CreditExpo
Overview

CreditExpo

CreditExpo – Who We Are

- Consulting & Software Company specialising in Empirical Credit-Risk Management (ECM) incorporating Predictive Analytics combined with Profitability Measurement (EYC)
- Patented software product developed over 12 years
- Feature-rich software products, serving multiple business units, New Business and Loan Pricing, Performance Management and Collections, Regulatory Reporting and Portfolio Evaluation
- ECM Analytics product based on the individual lender's own customer data
- ECM product differentiates and measures credit risk for account management and to address the new more stringent regulatory reporting standards of IFRS and FASB
- Architected from the outset to include performing with non-performing loans (the essence of the new Expected Loss Model), delivering accurate, objective, verifiable results for over 15 years to Banks, Finance Houses and Credit Unions.

Dr. Patrick Shallow, Founder and CEO

- Former senior banker with wide experience In Ireland and South Africa
- Founded the corporate treasury consultancy, Finalysis Ltd in 1990 and Finalysis UK Ltd in 2001, to service the corporate and university sectors
- Founded the consultancy and software development company, CreditExpo, in 2001, initially providing consultancy to the League of Credit Unions on mortgages and treasury
- Through CreditExpo Pat then developed the ECM methodology and software for the main Irish Banks and Credit Unions, securing academic and regulatory acceptance
- Previously, MD of the Metropolitan Building Society. Earlier MD designate of finance house Chartered Trust Ireland, wher he developed an interest in the mathematics of Credit Risk
- As economist with Standard Bank of SA, Pat specialised in analysis of branch profitability
- **Qualifications:**
- B. Comm (Law and Economics) University of the Witwatersrand, Johannesburg
- MSc. from Trinity College, Dublin (Thesis on the future of Irish Building Societies)
- PhD in Banking from the Smurfit Business School, UCD (Thesis on empirical credit risk measurement of retail loans, the error in international regulations and consequences for bank management and loan losses)
- Fellow of the Institute of Bankers of SA, frequent contributor to Finance Magazine and guest lecturer on treasury at University College, Dublin

Our Credentials

- Risk identification for loan acceptance, risk mitigation and pricing
- Trend analysis for profitability measurement and reporting
- Product & dealer performance analysis

- Retail loan portfolio segmented into 4 sub-portfolios
- Three portfolios re-priced based on measured risk, (4th portfolio exited)
- Product & dealer performance analysis

- Strategic analysis and identification of loss forecast, advising the bank to exit the lending market and to in-source its collections

- Installed in 30 credit unions
- Providing objective and accurate analysis of credit risk with provisioning, collections, new business and pricing

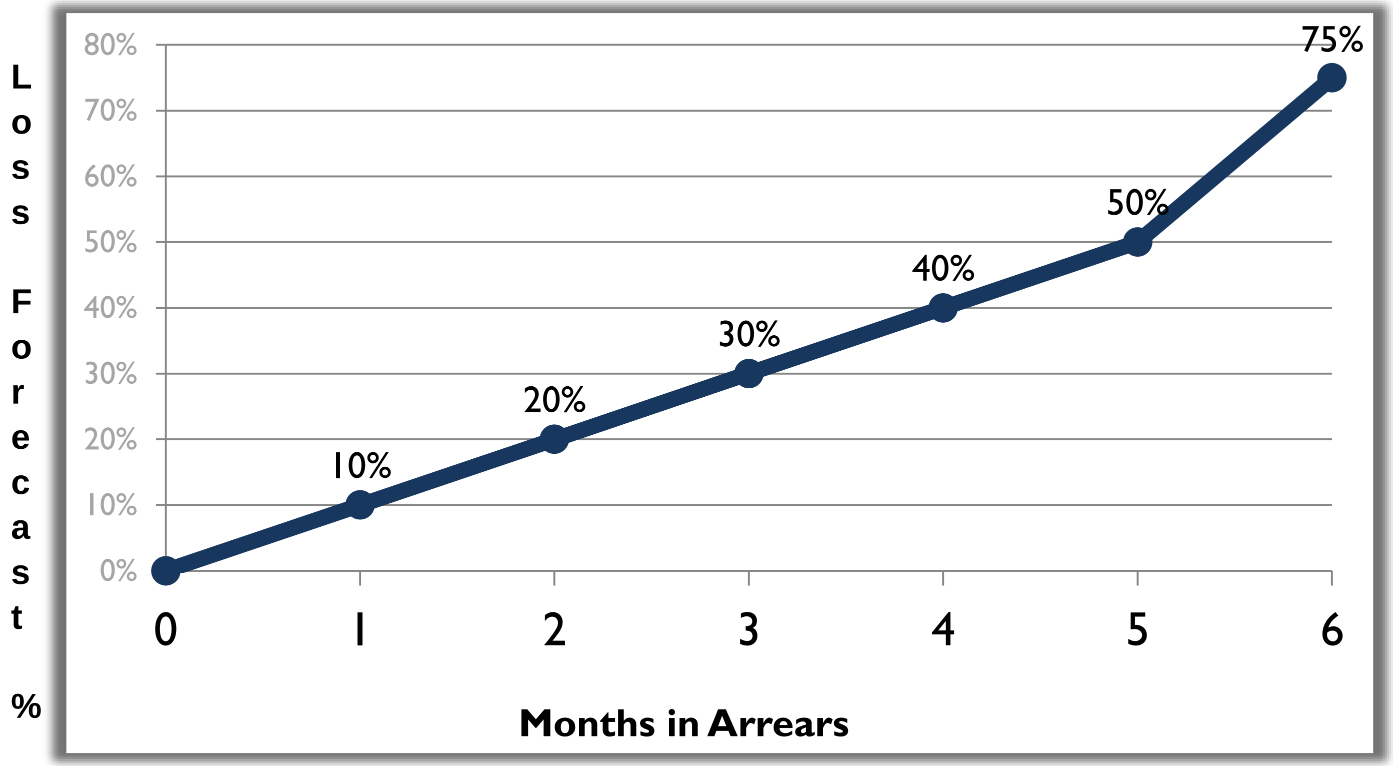
- Validation of new credit scores & identification of score outliers
- Revenue commissioners acceptance of the ECM calculations generated additional relief from corporation tax

- ECM methodology reviewed and approved for operation with bank and credit unions

Important developments in the Retail Lending market

- Following the global financial crisis the accounting bodies decided to move from the Incurred Loss Model (arrears based) to the Expected Loss Model (recognising the real expectations of lenders)
  - The new FASB is to operate in the US from 1/1 2020 (in Canada, from 1/1 2018)
  - Core FASB Features: 'well performing' loans, data based/empirical, granular, recent, automated and verifiable
  - IASB, declared its standard in 2014, and is to operate in Europe from 1/1/ 2018
- Intense competition between lenders for quality borrowers
- Lenders are, under FASB, urgently turning to Data Analytics for compliance
- Need for speed and accuracy for profitable lending and to monitor trends in credit risk

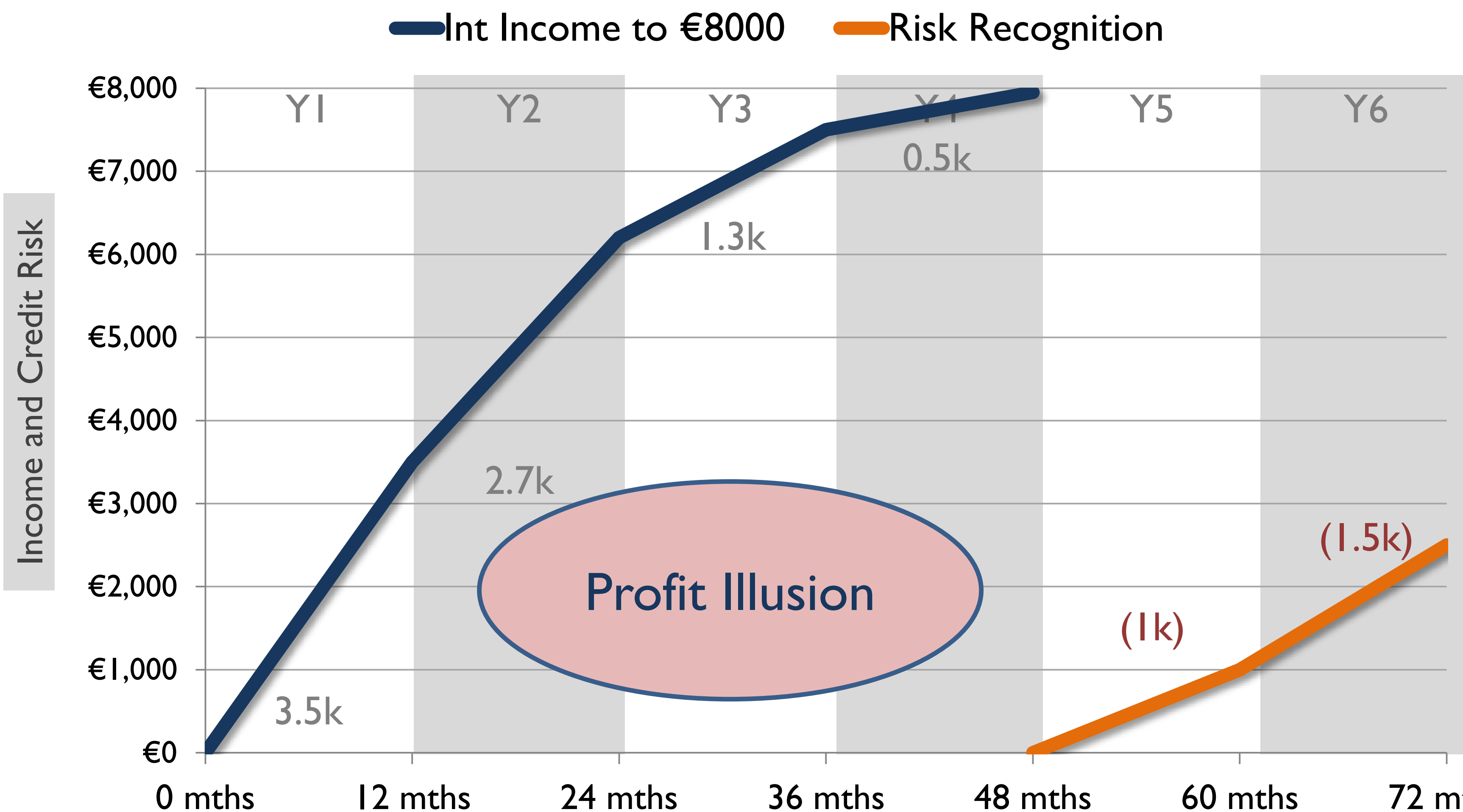
Incurred Loss Model
Former tool for portfolio provisioning



Deficiencies:

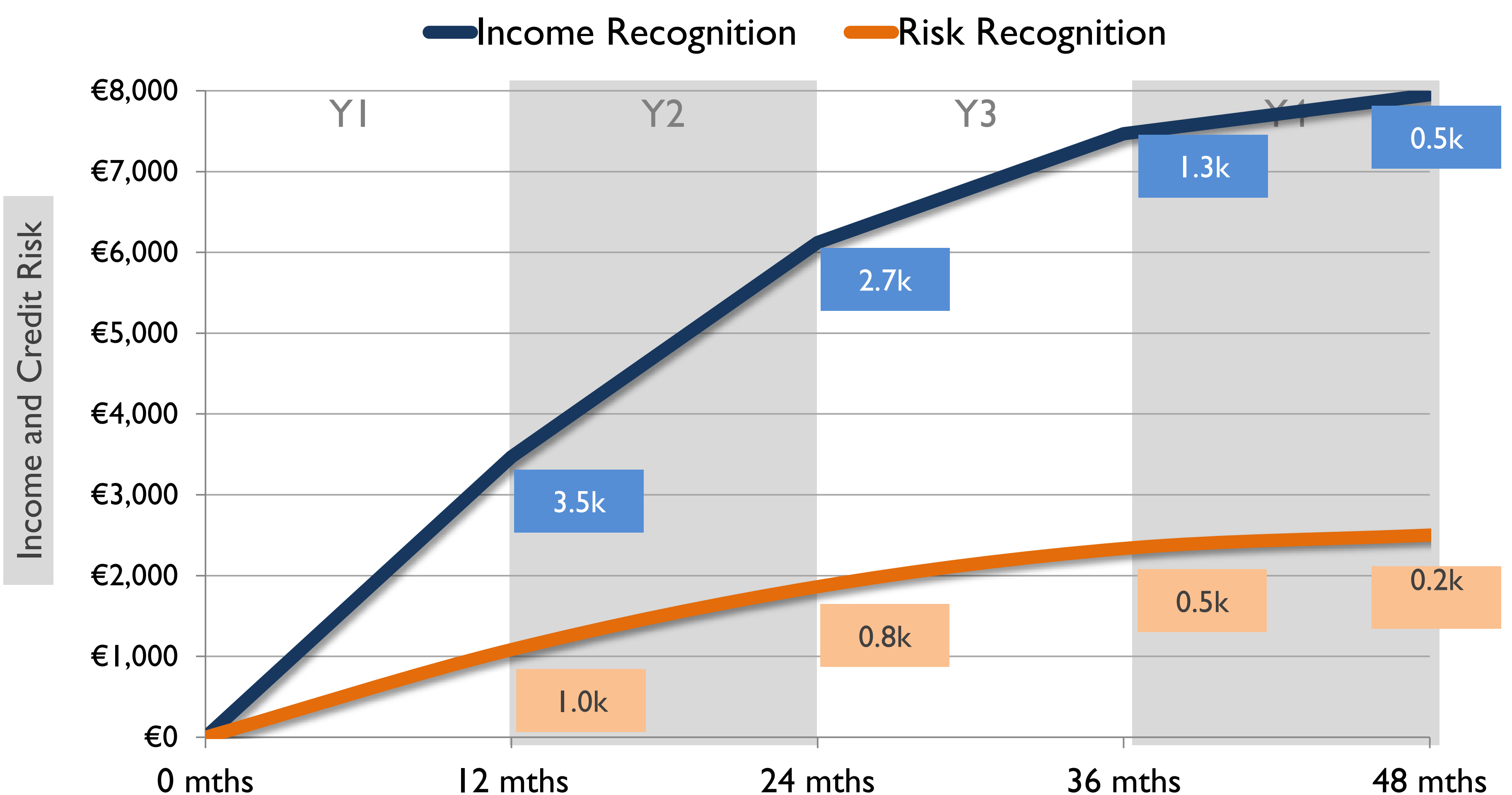
- Rates are generic, fixed, inaccurate
- *Well-Performing* portfolio risk is not identified

Incurred Loss Model
Mismatch of Income and Risk Recognition



Recognition Income/Loss	€8,000	(€2,500)

Expected Loss Model – using ECM Analytics
Synchronising Risk Recognition with Income



Recognition Income & Risk	€2.5k	€1.9k	€0.8k	€0.3k

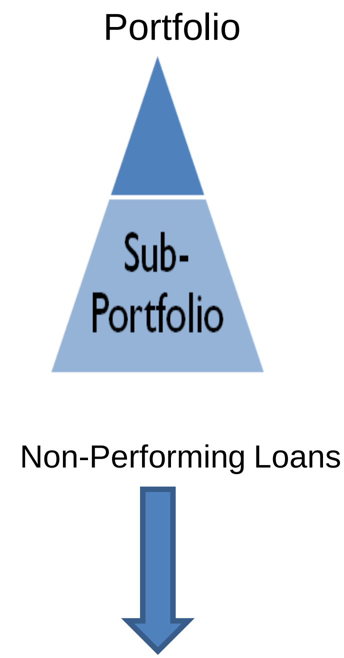
ECM Product
Overview

CreditExpo

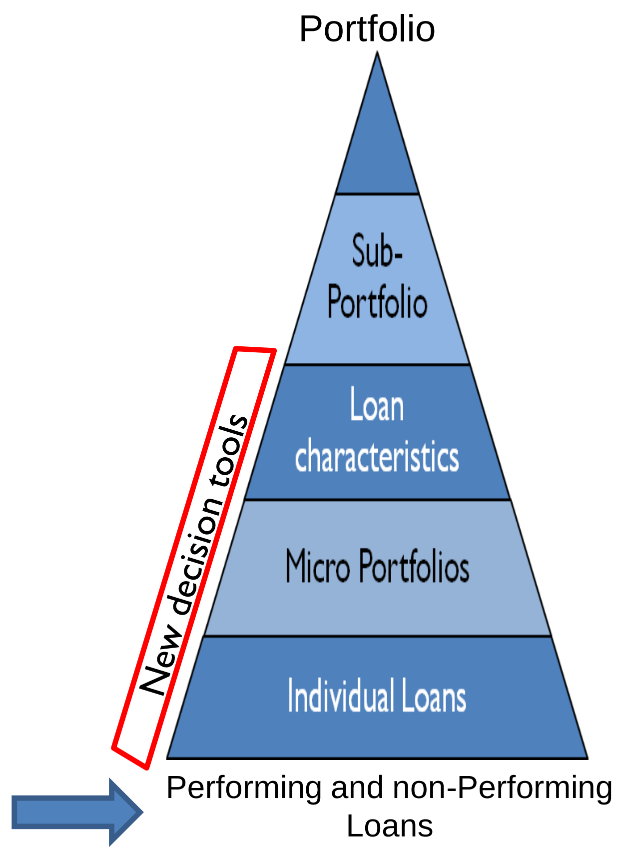
ECM Analytics – What It Does

- Expert Management System measuring retail credit risk **objectively**
- **Statistical** and **Mathematical** model
- **Experience-based** Analysis
- **Individualised** to Lender
- **Standardised** Methodology
- Based on the **Lender's** own **most recent experience**

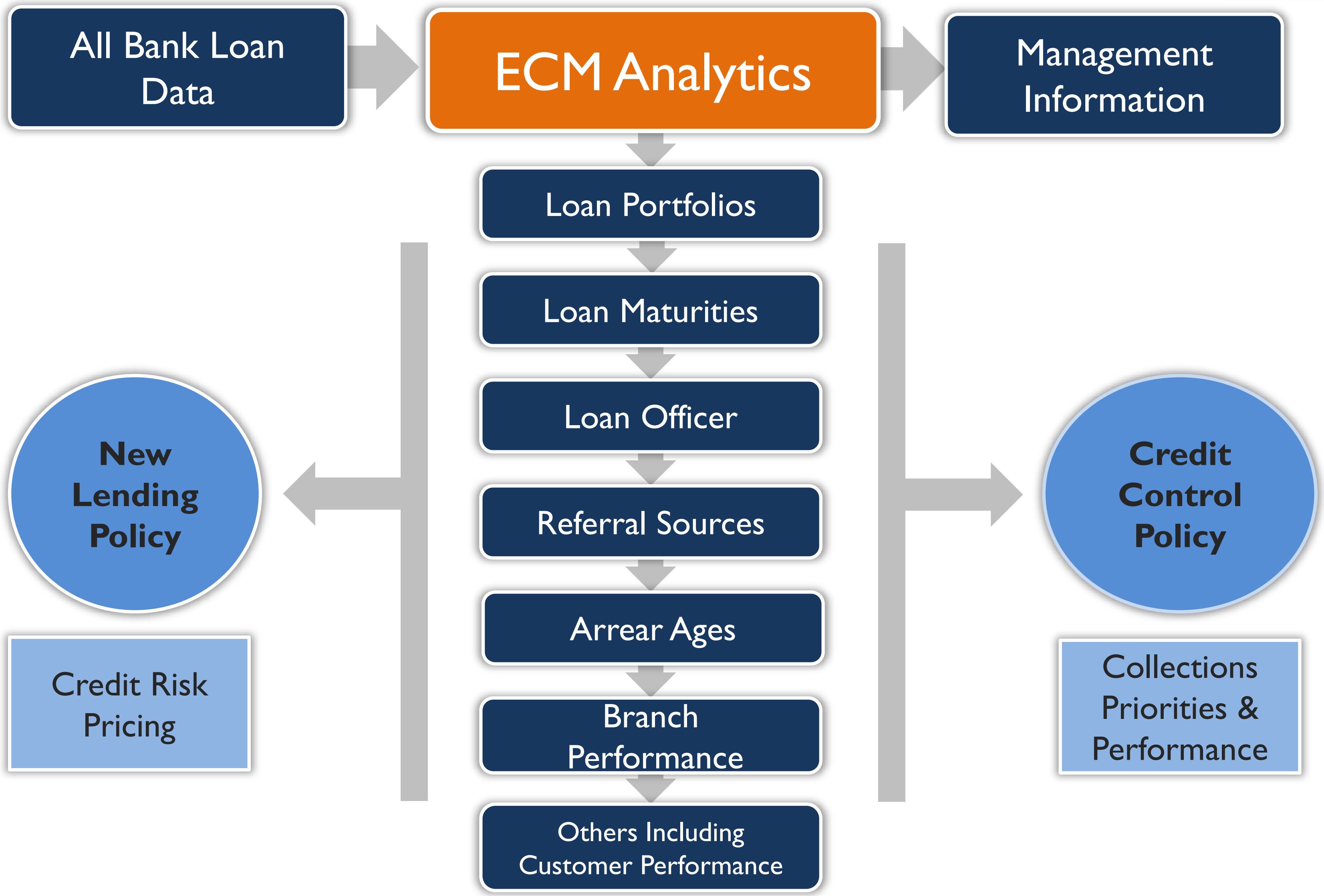
Existing Competitors Focus	ECM Cloud Application



Current market shift from the ***Incurred Loss Model to the Expected Loss Model for Loss Provisioning***



ECM Analytics – Some Reports



End-to-end Credit Risk Operating Model

Portfolio Strategy and Objectives

Credit Risk Analytics / Mgt.

Internal Factors
- Loan Performance (Loan Types & Maturities)
- Pricing for Profitability
- Loan Vintage
- Interest Rates
- Lender Performance
- Loan Rescheduling
- Credit Scores
- Repossessions

External Factors
- Regulatory Environment, National Economy, GDP, Unemployment
- Interest Rates
- Geographical Differences
- Property Prices

Monthly Analysis and Output

Sales

- Lending Strategy and Targets
- Portfolio Mix and Risk Quality
- Risk Appetite
- Adherence to Underwriting Guides, Tools and Techniques
- Clear Accountability, Targets and Measures

Risk & Portfolio Management

Performance
- Loan Performance by 'Segment / Loan Type' (avoiding cross-subsidisation)
- Portfolio Performance Pricing
- Accountability, Performance Metrics and Measures
- Risk Mgt. / QA

Skills and Competencies
- Roles and Responsibilities
- Licencing / Technical Skills
- Training, Learning and Mentoring
- Consistent Processes, Tools, and Techniques

Collections / Arrears

- Loss Forecasts at Account Level to prioritise and maximise recovery
- Rescheduling of Forborne Loans:
  - Moratorium
  - Capital Suspension
  - Split
  - Rate reduction
- Collections Efficiency & Incentivisation (Customer Contact Strategy)

Reporting

Loan 'League' Tables

- Risk Co-Efficient by:
  - Loan Type
  - Maturity
  - Vintage
  - Lender Performance
  - Referral Source
- Mortgage Types:
  - Annuity
  - Endowment
  - Pension
  - Fixed vs. Variable
  - Vintage / Inception
  - Urban vs. Rural etc.

Regulatory Reporting

Aligned Processes and Data

Management Information: Data Governance | Data Architecture | Data Management | Data Delivery

Risk Governance: Portfolio Strategy Execution | Portfolio Reporting | Model Validation | Policies, Procedures, and Controls

Organisational Reporting Needs

Full analysis of performance at macro and sub-portfolios

C - Level

CEO
CRO
CFO

- Portfolio evaluation – **For management, for sale or purchase**
- Analyses of all trends – **Avoidance of loss making cohorts**
- Loss forecasts & provision requirements – **Capital reserves**
- Profitability analysis – **To focus resources**

Departmental

New Business & Collections

- Business results and prioritisation of arrears and identification of high risk accounts, potential fraud
- Identification of ‘hotspots‘
- Even allocation of collections case loads

Resource Management

- League tables and subsidiarity to devolve responsibility

Compliance / Governance

- Results verifiable and acceptable to regulators

ECM Analytics Unique Features

- Monthly Analyses of **All** Loan Characteristics
- Identification of **Lower** Risk and **Higher** Risk Customers
- **Risk Trend** Analyses – 3, 6, 12, 18 months
- Rolling Micro Portfolio Analyses with **Risk Pricing**
- Tracking & Analysis of **Arrear Migrations**
- **Marked-to-Market** Asset Values
- Measures Risk in the ***Well-Performing*** Portfolio
- Loss **Forecasts** and Loss **Provisions**

Case Studies

Banks, Finance Houses and Credit Unions

'One cannot manage what one cannot see or measure', so the first objective of ECM, through mathematical and statistical analysis, is to provide full transparency of the lender's credit risk for management.

Because of the confidential and sensitive nature of ECM consulting, it is not possible to identify individual clients in these case studies. It is, nonetheless, worthwhile to describe some of Credit Expo's experiences in general terms.

Reduced Loan Losses

One bank client was operating on overly optimistic estimations of early Loss Probabilities and of Loss Given Default, especially on specific high-value cars and was neglecting front end arrear management.

By identifying actual credit risk, ECM Analytics promoted *earlier, more focused intervention* by the bank, progressively reducing the banks write off experience. Over the following three years, that bank reported greater transparency of risk and a reduced write off of some €7m against the initial forecast.

Elimination of Bank Cross Subsidisation of Loan Losses

In the case of one bank it was found that while the *overall* calculation of the loss forecast was acceptable against industry benchmarks, the distribution of risk across different regions and branches was skewed, resulting in misleading perceptions of risk, of individual performances and of local profitability.

By distinguishing alculations to reflect local experiences, accountability was introduced and performance and profitability of local management were greatly assisted.

Portfolio Evaluation

ECM Analytics was recently deployed to value a loan portfolio being acquired by a Bank, thereby providing accuracy and pricing confidence to the acquirer and expediting the bidding process.

Rigid and Inaccurate Calculations of Loss Probability

A Bank was found to be applying Loss Probability figures 'imported' from another peer bank. However the two banks operated in different market segments and empirical analysis showed that the (rigid) loss probabilities then being applied understated the risk especially for 'early' arrears, encouraging the neglect of front-end arrears and delaying collections activity until arrears had progressed to a later, more intractable, stage.

ECM was able to adjust the loss probability calculations and respond empirically to actual experiences. A redistribution of the collections work pragmatically, delivered focus and performance management to collections resulting in reduced losses by €2m against the initial loss forecast.

Securing Additional Relief from Corporation Tax

An ECM review of one client bank's provisioning calculations demonstrated that certain bank calculations had understated credit risk and the derived provision requirement. By re-casting the calculations empirically it proved possible to secure significant additional tax relief to adjust the Bank's financial statements (Previously audited by Revenue for the purpose of accepting such ECM provisioning calculations).

Revising Loss Given Default Calculations (LGD)

A bank client was operating on the basis of an assumed, universal LGD / write off rate of 72%. Using ECM analysis it proved possible to complete a net present value (NPV) calculation of net recoveries over earlier years and to differentiate the bank's LGDs across asset types and loan maturities. This resulted in a much more focused collections strategy.

Resolution 49 and New Risk Pricing and Collections

Reviews for a number of Credit Union identified serious inadequacies in the (mandated) Resolution 49 fixed rate matrix calculation, leading to the underestimation and under-pricing of credit risk, to the neglect of collections with significant under-provisioning. The ECM analysis was able to provide the business intelligence to re-inform all three calculations to the satisfaction of the Central Bank Regulation.