

# UNDERSTANDING ANALYTICS FOR FINANCIAL INSTITUTIONS

## IN THIS INFORMATIVE GUIDE, YOU WILL LEARN:

- Why analytics are so important for financial institutions right now
- How analytics can help you transform data into actionable intelligence
- What types of analytics financial institutions can implement and what each type of analytics can help your institution accomplish
- How to get started
- What pitfalls you should avoid with analytics



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# UNDERSTANDING ANALYTICS FOR FINANCIAL INSTITUTIONS - WHY NOW?



Whether you're part of the team at a bank, credit union or other financial institution, chances are good that you have heard a lot of talk about decision, loan, performance and/or portfolio analytics in recent months or years. While attending an industry conference, you may have heard about another lender implementing an analytics solution in order to make more informed customer decisions. Or perhaps you read an article about how increased regulatory requirements are driving the demand for insight into financial institutions' processes, practices and policies. Chances may also be good that at this point you might be asking, "Why are analytics so important right now?"

In today's market, to compete, grow and respond to changing regulatory demands, financial institutions of all types and sizes must manage decisions more systematically, consistently and analytically. But what this really means for individual institutions really depends on size, balance sheet results, functional area, organizational culture, business priorities and a variety of other factors.

Take priorities, for example. Do you need to forecast losses, show static pool analysis, complete a score validation or improve automated decision making? Maybe you want to identify which customers are at risk of leaving your institution so you can try to keep them, or even find customers who might want another product from you. On the other hand, you might want to optimize your collections operation to focus more effort on the delinquent accounts that are least likely to cure. Then again, you might be in acquisition mode and you want to examine the risk of a portfolio you're considering for purchase.



That list of priorities could go on and on, and analytics can give you the insight you need to address all of them in an organized and educated way. And if you're expecting a visit from auditors or examiners, or if your board has demanded a concentration risk assessment, analytics can help there too.

The bottom line is that analytics is key to financial institution success today. To balance risk, comply and compete effectively, you need the intelligence that analytics can provide rather than relying on anecdotal information such as peer market comparisons or discussions of trends. And, embracing analytics the right way can solve your institution's immediate needs while positioning you to address the regulatory, market and consumer demands that are coming your way tomorrow.

# ANALYTICS: TRANSFORMING DATA INTO ACTIONABLE INTELLIGENCE



Essentially, analytics is the transformation of data into actionable intelligence. It allows you to take all of the information you have gathered on your customers or members and turn it into insights that you can use to move your business forward. While that's a simplistic definition, people are often overwhelmed by all of the definitions and terminology surrounding analytics. But once you combine the credit cycle, typical financial institution functions, existing market conditions and increasing regulatory demands, you can relate analytics to specific business objectives. And then, the jargon and types of analytics really do begin to make sense.

The functions and stages of the credit cycle in the chart below exist in every financial institution. In larger institutions, each cell in the chart could represent an entire department. In smaller institutions, an entire row, column or more could be managed by one person. Regardless of size, the general business objectives are the same, and analytics can help you achieve them.



# FINANCIAL INSTITUTION OBJECTIVES SUPPORTED BY ANALYTICS





<b>ENTERPRISE RISK APPETITE</b> <b>IDENTITY - MEASURE - MONITOR - CONTROL</b>	FUNCTION	TARGETING & ACQUISITIONS	UNDERWRITING & ORIGINATIONS	PORTFOLIO & CUSTOMER MANAGEMENT	COLLECTIONS & RECOVERY	
	BOARD	Establish and manage enterprise risk strategy (return objectives, risk appetite & tolerance), dividend distribution policy				
	C-LEVEL	Align departmental activities with the enterprise risk strategy P&L forecasting, ALLL management, capital allocation				
	FINANCE & ACCOUNTING EXECUTIVES	Evaluate business line performance, identify positive and negative trends Track ROI on projects, products, sources, etc.				
	MARKETING POLICY/ STRATEGY MANAGEMENT	Target customers and channel partners consistently with risk appetite and culture	Engage in targeted acquisition, cross-selling and upselling.	Target clients based on their attrition risk and propensity to add products	Not applicable	
	CREDIT RISK POLICY/ STRATEGY MANAGEMENT	Avoid targeting prospects who do not fit your risk appetite	Design and monitor scores and policies to target approval and booking rates	Manage exposure and risk levels on credit lines, renewals, etc.	Design and monitor collection strategies to focus on the most risky accounts	
		Pursue opportunities with empirical risk-based pricing				
	LENDING OPERATIONS	Manage and optimize operational efficiencies and KPIs Verify that policies from the Board, C-level, Risk and Marketing are being followed Adjust practices based on performance results				
	COMPLIANCE	Demonstrate your financial institution's practices to Identify, Measure, Monitor and Control risks Prepare for examinations and audits				

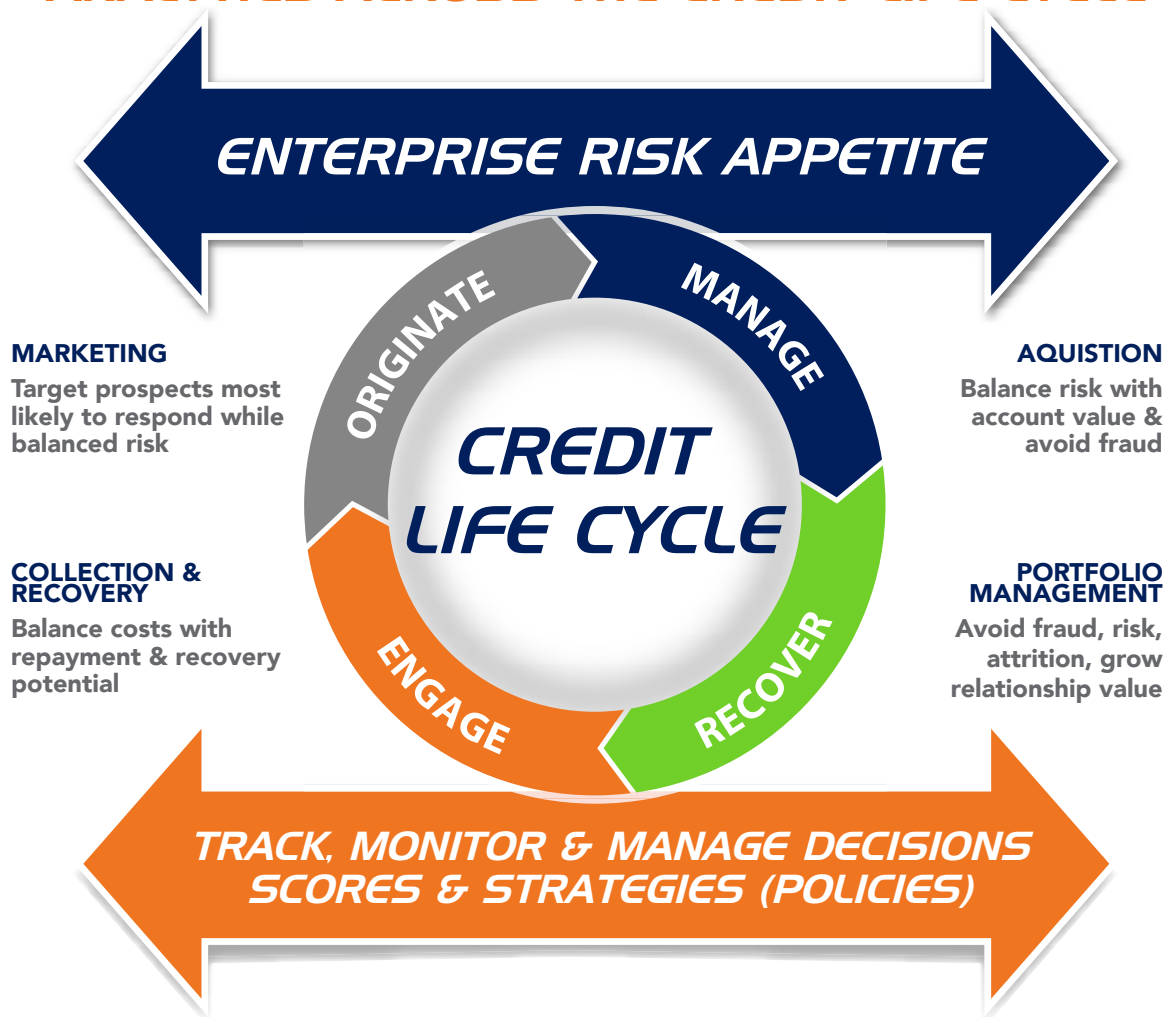
# TYPES OF ANALYTICS FOR FINANCIAL INSTITUTIONS



When it comes to implementing analytics, it's easy to get hung up on all of the associated terminology and the wide variety of types of analytics that are available to banks and credit unions. To help demystify analytics a little further and give you the knowledge to select analytic investments that will meet your needs today and into the future, here are those analytic types divided into three main categories: (1) Credit Cycle Decision Analytics, (2) Advanced Analytics and (3) Ad-Hoc Analytics. Each main category describes analytic types and techniques that can be applied to identify, measure, monitor and control multiple dimensions of risk.

**CREDIT CYCLE DECISION ANALYTICS** In today's complex market, it is fundamental that marketing, underwriting, portfolio management and collections are aligned with your institution's risk appetite and return objectives. The following types of analytics can help an organization proactively balance risk, reward and the board.

### *ANALYTICS ACROSS THE CREDIT LIFE CYCLE*



**DASHBOARDS AND OPERATIONAL REPORTING:** These day-to-day analytics tell you how your operational work processes are functioning, what is in the pipeline and what is overdue. They are generally derived from data and information within one system. For example, loan origination system (LOS) reports will tell you about application volumes, sources of applications, loan officer productivity, work queues and other related data. But they will not tell you if the approved applications are performing as expected.

The main limitation of operational reports is that they are generally limited to the data available within the operational system they report on. For example, reports from your underwriting system would not have information about how a booked account has performed.

**PREDICTIVE MODELING:** In this category, analytics use the past to predict future behavior for each stage of the credit cycle (credit scores are one well-known example in this category). Predictive analytics, models or scores forecast the probability of a specific outcome. For example, risk scores forecast the likelihood of an account reaching a certain level of delinquency, while response scores forecast the likelihood that a prospective customer will respond to a credit offer.

Because predictive models use the past to predict the future, it is critical to track, monitor and validate any scores that you use (generic, expert and custom) to watch for degradation in the model's precision.

Predictive models are most precise when developed on the specific population and for the specific use where they will be applied. Therefore, custom models are more precise than generic models; however, there are still many cases where generic models are the best choice.

Be careful not to confuse an expert model with an empirically-derived model. Expert models are judgmental, that is based on the supplier's general expertise in a specific area. Additional attention must be paid to tracking, monitoring and validation when an expert model is selected.

### **ONGOING PERFORMANCE AND DECISION OPTIMIZATION ANALYTICS:**

This category features a combination of analytics that are necessary to identify, measure, monitor and control risk as an ongoing business practice. The frequency needed for these analytics depends upon your institution's size and specific objectives.

These analytics are typically focused on the decision policies/strategies types for a particular stage in the credit cycle, such as a marketing campaign, underwriting policy, customer promotion or collection strategy.

Types of analytics within this category include scorecard validations, assessments on the relationship to risk of decision attributes (LTV, DTI, etc), static pool and vintage analyses, roll rate reports, population shift analysis, etc.

**ADVANCED ANALYTICS:** This category includes a variety of non-traditional analytics that institutions can use to drive specific aspects of their business. For example, predictive models for prepayments and credit limit models belong to this category. Complex analytics encompassing the entire credit cycle, such as risk-based pricing and stress testing models, are another example of Advanced Analytics. These analytics help ensure that financial institutions are governing the multiple dimensions of risk effectively.

**RISK-BASED PRICING MODELS:** The key question this kind of analytics provides an answer to is “What is the right interest rate for a loan?”. Institutions looking to optimize the profitability of their loans resort to this kind of analytics in order to redefine their pricing policies and be more competitive. The resulting risk-based interest rates do not only cover risk (i.e. expected credit losses), but also prepayment trends, funding and operational costs, line utilization trends (in case of revolving exposures), while ensuring that profitability targets are met.

**LOSS FORECASTING:** This category of analytics typically leverages the methodological guidelines set out under the Basel Accord to answer the question “What losses can I expect to incur over the next number of months?”. Predictive models for the Probability of Default (PD), Loss Given Default (LGD) and Exposure at Default (EAD) belong to this analytics category. When combined, these models will give you a loss forecast, i.e. your Expected Losses (EL). This type of analytics is often used at the firm-wide level to drive Allowances for Loan and Lease Losses (ALLL) and provisioning, capital and liquidity planning, dividend policies and to evaluate the institution’s objectives in terms of risk appetite.

**STRESS TESTING:** This analytics type shows how your portfolio will perform under stress conditions. Stress test analytics can go from a simple score shift analysis to advanced stress testing models that can be used to evaluate the impact of alternative macroeconomic scenarios on your institution's accounts.

**AD-HOC ANALYTICS** Institutions looking to maximize the accuracy of their decisioning tools and the effectiveness of their policies often resort to Ad-Hoc Analytics. This category can include data investigations requested by the Board, C-level executives or strategy management leaders. It also includes things like the development of a custom credit score, score validations and recalibrations, profitability analyses, alternative data testing.

**GETTING STARTED WITH ANALYTICS** Outsource or In-House? When you decide to implement analytics at your institution, among the first decisions you and your team will make is whether you will manage the efforts in-house or outsource to an analytics solution provider.

The ultimate goal of analytics for financial institutions should be to align all decision-making and operational activities towards a common strategy, culture and risk appetite for the institution, and to demonstrate compliance with regulatory requirements. The best way to accomplish this is to establish a central analytics infrastructure and resource. Unfortunately, the cost for an in-house solution can often be prohibitive for small- to mid-size institutions that don't have the resources necessary to establish an internal department dedicated to analytics.

Fortunately, though, there are outsourced solution providers that can affordably create and manage an analytic infrastructure for your institution. And since internal analytics departments can suffer from difficulties due to disparate data, siloed functions, and legacy cultures and technology, the right outsourced analytics solution can often be your best bet, regardless of your institution's budget.

**PROJECTS VS. INTEGRATED PROCESSES:** An analytic project such as a scorecard validation, custom score development or static pool analysis is often a one-time reaction to an isolated business objective such as a regulatory inquiry or increased application volume causing increased headcount, instead of a phase in a well-defined analytic roadmap.

The analytic project approach most often does not plan for the activities to verify that you are getting the results you expected, or for your institution to act accordingly on the project findings. So, the associated costs and time end up being higher than they need to be.

On the other hand, integrated analytic decision management is an approach that utilizes data-driven intelligence to track, monitor and drive all decision making across a certain function, process, product or portfolio, as an integrated business process.

Enterprise Decision Management (EDM) expands the use of analytics to drive consistent and strategic decisions across all functions and levels in an organization. Establishing an analytic foundation that delivers ongoing results is the stepping stone to successfully utilize integrated analytics in decision making institution-wide.

Due to the challenges involved, there are very few financial institutions that have successfully implemented effective EDM. Typically, the project becomes overwhelming, and disparate functions and departments often just can't agree on how to approach the solution. Fortunately, there is a way to organize your efforts to achieve your analytics goals. Start with the 10 steps listed below to first establish an analytic base, which will give you the foundation needed for successful EDM, should you choose to pursue it.

***INTEGRATED ANALYTICS SOLUTION***  
***DATA + ANALYTICS + EXPERTISE + TECHNOLOGY***



## GETTING STARTED WITH ANALYTICS 10 STEPS TO FOLLOW:

The most important factors in any analytic initiative are the right design, data, expertise and methodology. In addition, you need the ability to act on your findings, and the ongoing business processes to compare actual to expected results and to optimize your decisions. So, regardless of whether your analytics come from an internal department or an external partner, the steps for establishing a successful analytics program are the same.

1. Choose your decision analytics priority (regular monitoring of underwriting decisions, score validations, static pool analysis, custom score development, portfolio performance analysis, loss forecasting, risk-based pricing, stress testing, etc.)
2. Design the solution and create your analytic roadmap
3. Capture historical data
4. Complete data integrity and gap analysis
5. Perform appropriate analytics and/ or modeling
6. Interpret analytics and make decisions
7. Implement models or decision changes
8. Establish processes to continuously update the analytics database
9. Establish regular analytics cycles for ongoing monitoring, statistical validations and improvements
10. Leverage the infrastructure to efficiently achieve your next analytic objective by significantly reducing and/or eliminating time and costs for data collection and implementation

## ANALYTIC PITFALLS TO AVOID

Given the great benefits associated with analytics, most banks and credit unions are anxious to get decision analytics up and running in their institutions. But before you begin researching specific analytics solutions, take the time to learn about four potential pitfalls and how to avoid them.

## DON'T FALL FOR COMMON ANALYTIC ASSUMPTION FALLACIES

- Don't presume that your generic score vendor performs validations that satisfy regulations – many generic scores are validated initially, but then validated irregularly, if at all.
- Every lender is different, so don't focus too much on industry benchmarking.



- Don't presume that everything is okay just because you have a low default rate. That low rate could mean that your policy rules are too strict, thus inhibiting the growth of your portfolio and profits.
- Don't underestimate the importance of analytic decision management expertise to interpret results and design your strategies.

## **ABSTAIN FROM SILO ANALYTICS**

- Keep in mind that analytics is not just a report or score. A report or score alone doesn't truly give you the insight you need to run your business.
- Don't make policy changes based on isolated results or single decision characteristics and policy rules. Use what-if analysis and inference methodologies to make sure you have all the facts.
- Avoid developing solutions without any consideration of implementation. Ask yourself the following: Can you implement the solution? Can you make changes? Do you have the environment to efficiently test changes and implement the changes quickly?
- Manage the analytic infrastructure to reduce costs, integrate business processes and synchronize your risk appetite with consistent factors across functions.

## **DON'T TRY TO DO EVERYTHING AT ONCE**

- Rome wasn't built in a day, and a decision analytics solution won't be either. Take the time to understand and develop your analytic priorities and just get the process started.
- But make sure you start with an analytics infrastructure that is scalable to give you the right start and expandable to meet your needs across the credit cycle. Don't focus on pieces keep your eye on the future, and don't focus solely only on one of these areas:
  - Business Information/Intelligence Platforms and Technology
  - Data Warehouse Projects
  - Score Validation Projects
  - Static Pool Analysis Projects
  - Business Intelligence Software or Platforms
  - Strategy Management Software

**Each of these is part of an analytic infrastructure – but not the entire solution.**

## CRIF ACHIEVE OVERVIEW



CRIF Achieve uses experience in U.S. and international business consulting, risk management, credit scoring, decision management and data aggregation/management to create solutions that transform analytics from costly ad-hoc projects to affordable business processes. CRIF Achieve analytic decision management solutions services allow for rapid deployment of custom models and decision strategies through integration CRIF Lending Solution's loan origination and credit processing software solutions. Because their services are scalable they can provide full-service solutions for smaller institutions up to custom solution design and modular integration for larger clients.



CRIF Lending Solutions is the nation's largest provider of loan and account origination, business process outsourcing, credit decisioning, data access, and lending and marketing analytics solutions to a number of the most successful U.S. financial institutions including banks, credit unions, finance companies, retailers and credit card processors.

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