Getting to the "Best Yes"

Verde
Aurora™, Corona™ & Allele™

Underwriting, Pricing & Management Systems
• **Verde Builds Best in Class AI Systems for:**
  - **Underwriting, Pricing & Customer Management**

• **Solutions Adapted for Your Markets & Requirements**
  - **Cost:** Affordable, Far Below Traditional Processes
  - **Performance:** Always Beats the Competition

• **Creates Value for:**
  - **Lenders,**
  - **Borrowers,**
  - **Partners,**
  - **Communities**
  - **Anywhere**
Whether... Conventional Underwriting Practice

BIG or small

Doesn’t Scale

Labor Intensive

Too Subjective

Too Contentious

While underwriting $1.4 trillion over 28 years, I’ve learned a few things about lending.
Whether...

BIG or small

Conventional Underwriting Practice

Can’t Grow

Too Expensive

Risk, Profit, Regs?

Waste Resource

While underwriting $1.4 trillion over 28 years, I’ve learned a few things about lending.
Whether...

Verde Aurora & Corona solve each with

- **Big Data**
- **Automation**
- **Best Models**
- **Optimal Pricing**

- **Big Data**: 10,000 Series Many Sources
- **Automation**: 99.6% Full Auto
- **Best Models**: 5X Better
- **Optimal Pricing**: Best Yes

2015 1-on-1 Performance Match

Verde Aurora™ & Corona™ vs. Industry Best Practice

Verde Demonstrated:
- $53 Million Profit Improvement
- $1 Billion Loan Requests

Process more applications
Approve more loans
Fund more loans
Fewer losses
Price to win

While underwriting $1.4 trillion over 28 years, I’ve learned a few things about lending.

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ADVANCED UNDERWRITING
Conventional Underwriting vs. Verde Aurora™

Conventional Underwriting

- Pass/fail filters used to avoid bad loans.
- This approach has major limitations:
  - No prediction of Probability of Default
  - No prediction of Loss Given Default
  - No prediction of Loan Life Cash Flows
  - No prediction of Profitability
  - Poor Pricing = Wasted Opportunity

Verde Aurora™

- Aurora AI knows how Customer Behaviors, Market and Business Economics, and Loan Terms all influence credit performance & profitability of every loan.

- Precise models and optimized offers deliver the “BEST YES”, making the most of each opportunity.

Pass/Fail Criteria

- Debt to Inc.
- Loan to Value
- Credit Score
- Regulations
- Underwriter Opinion

Approve

Decline

PD ✓  LGD ✓  Cash Flows ✓  Profits ✓  Most Opportunity ✓  Basel III AA ✓
Aurora delivers comprehensive, objective and accurate forecasts that drive:

- Higher Approval Rates
- Greater Inclusion
- Higher Capital Flow
- Lower Losses
- More Favorable Pricing
- Better Lender Returns
- Greater Economic Development

That's getting to "the best YES!"

Yes! for the Borrower
Yes! for the Lender
Yes! for the Community
Great financial forecasts, optimal pricing and best use of capital are impossible without accurate loan loss and cash flow projections.

For a typical $1B installment loan portfolio, the difference between underwriting with Verde's PD model (green) and the traditional bureau-based model (purple) is about $25MM profit improvement.

Automation and offer / counteroffer optimization contribute $28MM for a $53MM total profit improvement over the loan term.

How to Read a Lorenz Curve
- Credit model performance can be compared using Lorenz curves.
- The graph compares any model to two extremes:
  - Random Guess (grey) is a naive forecast, assuming the average.
  - Actuals (red) is the best you can do, a perfect prediction.
- The area between grey and purple is the benefit of the Bureau score.
- The area between grey and green is the benefit of the Verde score.
- The difference is the Verde Advantage.
From application... to decision... to funding.

So simple & in just seconds, we get you to “the best YES”.
VERDE ALLELE™ Loan-Level Forecasting & Account Management
Make the Most of Existing Loan Relationships

- Loan Loss Provisioning
- Continuous Customer Monitoring & Valuation
- Targeting for Customer Management, Marketing, Collections
VERDE LENDING SOLUTIONS
AI Systems for Loan Underwriting, Pricing & Customer Management

- Unbeaten Performance
- SX More Accurate Than Next Best
- Full Financial Forecast on Every Loan PD, LGD, NPV, Monthly Cash Flows
- Instant Decisions, Pricing & Counter Offers
- Easy to Use, Adapted to Your Requirements w/ Precision of Verde's Econometric AI Engine
- Loan-level Loss Provision & Financial Pro Formas
- Full Scenario & Stress Testing w/ Analysis Sandbox
- 100% Policy & Regulation Enforcement
- Loan-Level Validation of Fairness & Inclusion
- Basel III Advanced Approach w/ Integrated Stress Testing
- Target and Prioritize Customers X-Sell, Retention, Build Deposits
- Drive Collection Strategies w/ Daily Priority Queues
- Trigger Process & Data Requests at Loan & Segment Levels
- AI-Driven Systems Maximize Relationship Value
- Fund More w/ Higher Returns & Greater Certainty
- Win-Wins w/ Certain Returns Maximize Capital Flow & Development
- Projections for Each & Every Loan on Schedule or on Demand
- Projections Change w/ Markets & Customers
- Real-Time Alerts to Select Staff w/ Integrated Feedback & Tracking

VERDE AURORA™
VERDE ALLELE™

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VERDE AURORA™, CORONA™ & ALLELE FAQs

Where do you get your data?
- From everywhere. Each market is unique.
- More Sources = Better Models.
- Verde builds automated connections.

Can it integrate with my other systems?
- Yes!

What loan types are supported?
- Microfinance, Consumer & SME loans and lines.

Will it work for a lender my size?
- Yes!

Will it work in my market?
- Is it on Earth?...Yes!

Can I get to my data?
- Your data is always available. 100% of it.
- Access is free & unlimited via reports, SQL queries.

Over the Web or installed on your own hardware.

How do I access Aurora and Corona?
- Your data is encrypted in transit & in the database.

Is my data secure?

How much does it cost?
- Typically, about 1/3 of what you pay today.
- There's a setup fee, then we charge based on use.

Are the models generic? The same for everyone?
- Models are optimized for your specific situation.

For max performance, we build them unique to you.
At origination and throughout the account & relationship life, Verde provides industry leading risk and financial performance management analytics and automated decision solutions that can be fully integrated with your existing business operations and workflow.

Aurora™ and Allele™ can work with your existing core, LOS, data interfaces and, as needed, independently capture additional external data to improve decision making.
Verde Aurora™ & Corona™

Loan Underwriting For Consumer & SME Detail
VERDE AURORA™ is a fully automated advanced underwriting decision engine and offer optimization system. For fintech companies and third-party processors, a decision engine is usually little more than a decision tree.

VERDE AURORA™ rivals the best bureau credit scoring with Basel III Advanced Approach forecasting providing PD, LGD, cash flows, and profitability. Decisions are instant, along with optimized counter offers.

VERDE CORONA™ is a Windows-based, advanced loan origination system that provides system-to-system, third-party, and application interfaces, database and system of record functions, and a suite of reporting, analysis and administrative tools.

VERDE AURORA™ & CORONA™ can be delivered behind the client’s firewall or as software as a service (SaaS).
Verde Builds Models to Measure Critical Behaviors

- **Default**
  - PD
  - Timing
  - LGD

- **Repayment**
  - Probability
  - Timing
  - O/S @ Payoff

- **Acceptance**
  - Probability
  - Timing
  - Deal Size

- **...**
  - Probability
  - Timing
  - Magnitude

**Categories**
- Fraud
- Deposits
- Relationship
- Soc. Impact
Conventional Underwriting → Limited Understanding = Limited Performance
Expanding constraints and behaviors help, but we still lack context and objective.
VERDE AURORA™ & CORONA™
Verde’s Contextual & Holistic Process vs. Conventional Underwriting

Limiting Factors

Goals and Interests

Actions and Reaction

Objectives
- Lender
- Investor
- Capital Partner
- Channel Partner
- Indirect
- Regulator
- Government
- NGO
- Community
- Borrower

Behaviors
- Borrower Risk
- Borrower
- Performance
- Lender Packaging
- Lender Servicing
- Competition
- Social Impact

Constraints
- Regulatory
- Business
- Operational
- Capital
- Borrower
- Partner
- Culture
- Channel

All participants have interests to be satisfied. Some in harmony, some in tension.
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Forces Beyond Control
- External Forces
  - Exchange Rates
  - Prices
  - Employment
  - Production
  - Inventories
  - Demand
  - Wages
  - Interest Rates
  - Culture
  - Politics

Actions and Reaction
- Behaviors
  - Borrower Risk
  - Borrower
  - Performance
  - Lender Packaging
  - Lender Servicing
  - Competition
  - Social Impact

To interpret & forecast behaviors, we need to understand the context or environment.
Verde’s contextual & holistic process is more accurate, considers all interests and contexts, runs stress and compliance tests, and optimizes the full value proposition.
Ecosystem Perspective

**ECONOMIC CONDITIONS**
- Market Demand & Competition
- Local Market Conditions
- National & Global Conditions

**REGULATORY EXPECTATIONS**
- Safety & Soundness
- Fairness & Inclusivity
- Competitive Practice
- Economic Development

**CAPITAL PARTNER INTERESTS**
- Financial Performance & ROI
- Soundness & Reporting
- Development & Inclusivity

**LENDER GOALS, COST & OPERATIONS**
- Financial Performance
- Capital Optimization
- Operational Efficiency & Scalability

**BORROWER GOALS, ABILITY & BEHAVIOR**
- Goals & Economic Opportunities
- Financial Performance & Plasticity
- Financial Behavior & Resourcefulness

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**SME Loan Underwriting Economic Model Factors**

- Interest Rates
- Wage Growth
- Population Growth
- Sector Growth
- Commodity Pricing
- Purchase Price Parity
- International Trade
- Unemployment
- Inflation
- Competition
- Market Demand

- Debt Load
- Exposure
- Balance/Limit
- Debt Service
- Credit Line Utilization
- Liquidity
- Depreciation
- Product, Revenue
- Customer Growth
- Customer Retention
- Customer Attraction

- Revenue
- Expenses
- Historical/expenditure
- Inventory Shelf Life
- Taxes
- Labor Cost Stability
- Supplier Dependence

- Profitability Growth
- Capital Utilization
- Social/Community Impact

- Business Process
- Talent Deployment
- Product Offerings
- Market Environment

- Current Capital
- Future Capital
- Infrastructure Limitations

- Origination Fees
- Processing Fees
- Servicing
- Transaction
- Hedges/Insurance
- Recoveries
- Gain or Loss

- Net Realization
- Channel Fees

- Cost of Funds
- Data Entry
- Origination
- Other Data Costs
- Costs
- Maintenance

- Collections
- Taxes
- Collateral Repossession
- Collateral Sale
- Marketing/Promotion

- Transaction
- Charge-Off
- Closing
- Hedges
- Channel Incentives

- Goals
- Infrastructure
- Capacity

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Verde Allele™ for Portfolio Management

ALLL, CCAR, DFAST, CECL Detail
**VERDE ALLELE™**
CECL / ALLL / CCAR Model Sophistication

**Loss Rate**
- Cumulative loss rate over expected life

**Vintage**
- Predictable losses based on seasoning

**PD/LGD**
- Dual risk rating based on historical performance

**DCF**
- Combine PD/LGD with present value

**Migration**
- Markov Chain, statistical analysis

**Econometric / Behavioral Models**
- Causal factors -> Behaviors -> Financial Consequences

**Why Econometric and Behavioral Models:**
- Best attributes of PD/LGD, DCF & Migration
- Relate causal factors with financial incomes
- Highly accurate predictors of risk
- Highly accurate predictors of behaviors driving the balance sheet & bottom line
- Direct support of stress testing

**Why Account Level Models:**
- Increase accuracy
- Insight for strategic planning
- Best support for operational demands
- Best support for relationship management
VERDE ALLELE™
Process Flow Chart

Unit Probability and Timing Models
- Time To Default
- Time to Repay
- Probability of Default Model

Translation to Net Dollar Default
- Payment Behavior
- Early Repayment
- Loan Balance at Default
- Post Charge Off Recovery

Account-Level Projected Loan Life Forecast
- Net Loan Losses & Loan Loss Rates
- Repayment Rates
- Balance & Profit Impact

Local Economic & Competitive Database
- Loan Origination & Core Database
- Loan History Oldest to Present
- Complete Records Through Business Cycle

Reports
 Processes
VERDE AURORA™ & VERDE CORONA™
A Consortium Approach to Empower Lenders of Any Size & Experience Level

**Problem:** Many small or fragmented lenders lack advanced underwriting tools for scalable underwriting, preventing reliably lend beyond existing products and markets.

**Consequence:** Capital flow is constrained and poorly deployed with unacceptable compliance and performance risk.

**Solution:** A self-governing consortium of lenders contribute application and credit performance data to build proprietary advanced underwriting models. This makes best-in-class underwriting available and affordable for all members.

Models are tuned to each lender along with their particular business rules, cost assumptions and credit policies within an AI underwriting system providing PD, LGD, Cash Flow Projection, Loan Decisions & Optimized Pricing.

Supports & exceeds Basel III Advanced Approach standards, is suitable for stress testing & integrates with Verde Allele™.

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The self-governing body of lenders defines participation rights, contribution requirements and usage rights.

Each lender contributes retrospective lending information and ongoing loan requests and payment performance.

Data is used to build custom underwriting models that reflect the collective experience and are attenuated to the individual lender.

Direct and indirect loan requests are processed automatically including offers and optimized counter offers in about 1 second.

The system continually monitors and reports model and system performance.

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FI Associations, Multi-Market Lenders, Capital Partners, Aid & Development Organizations

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VERDE CORE™
A Complete Banking & Financial Service Platform - System Structure

**Purpose:** Complete front and back office functionality for banks, CU's, fintechs and finance companies. Easy to use, simple to deploy, secure, transparent, data-rich.

**Design:** Multilayered web application utilizing ASP.NET & C# for considerable flexibility & adaptability.

**Deployment:** Web-based SaaS solution or installed behind a client’s firewall.

**Database:** Microsoft SQL Server DB database provides affordability, reliability, high performance & high security.

**Security:** Full encryption between layers. DB encryption options. Highly configurable Security and Authorization layer has strong, flexible controls.

**Scalability:** Load balancing across multiple servers.

**Failover:** Mirroring, replication & multi-server rollover.

**Adaptability:** Easy to add products & functions.

The UI and scheduling application sit outside the Web Layer, as do third-party applications that are connected via a proxy server.

Security is handled below the Web Layer and is fully customizable. Authorization can be assigned by user class and at the individual user level.

WCF is used to deploy all services below the Security and Authorization Layer.

The database is built within SQL Server and replicated in a reporting environment. This provides clients a simple, low cost path to reporting and analysis.

Connectivity to other Verde applications, as well as third-party applications and data sources, is virtually unlimited.
**VERDE IONOS™ Systematic Fraud Protection**

**Fraud Dimensions**

- When
  - Origination
  - Transaction
- What
  - Identity
  - Facts
- Who
  - Customer
  - Employee
  - Agent
- Where
  - Internet
  - POS
  - ATM
  - 3rd Party
  - System

**Combating Fraud:** *Verde Ionos™* works by continuously monitoring and analyzing activity to detect and alert your team to potential threats.

**Deployment:** *Verde Ionos™* fraud detection systems search for potentially aberrant and threatening activity. When threatening patterns are detected, *Verde Ionos™* generates content-rich alerts to help your staff understand the nature and significance of potential threat.

**Models:** *Verde Ionos™* combines static behavioral models with machine learning for peak performance. *Verde Ionos™* measures identity discrepancy, data inconsistency, data fabrication, and first/early payment default risk.

**Business Rules & Economics:** Model output measures probability and severity, drive business rules and calculates the economic consequence of false positives and false negatives for a rational, informed approach to fraud management.

**Reporting & Alerts:** *Verde Ionos™* interfaces with banking system to drive alerts, processes and flag settings. It can also push external, real-time alerts.

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