
A Data and Analytics Toolkit

Practical Success Factors for Your
Data Management Solution

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| <p>Reduce IT Data Costs</p> | <p>25-30% Reduction in IT data costs \$140-\$360K</p> | <p>Consolidate</p> |
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- Structured data = defined tables
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- Structured + Unstructured data
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- Traditional + non-traditional data

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Operations are Unclear

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+ IT INFRASTRUCTURE IS LAGGING

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For several years now, credit unions have wrestled with the concept of big data. And the discussion is not going away anytime soon. In fact, as the competitive landscape has moved toward hyper-personalization, multi-channel marketing, and an enhanced customer experience, the drumbeat is only getting louder.

In fact, the potential and promise of using data is nowhere near being fulfilled. In our research of over 700 credit union executives, fully 73 percent said most of their member data is not easily accessible. Considering accessibility is an essential starting point for extracting some meaningful and actionable insight from data, that statistic alone says a lot about the current state of the industry.

Here's the good news. Credit unions can tap into the significant potential of big data. For those that have done so successfully, the experience is usually eye-opening. The keys?

- a proven data management and integration solution
- a long-term strategy for sustaining a data-driven organization
- a top-down consensus and communication flow

To help you uncover the hidden potential and value of your data, AdvantEdge Analytics has conducted extensive research detailed here, as well as insights and recommendations on moving forward.

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This White Paper is for CEOs and senior leaders who are interested in leveraging current advanced analytic technologies to transform their business.

Delivering personal service and providing outstanding value to members are core values and key differentiators of credit unions. Regardless of new technologies or competitive landscape shifts, credit unions must remain firmly rooted in these commitments if they are to maintain their advantage. But, given current competitive and digital marketplaces, how can your enterprise stay the course and continue to deliver on the credit union mission?

For many years, big data was seen as a way to unite technology with the customer experience. Now that promise has finally arrived. The tools, rules, and processes are established, and a clear path forward has emerged. Credit unions can now use advanced data strategies and analytic tools, and reap the same rewards as many larger players. However, for those already getting squeezed by large commercial banks and fintechs, there is a risk of being too late to market, making a move into this arena even more urgent.

Although credit unions have deep stores of member data collected over many years, the path to tapping into their true potential has not always been clear. Knowing where the data “lives” and what it contains poses challenges. Aside from the logistics of accessing the data, many business use questions come into play:

- *How do you make sense of the data?*
- *How do you manage it?*
- *How do you execute on the knowledge?*
- *And how do you ultimately leverage it to deliver on the credit union mission?*

The answers start with data management, the analytical foundation that can help your credit union grow into the future. With the proper strategy and framework, your organization can gain considerable operational efficiencies, drive significant cost reductions, and achieve greater value from your data assets. Most importantly, you can realize immediate value in operational excellence while also creating a platform that will produce member insights for years to come.

Without question, credit unions have the data to compete and the data assets to grow the business. With the right data management solution, you can know your members better, engage them on a personal level, and deliver the products and services they need to achieve their financial goals.

What Value Does a Data Management Solution Bring?

Before reaching for any solution, it's important to understand the problem. CUNA Mutual Group and AdvantEdge Analytics conducted extensive research to assess and evaluate readiness of the market for advanced analytics¹. They interviewed over 700 credit union executives, and surveyed over 400 other credit unions. They also conducted deep-dive strategy and insight workshops, and launched pilot programs with several other large credit unions.

Overwhelmingly, the research showed acute interest among credit union decision-makers in improving on their data assets.

- Fully 73 percent of credit unions see analytics as a way to significantly transform the way they do business. (However, respondents understand they are behind the curve, especially when it comes to data management.)
- Results showed that 73 percent of credit unions say most of their member data is not easily accessible.
- Only 26 percent have business-driven analytic initiatives currently underway.
- Just nine percent have a comprehensive front-line adoption approach. (It is no wonder that credit union business leaders and their technology teams are concerned.)

Based on this research, and leveraging CUNA Mutual Group's extensive experience working with data and analytics in the credit union insurance product space, three success factors were identified for a complete data management solution:

1. Integration of data and 360-degree view of customers
2. Comprehensive view of credit union business performance
3. Advanced analytics and expertise



Integration: Credit unions need a platform to integrate their data from all the third-party vendors and legacy infrastructures. Data fragmentation prevents a full understanding of members. But, with a consistent source of truth and a full range of data, business users and decision-makers gain a 360-degree view of their members. To achieve this, data management services – data warehouses, tools, infrastructure, and other foundational components to help manage and integrate data – are needed.

¹ CUNA Mutual 2016 credit union member survey on data and analytics



Performance view: Credit unions need a comprehensive view into their own business performance. Once there is “good” data to analyze, how do you actually use it to better run the business? How do you translate data into real business value?

That’s where reporting and performance management functionality comes into play. Reports, dashboards, visualizations, and benchmarks all bring views to help manage and understand the business from an operations standpoint (i.e., branch, loan portfolio, membership analysis). With the data translated into comprehensible forms, organizations can put simple, easy-to-use tools in the hands of business users to help them make more informed decisions.



Advanced analytics: The greatest potential value to credit unions lies in advanced analytic capabilities. To unlock that potential, teams must move beyond static, rear-view-mirror reports and into more predictive and prescriptive analytic environments. This higher-level stage can help your credit union get the full value of data by not just predicting what is going to happen, but anticipating actions with favorable outcomes.

Big data tools, such as machine learning, can find valuable patterns in member data to help deepen customer relationships. For example, you can create accurate life-cycle stages among members, and reliably predict the products that will serve them best, along with when they might be motivated to make a change. Pinpointing when a member might decide to move beyond a savings or demand account offers a valuable opportunity to expand your relationship with that customer. You can then promote certain products like a loan or mortgage with a higher degree of success.

These capabilities make marketing to customers less random and infinitely more targeted. More importantly, members benefit the most – they get the right product, the best terms, and timely financial advice.

Value to the Bottom Line

Aside from the organizational efficiencies and enhanced member experience capabilities, an effective data management and integration solution has significant value to the bottom line. AdvantEdge Analytics internal studies show significant cost savings, with improvements in operations and finance productivity, and other efficiencies producing a 30 to 40 percent reduction in FTE work performance measures. Reduction in IT costs and system consolidation can lower IT data costs 25 to 30 percent.

The following infographic provides a typical value predictor:



Once you factor in the revenue lift from business enablement, the value proposition is even more compelling. So, while credit unions do face challenges in their current data strategies--including data warehouse capabilities--an effective data management solution has the power to transform your organization by:

- Enhancing member experience
- Achieving operational excellence
- Creating growth opportunities
- Aligning resources and people

But What Exactly Is a Data Warehouse? Don't I already Have One?

The short answer is likely “yes,” but a definitive answer depends on several factors.

Data warehouses are not new. They have been around, in principal, since the 80s, and have become increasingly important in the last 20 years (in the form of DW/BI) during the global business movement toward business intelligence. Originally, data warehouses were intended as a way of allowing business users to create reports from static data that was periodically updated, putting less strain on the core operation systems. Now, given the big data environment and the demand today for real-time data, more is asked of data warehouses than before.

At its core, the primary purpose of a data warehouse is to provide a platform to assist business users in making decisions. A database is a structure for your data typically in relational mode, meaning it has rules and constraints that govern the consistency and integrity of the data over time. Core systems databases store data in logical ways, and ensure it can be accessed efficiently.

Think of a data warehouse as a layer on top of that. The function of the traditional data warehouse is to take the pressure off the operational systems so that data can be analyzed securely from multiple sources. The data warehouse pulls data from all over the organization, with the intent of publishing it and otherwise making data available for business purposes. The data stored in the warehouse is “cleansed” data, useful for reporting and analysis.

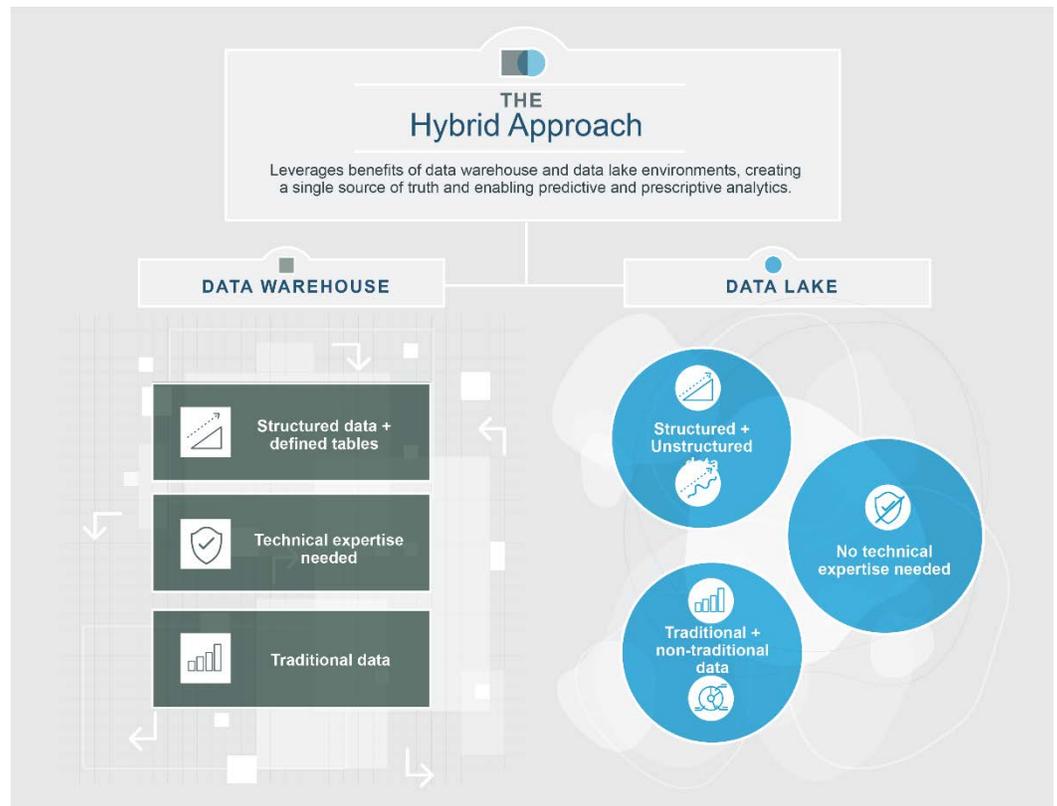
Today, the amount and variety in the sources of data has increased exponentially, requiring different variations of data warehousing; namely, the traditional data warehouse and something called the **data lake**. The data lake’s main advantage lies in providing secure access to raw big data, but without having to move it, or go through the full rigor of cleaning and structuring.

In the simplest terms, the difference between a data warehouse and a data lake comes down to highly-structured versus less-structured data. The analogy of the lake is an apt one, as it represents one large untapped, single source; whereas, the data warehouse is analogous to bottled water. The data warehouse is structured activity, focused on collecting all the sources of data, filtering them, and then “bottling” them in relational data sets. In real terms, categories might include point-of-sale data, CRM data, financial data, transactions, customer service, and so on.

The difficulty today is that data is more complex, so there is also a need to logically and securely contain other sources of information, such as call center notes, web log data and content, RSS feeds, spreadsheets,

social media content, and more. When you start factoring in data inputs like videos, click-streams, photos, and GPS, the data becomes unstructured. And, given the ever-growing number of data sources via social media networks or phone applications, the other forms of unstructured data become not only massive, but compelling (from a business standpoint) as a potential source of information.

The AdvantEdge Analytics data warehouse uses a hybrid approach, combining features of the traditional data warehouse and the data lake. The advantage of this platform is that it leverages the benefits of both environments. It allows for secure access to relational data stores, while also providing support for non-relational data storage. This allows you to derive insights from the high-quality structured data in the traditional warehouse, while gaining access to unstructured data that could be relevant for answering certain business questions.



This hybrid approach means you can go beyond static, ad hoc reporting, and into the predictive and prescriptive analytics of a big data management solution. Most importantly, by bringing together all the data into one place, the data most useful for business purposes is now “housed” in a single source of truth. This secure platform ultimately allows the credit union to get that full, 360-degree view of their customer, while also creating an efficient system that business users can access to gain insights, create reports, and innovate.

What Challenges Will I Face in Implementing a New Data Management Solution?

Virtually every credit union is trying to leverage their data, but most are experiencing growing pains. Creating a data platform is a powerful move, but it is not easy. It's one thing to have data segmented and correlated. It's quite another to have information that is readily accessible to managers, and actionable to marketing teams. The primary challenges revolve around three main areas of the data life cycle: data management, business use, and analytics capabilities.

Challenges for Implementing a New Data Management Solution



First Challenge: Organization

Data is fragmented and IT infrastructure lagging. Big data is expensive to keep and hard to get at. Data needs to be organized into a data management system.

Business users may be working from a lack of information, but it's not due to a lack of data. In fact, the problem is that there is far too much of it. That makes structuring one of the many challenges. Most credit unions operate in the reporting stages, with some capabilities in running ad hoc queries; they have not reached more advanced levels of analytics, mostly due to the complexity of running multiple systems.

For example, a credit union may typically have a mortgage loan origination system (LOS), a consumer LOS, a core system, and perhaps five or six others from which information is being pulled. Invariably, there are time staggers that cause data mismatches. Consequently, when different departments use data to make decisions, or when they all come together to discuss issues, they often operate from a wide variety of perspectives.

To resolve fragmentation issues, credit unions need a framework, architecture, and collective strategy for addressing data from all the multiple systems. A data warehouse solution will provide a separate layer where all the disparate data sources from the various systems can reside, so that they don't conflict. Here, the data can be sorted and "cleaned" for consistency in an extract, transform, and load (ETL) process, a procedure for acquiring data and making it ready for business purposes. This staging area provides the necessary integration, and establishes a structure for effective data presentation.

Presentation of data require several technical methods, tools, and strategies, such as OLAP cubes and application programming interfaces (APIs) that make all inquiry and analysis activities work efficiently, as well as help deliver the right content to the right area. The key here is that the data is organized around business value, so that reporting yields practical insights and advanced analytic applications. Ultimately, effective organization of data will pave the way for a host of operational efficiencies, including providing an ongoing framework for solving for fragmentation.

Second Challenge: Translation

Credit unions often have an unclear picture of operations to make business decisions. Data needs to be translated into a performance and management system.

Once fragmentation has been resolved, the next challenge is getting decisions.

Business users tend to invest a disproportionate amount of their time collecting data versus analyzing it. Even third-party point solutions with analytic tools typically offer only snapshots of data via ad hoc queries and reports, which provides an incomplete picture of all the data. Moreover, that partial view may not be shared by other departments. While vertical solutions provide some decision-making capabilities, the siloes of information almost work as boundaries that prevent in-depth, across-the-enterprise analyses.

The solution is to have users focus less on the data (per se) and collection, and more on its analysis. Well-defined models can frame essential business questions and allow for identification of the data required to answer them. These models can be delivered to a dynamic presentation layer that not only translates the data into more accessible forms, but helps the business user visualize it in real terms. In this way, business users spend more time in critical thinking mode, finding new

ways to examine the data, framing the discussion, and understanding what the data means from a business perspective.

Third Challenge: Execution

Credit unions have a lack of analytics capabilities in terms of talent and scale. Data needs to be actionable, and executed into advanced analytics solutions.

Embracing a truly advanced analytic stage, which is less reactive and more predictive in nature, can help overcome this last challenge.

While some point solutions provide forecasting capabilities, fragmentation remains. The data in a point solution must somehow be incorporated into other systems to get a complete picture. Moreover, a lot of data is unstructured – call center texts, spreadsheets, web log content – and contain insights that can be mined to help decision makers pinpoint opportunities.

Yet, it would be unrealistic to have a team of data scientists constantly mine data for insights. Consequently, even sophisticated credit unions struggle to break out of the ad hoc reporting stages. Most data professionals run reports, measure, and then look backward a few months on the measurement to anticipate the next cycle. The process is slow, and makes it difficult to gain strategic insights from information.

The solution is to leverage infrastructural systems that can support machine learning and predictive analytics. Machine learning projects yield valuable patterns and impactful insights that credit unions can use to strengthen member relationships. For example, by analyzing these patterns, you can create accurate life cycle stages among your members. Then, you can reliably predict the products they'll be motivated to add to their account portfolio.

Ultimately, having this information can help you and your team scale and allocate resources based on actionable insights and sound business decisions, and execute by offering your members the right services at the right time.



DON'T LOOK TO KEVIN COSTNER FOR THE ANSWER.

Unfortunately, many approaches take a page out of the Kevin Costner movie, *Field of Dreams*: “If you build it, they will come.” Organizations will work hard, sometimes over several years, to make a host of data available from all their systems, and then hope to find a business use for it. They surmise that, if all this data is nicely modeled and structured in a pristine warehouse, a bevy of Hall of Fame business users will emerge out of the corn maze and start playing ball. The reality is that it is inefficient and impractical to fully populate the data asset, and then seek out its business applications.

Sticking with baseball as an analogy... the focus should not be on grooming the field, but rather on fielding a competitive team.

How Do I Sustain a Data-Driven Organization Over the Long Term?

Sustaining for the long term comes from understanding that a data-driven enterprise evolves over time. While it may be tempting to reach for quick solutions, the better strategy is to ensure your data management solution is practical. Sustainability ultimately comes from a commitment to capturing value in your data and a willingness to test and learn.

The best results come from solving the business problem, then structuring the data accordingly. It begins by looking for the source of value in the data and asking, “What are the specific use cases and what are their value to the organization?” In this way, the foundation of the system gets constructed incrementally, building upon a growing portfolio of practical, structured data assets. This approach applies to the actual modeling of the data as well. If the business use is understood, it’s easier to ask, “What data elements do I actually need?”

Say, for example, the business question revolves around the path, or life, of a member loan. In most systems, such a business use case would drown you in a mountain of information. Imagine the amount of application data fields in a consumer loan origination system, or data from the many third-party vendor sources, and then combine these with the service data housed in the core systems.

Even more problematic is the links needed between the systems; without them the data will not be in sync. Because of this complexity, time and resources are often squandered in data management projects bogged down by running down every connection. Bottom line, the amount of data is not as important as the quality of the data. Just because its big data, doesn’t mean it will equate to insights.

It’s simply more productive to tackle the problem from a business perspective. By focusing on the problem, the necessary data points become clearer. For example, what channel did the member use (branch or online)? What was their credit score? How long did it take for the approval? Did the loan go delinquent?

Suddenly, with more focus on the problem, the data requirements become more manageable. In this example, perhaps only three data fields from the LOS system may need to be accessed, and two from the core system. Organizing the data in this way yields greater efficiencies and is a better use of resources. Most importantly, the business is driving the organization of the data, as opposed to the technology.

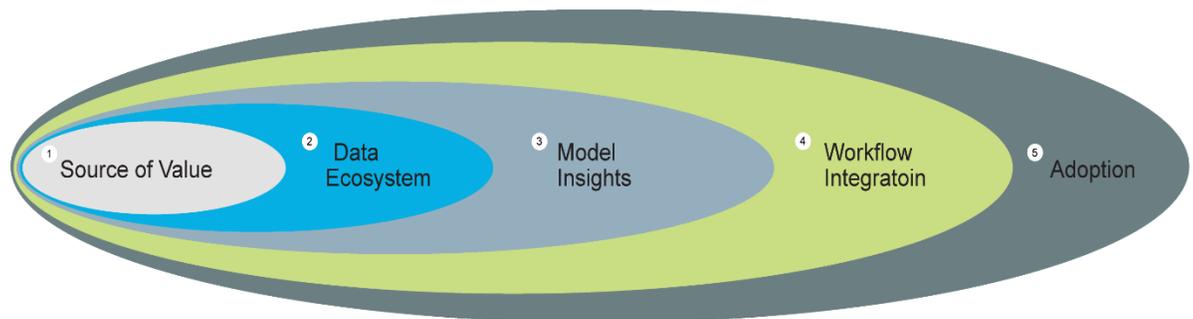
Thus, the first steps are focused on solving for fragmentation of data. It begins with centering on the source value of information, structuring the necessary data elements, and then building links between the source data.

The next step is to model the data so that business users can find insights and derive meaning from it. Visualizations help to connect the data points. Pre-built visualizations can help to provide broad, top-level, across-the-enterprise perspectives, as well as vertical views that drill deep down into separate areas of the business.

No matter what tool is used, the data management solution needs to be in an accessible form, which requires it not only to be translated (visualized), but also distributed through the organization. In other words, workflow is a crucial component: How will the business users access the views and models?

That leads to the final piece of the puzzle – adoption. Often data management strategies fail to take into consideration how the people on the front lines will realize value in the data. For decision-makers, none of the models, visualizations, or integrations matter if your team cannot (or refuses to) use the system to gain insights into their members, and deliver value to them.

DATA + ANALYTICS ECOSYSTEM End-to-End Approach



To be a full data management solution, there must be an across-the-organization push to educate, train, and enable business users and IT personnel to continuously deliver data-driven products and services to your members. It goes back to the original assertion – at the end of the day, it is not a solution if it does not equate with business value. That is why enterprise-wide collaboration is equally important as the data infrastructure and delivering the right tools.

Okay, It's Not a Field of Dreams. But How Do I Get the Ball Rolling?

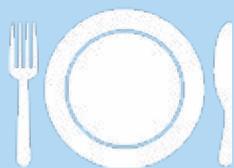
There is almost universal interest among credit unions in using advanced analytics to grow their business. The value proposition is self-evident, the competitive pressures demand it, and few would question its potential impact on the industry.

Beyond that, there is often less of a consensus, especially once the reality sets in that this growth will also necessitate change. New tools mean something new to learn. Change in current processes creates disruption and fuels organizational anxieties. Often the results are over-compromises and half-measures, yielding further departmental siloes and perpetuating the very kind of fragmentation you are trying to solve.

Fortunately, with leadership and communication, the end goal of a data-driven, advanced analytic organization can still be scored. The key to facilitating both leadership and communication is governance. Of course, governance is a loaded term with different meanings for all levels of the business...

- **From the top down**, governance is about realizing the value of your data assets and managing them with purpose and direction.
- **From a leadership standpoint**, governance means creating a culture that not only recognizes the business value of data, but dictates that projects are driven and supported by senior executives.
- **From a technical standpoint**, governance guides the actual practices of the data management system: extracting, assigning roles and responsibilities, gathering requirements, security, compliance, establishing best practices, and more.

What makes the concept of governance so compelling is that it speaks to two crucial audiences: the tech side and the business side. Both halves of the equation need to be united in purpose and intent for the success of the overall data management solution.



“CAN I TAKE YOUR DATA ORDER?”

Data warehouse professionals are fond of using a restaurant analogy to describe system architecture. There is the kitchen where all the data prep work is done: extracting, loading, transferring, preparing, containing, ordering, and generally getting it ready for consumption. The processes, organization, and tools are all part of making sure the “food” is prepared right. Then there is the dining area, which relies on presentation, delivery, and, ultimately, the customer experience.

Both the kitchen and dining area need to function separately on their own, but without collaboration, they will not function well together. As with all the best restaurants, success comes down to good communication and management.

While critical, communication between the two areas is problematic because their roles and responsibilities are focused on fulfilling different needs. The business tends to think in terms of business value, and the IT side tends to be centered on business requirements. Fortunately, these are the two most useful areas to concentrate on before implementing a solution.

Top-down Flow, Integration and Adoption

A top-down communication flow from business leaders to the Data Warehouse/Business Intelligence (DW/BI) team ensures that efficient, productive conversations will be had prior to implementation and beyond. Strategic business initiatives must be set into motion by senior management, with the goal of prioritizing business value and planning for the overall organization.

As the plans get more specific, the focus should be on business processes, rather than departments. This ensures the data sought is integrated across departments for greater data sharing and consistency across the entire organization. Looking specifically at metrics and key performance indicators (KPI) will help bring the highest priority processes to the forefront, and establish them as part of the business initiative foundation.

For example:

1. A strategic business initiative might identify improving customer retention as its goal.
2. Reducing business churn is identified as the specific business problem.
3. A KPI might show significant loss of revenue from churn.
4. Analysis of the business process might identify organizational barriers prevent member insights.

All this business side work will be invaluable in gathering business requirements needed for the DW/BI team as they develop a strategy and scope for your data warehouse solution. Business requirements entail the data architecture, dimensional models, ETL process and architecture, and the BI applications. With the business team having already thought through the business processes, the DW/BI team has a step up on homing in on the data sources, focusing on the granularity of the data, its dimensions, facts, and more. They can isolate the events or activities tied to the business metrics and performance measurements for the organization.

During this progression, the cross-section of data from multiple business processes helps integrate information across the departments. It will focus the credit union on its major dimensions, like customer, date, loan product, agent, branch, and more.

In the churn and customer retention example above, IT might find in the business requirements analysis that they are missing data on key member insights, and identify organizational and strategic barriers. They could then create a full view of members with better metrics, and isolate high-value data. With this information visualized for the business team, the organization might work to improve call team coaching, and find better ways to execute best practices.

Ultimately, a successful data management solution will streamline business processes and isolate business value, all of which will help integrate data in your organization. In this way, both the information systems and the enterprise reap the rewards of an integrated information flow.

Another consideration is whether the data warehouse solution you choose can work with (and not fully replace) current tools and products. Both sides of your organization are likely to embrace the solution if it meshes with current assets simply because of easier and seamless integration of the business value, technology, and processes. Adoption will be accelerated if business users can continue to use their favorite tools while enjoying access to data that helps them make better decisions, and frees them from the restraints of departmental siloes. IT, too, will welcome the upgrade to their tools and processes, and will likely feel validated by the commitment to data from upper management.

The takeaway here? Integration and collaboration are the two rallying points for your data governance. With an eye on the goal, and good communication amongst teams, you'll get the ball rolling.

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As digital disruption continues to shift consumer preferences, an evolving competitive landscape and new business models are also driving significant marketplace change. However, credit unions struggle to achieve the full potential of their data assets typically because of data fragmentation, operational inefficiency, and a lack of analytics capabilities.

A complete data management solution will help credit unions with their enterprise data transformation by harnessing the power of big data. Leveraging integrated technology and data analytics services, credit unions can organize, translate, and execute upon intelligence and insights to enable deeper and value-driven member relationships.

With the right data management solution, credit unions can respond to the challenges in the current competitive and digital marketplaces to continue to deliver the exceptional member service and experience that only a credit union can provide.



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