESTING

RFM
Stress testing

• This section provides highlights of the Stress Testing Module
• Demonstrating the Flexibility of the RFM framework.
• Ability to manage an unlimited number of past and future stress test scenarios and also use RFM to understand portfolio dependencies.
Flexibility with Stress Testing

- Example Dashboard for managing and overviewing a Stress Testing scenario.
- The user has a library of scenarios, an ability to define a portfolio (or total) to run it on – and then an overview of results before drill down.
- Stress Testing can be performed either via Transition Matrices or the Bank’s PD and LGD models
Stress Testing (Continued)

- Stress Testing can be performed either via Transition Matrices or the Bank’s PD and LGD models.
- Sliders can be created in a very transparent manner to also shock the whole portfolio.
- The sliders can be used to great effect when expert opinion understands the dynamics, regulators or Boards prescribe shifts.
- However we believe that their greatest utility is evident in the attempt to understand portfolio shifts in a structured way, without resorting to quant involvement.
SYSTEM ARCHITECTURE

RFM
System Architecture

Interface to external databases (e.g. Salesforce)

Credit Risk Management, Compliance & Oversight
- Loss Given Default
- PD / Risk Rating
- Stress Testing
- Model Customization

Analytics and Model Development

Loan Management
- Spreading
- Collateral Management
- Loan Origination and Workflow

Credit Risk Management
- Analytics and Model Development

Banking Users

Analysts

Management Oversight
Architecture of Model Management

Development Environment

World Modeler Enterprise Desktop

Set Model Status

Model

Versioned Model Repository

Check-out Model

Edit & Save

Check-in Model

Workflow Manager

Set Model Version Enable Test and Production Keys

Administration Console

Retrieve Production Model

Retrieve Test Model

Test/Validation Model

Staging Server

Test & Validation Data

Production Model

Production Server

Production Data

What-if & Simulation Data

World Modeler Server

Scheduler

ASP.NET Platform

Web Services Consumers

Interactive Users

Interactive Users

Web Services Consumers

External Systems

External Data Sources

External Data Sources

Custom Interfaces

Data Binding

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Benefits and Value-add

• Adapt to Bank’s processes rather pre-defined workflow thus enhancing
  – Credit Culture
  – Execution
• Agility & Flexibility
  – Business Rules
  – Policy Rules
  – Model deployment (not just current generation)
• Integrated Development and Deployment
• Integrated Model registry (Regulatory)
• Scenario analysis and Stress testing
• Rapid ability to request manual data
• No Coding for deploying model changes

• Higher return on investment
  – Using the most trusted yet productivity rich framework
  – Modern data driven management is part of the DNA of the environment not a bolt on.
• Enhancements in model accuracy leads to multiple benefits
  – Enhanced P&L as model Power increases (I has been estimated that 5% increase in model power, up to $5m increase in P&L for $50-60bn Bus. Portfolio)
  – The only reliable way to improve model power is the ability to develop \( \rightarrow \) monitor \( \rightarrow \) fine-tune \( \rightarrow \) redeploy – This is currently a major problem for banks due to the high cost of a model release.