

From Business Intelligence to Business Optimization

The road to increased business benefit

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Introduction

Companies run on information. And in today's dynamic and changing market, businesses need trusted and actionable information more than ever. In order to be successful, businesses must maximize their information assets to capture new opportunities and remain competitive. What does a company need in order to do this?

Let's examine how one company that we call OldStyle Company dealt with many dramatic market changes. New competitors were entering its market with exciting new products and innovative delivery methods. OldStyle needed access to a lot of information to be able to compete against the unexpected innovations of its competitors. It needed to understand its current position in the market by analyzing data about its current products, customer status, distribution channels, and sales trends. OldStyle needed to analyze information about its business holistically, across all business units. OldStyle's executive team posed a series of questions to each of the company's thirty divisions to help develop a new business strategy, including:

- What products and services is each division selling?
- Are there duplicate offerings? Components?
- Who are the customers for each of the products?
- What are the costs to manufacture each product?
- What have the trends been on defects?
- What is the sales trend of each product over the last three years?
- What is the forecast for each division?
- What are customers complaining about?

Faced with this complex information requirement, the managers did the best they could. However, they were missing information. Data was too scattered across the divisions. Nobody was sure if data was accurate. While several organizations had business intelligence systems in place, each division had its own vocabulary. This meant that managers could not agree on the definition of terms such as customer, product, or even how to measure sales effectiveness. The result was that it became difficult for line of business managers to get the right information to aggregate together. And, even when they had the information, they still needed the IT department to generate a set of new reports, which took much too long to create. Finally, managers could not get this information to the sales teams, who were on the road, for timely validation. The upshot? OldStyle Company simply did not have the tools in place to feed the new strategic plan.

OldStyle Company did not make the best use of its information assets. Managers had to make many manual adjustments and correct inconsistencies in the data every time information was needed at a company level. The situation was not tenable and the company could not optimize its business performance. What OldStyle needed was a set of foundational information capabilities to achieve Business Optimization.

What is Business Optimization?

In order to achieve Business Optimization, a company must deploy technologies and best practices that help deliver trusted and consistent information to those who need it, in the way that they need it, in order to drive performance across the business. There are three legs to a successful business optimization strategy:

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- A well-defined **information infrastructure** to ensure consistent, high quality information. You must trust your data in order to see the value of business strategies based on the data.
- A well-architected **decision platform** to get the right information to the right people in the right way. How is it possible to get this information into everyone's hands and provide the right capabilities to those who need them? This might include the executive who uses a dashboard, the analyst who wants interactive analysis, or the sales person who is using a mobile phone while on the road.
- A series of **best practices** shared across the company in order to break down the silos between IT and the business and between business units. If your company's decision systems are disparate and uncoordinated, then IT must reinvent the wheel every time a different kind of analysis is needed. A successful decision-making process demands consistent use of companywide policies and best practices.

Companies invest in information management, their business intelligence and information infrastructure technology, to provide the insight and planning needed to drive the right decisions and optimize business performance. All too often, however, the infrastructure that supports the analysis process fails to inspire its users with confidence that the data are consistent and trustworthy. The company's analytical capabilities generally consist of a series of business intelligence projects with no overarching business performance management capabilities. There is no good way to get the information to the people who need it in a way that they need it. The reality is that most organizations do not have a well-structured and well-oiled flow of data from operational systems to a coherent set of business analysis services.

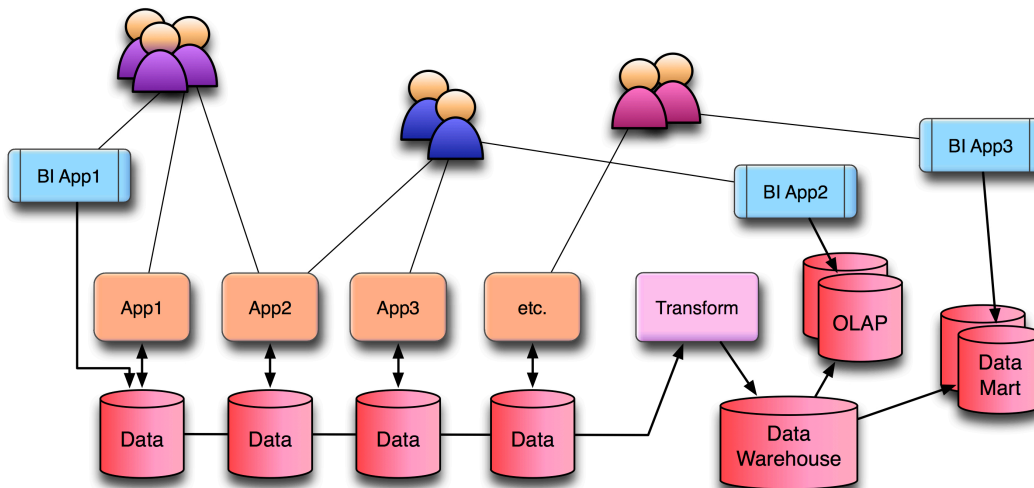


Figure 1. Fragmented/Legacy BI

The illustration above depicts the situation at OldStyle Company, which is common to many companies, that of an information management strategy developed haphazardly over time. Some information management technology has been implemented and is providing useful benefit (e.g. sales figures for a particular division). Some tools gather data directly from one or more operational systems. When the systems were first developed they were geared to business and financial analysts, but now there are diverse users such as mobile

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workers, line workers, managers, and even suppliers and partners who need to understand the data.

The diagram leaves many questions unanswered. Is there an enterprise data model in place? Are there any mechanisms to reconcile and remove duplicated data? What are the policies for data distribution? What tools exist for data analysis? How is information governed?

These important functions simply do not exist at OldStyle and at many companies in a similar situation. The infrastructure cannot support the business.

OldStyle Company thought it was in good shape until the market shifted. It was not prepared for what it could not anticipate. When unforeseen circumstances unfold, management is left asking, “What do we do?” Too many organizations wait until they are in a position like OldStyle Company was in before they realize they need an underlying set of foundational capabilities in order to help optimize their business.

Once in place, the optimized business is more efficient and effective. However, a lot of work needs to be done in order to achieve the right information strategy for business optimization. It isn’t something that will happen over night.

In this paper, we examine the key requirements for business optimization from an information management perspective. We provide a framework for it and some tips on how to get started. We also describe some of the products that IBM has in this area.

Throughout the paper, we examine one company – BlueCross BlueShield of Tennessee that is successfully optimizing its business.

The Requirements for Business Optimization

Successful business optimization is a combination of a coherent information infrastructure, a well-architected decision platform, and the expertise to make it happen. Each of these is described below.

The Information Infrastructure

Before any company can be successful with business optimization it needs a foundational fabric of clean, well-designed, consistent data. The information a business needs in order to understand how well or how poorly it is executing is aggregated together from many sources. It is used for setting strategy, defining measures of success, analyzing and monitoring company performance against these measures, and then adjusting plans accordingly. However, a company cannot analyze what is not there.

The information infrastructure is like the foundation for a building, if it is put together well and everyone can trust it, then you can build anything on top of it. If it is put together in a haphazard manner, out of vastly different components then it won’t work. The requirements for a well-designed information infrastructure include:

BlueCross BlueShield

BlueCross BlueShield of Tennessee (BCBST) is an independent, not for profit, local health insurance company that services two million people in Tennessee and five million people nation-wide. The company is the state’s largest health care insurer. It provides individual, group, and Medicare plans. It works with thousands of health care providers and processes more than 65 million claims a year. The company is an independent licensee of the BlueCross BlueShield Association.

BCBST began deploying information technology back in the late 1980s and was, in fact, an early adopter of IBM DB2 technology that it used to store its claims and provider information. In 1996, BCBST made the move to provide enhanced support for analysis and decision-making. At the time, it had two separate claims processing systems, one for its commercial accounts and another for TennCare – Tennessee’s Medicaid replacement system. It developed two separate data warehouses and used Cognos software to generate reports and analysis for its internal staff. Data was loaded into the warehouses on a weekly basis. The company successfully deployed this warehouse configuration to provide its staff with sophisticated utilization analysis as well as other insight.

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- **Information Consistency.** Users must have a consistent understanding of information across the lines of business. This information must also be consistent when viewed across all business entities. If different groups have different definitions of business terms, such as customer, profit, and so on then it will be hard to develop and communicate reasonable results across business units.
- **Trust.** Users must trust the information that they are using to run their business. Its integrity, reliability, and timeliness must be beyond reproach. This information must not only be accurate and trusted in discrete business units, but must be seen as accurate and complete when viewed across all lines of business. Maintaining high data quality is essential if your company expects to make sound business decisions over time.
- **Accessible Data Stores.** Information must be stored in a way that is easily accessible by the applications that need it. Note that in this paper we are dealing with structured data only, although unstructured data could easily be part of the picture. These data stores need to support access to information that has been cleansed and integrated. It must provide a solid foundation for analytics. These data stores can be data warehouses, data marts, or other organized data structures.
- **Unified Metadata.** Business optimization requires a common language and a common understanding of data at all levels of the enterprise. One way to achieve this common understanding is to develop a unified metadata scheme. Metadata is defined as data about your company's data. The definitions, mappings, and other characteristics used to describe how to find, access, and use the data are all called metadata.
- **Integration Capabilities.** This information must be integrated from different lines of business, departments, regions, or other sub units of the company to address strategic business needs. While a business unit might maintain its own data store, this data must be able to be used in conjunction with data from other data stores in a meaningful way.

BlueCross BlueShield...

In 2000, business requirements began to change. The company understood that it needed to provide meaningful analysis to its internal staff as well as its providers and members in order to remain competitive. It realized that it needed to analyze claims-related information from a provider (e.g. a hospital) perspective. It needed to be able to obtain a clear view of all business done with a particular provider for a number of reasons including negotiating rates. In order to do this, the company needed to bring its two data warehouses together into an enterprise data warehouse that included the claims information it already had in place as well as information from other data sources such as the Interplan Transfer System (the system that transfers claims to other BlueCross plans if a claimant is in another state at the time of a claim) and the Federal Employee Program (the BCBS government-wide service benefit plan).

A Well Architected Decision Platform

Once a consistent information infrastructure is in place, this information can be leveraged to support the business. This isn't just about a set of business intelligence capabilities. A well architected decision platform must be put in place to support the analytic requirements of a company. A business might have clean, consistent, timely data, but if it doesn't have the right set of tools and methodologies to effectively access, analyze and act on the data then it can not optimize its business. Business performance management, when

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done properly, utilizes a set of well orchestrated information and analysis components that provide a completely defensible view of the business. This turbo charges a company's ability to compete. The requirements for a well architected decision platform include:

- **Available.** Information must be available when, where and how users need it. This means via desktop, laptop, or mobile device. It also means providing the information in a timely fashion. And of course, only those with access rights to the information should be able to use it.
- **Support multiple styles.** Analysis capabilities must support multiple styles. Some users may want to simply view high level results. Others may want to drill deeper into the information. Still others may want to perform more sophisticated analysis. The BI/performance management capabilities should be able to support diverse groups.
- **Engaging and intuitive.** The presentation of information must be engaging and intuitive so decision makers want to work with the data. A company might develop a dashboard that contains very useful information. However, if it isn't easy to use and appealing then no one will want to use it.
- **Actionable.** Users should be alerted when key indicators fall below certain threshold levels. Additionally, the information needs to be in a form where it can be used to easily adapt planning and forecasting models to support changing market conditions.

BlueCross BlueShield...

BCBST put together a four-phased Information Management Master Plan to attack its issues. The company measures its progress against the plan on an annual basis. The first phase of the plan involved completing the implementation of an Enterprise Data Warehouse. Phase 2 involved putting some BI functionality and some multi-dimensional business cubes in place. Phases 3 and 4 included the integration of structured and unstructured data, governance, and two big BI initiatives – performance management and creating the portal for members and providers.

A Set of Best Practices

Successful business optimization doesn't just depend on technology. It depends on business and IT collaborating to determine how best to deploy infrastructure, BI and business performance technologies and use them effectively. The definition of data elements, how the data is used, and so on must be a collaborative effort between IT and the business. Companies develop best practices over time and these best practices should be shared. Some of these best practice requirements include:

- **Governance:** Information governance needs to happen across the company because data is a company wide resource.
- **Solution Accelerators:** These include tools and techniques that can help jumpstart business optimization. For example, industry data models can help to accelerate the development of a data warehouse; analytical templates for data analysis can help to accelerate the understanding of company information.
- **Competency Center:** A competency center is a formal structure where a group of people from multiple business units work together in partnership with IT as a community share best practices, advise and consult with other organizations across the company, and help to educate staff in information related issues. Finally, it can provide a community of services including modeling, development, and review services.

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An Information Framework for Business Optimization

To understand the capabilities needed to meet the requirements we outlined above, it is necessary to appreciate the way these elements should come together. This is shown in Figure 2, below. Figure 2 illustrates the three requirements we outlined earlier. At the bottom of the figure is the information infrastructure. This consists of a set of information transformation services that ensure that trusted, consistent data is delivered to the data stores. These data stores can be data warehouses, data marts, or even OLAP cubes.

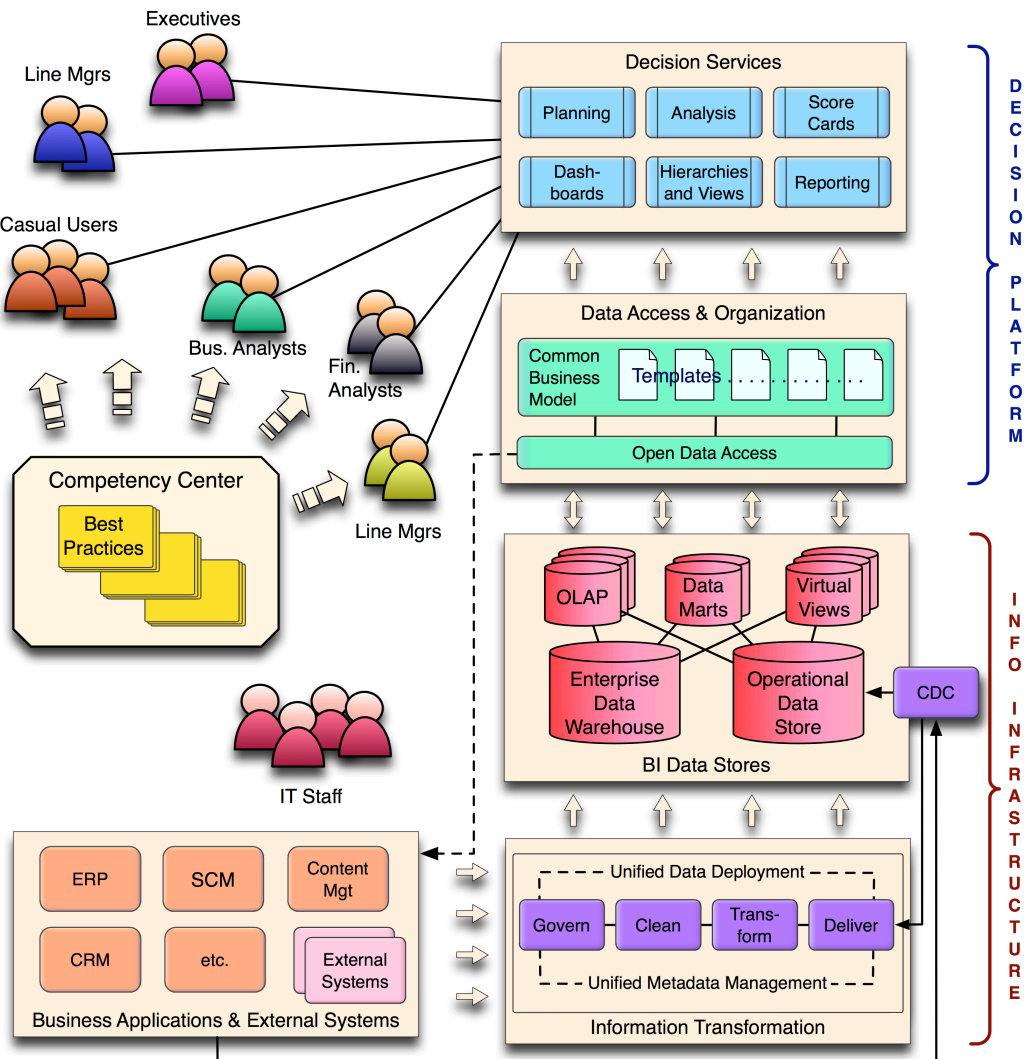


Figure 2. Enterprise BI Support Infrastructure

Above the information infrastructure is the decision platform. It provides open access to the data stores as well as connectors to business applications and external systems. It may also provide a common data model that can be used to help organize and analyze information. Above the access layer are the Analytic Services (e.g. the BI and performance management services) that are used to gain insight to the data. These applications are utilized by a range of users including executives, business analysts, and so on. Finally, an associated set of best practices is put in place (often via the competency center) to help the company make the most effective use of its information assets. Let's look at each of these in turn.

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The Information Infrastructure

The information infrastructure can be thought of as having two parts, which are largely invisible to the user, but which are essential for providing a coherent analysis capability:

- **Information Transformation:** This consists of a set of components that take the data from business applications and external systems and then profile, cleanse, and transform it to deliver to BI data stores.
- **BI Data Stores:** This consists of a set of access technologies that store data that has been prepared through information transformation. It is a set of data stores that make data available for use by the Decision Platform in specific contexts.

Information Transformation

This information infrastructure focuses on rationalizing the data that is gathered from the wide variety of business applications that an organization uses. Business applications are built to address a particular need and they organize and store data according to that need and not necessarily to some global scheme that satisfies the whole organization. For example, financial systems store data according to how the accounts department views the business, while the sales systems store data according to how the sales department sees the business.

While that may cause data problems, more severe problems are introduced by the fact that some business applications will have been built internally, some bought as packages from different suppliers and some will simply be external systems that business partners and suppliers provide access to. Chances are that the data definitions used by such disparate applications will not be in alignment.

To make matters worse, in certain areas - customer information is the primary one, there will be multiple databases bearing duplicate information. Industry surveys indicate that the average large enterprise has more than ten different customer databases - no doubt spread across ecommerce systems, call center systems, marketing systems and formal CRM systems. This means that a significant amount of data cleansing and rationalization will be required if this data is to be used at an enterprise level.

In order to trust the data in these systems and to use the data effectively across systems a number components must be in place. These are labeled govern, cleanse, transform, and deliver in the Information Transformation box in Figure 3, below. Of course, one of the most important aspects of this stage is to unite all the data within a single global data model. This begins with uniting and rationalizing the metadata - the data definition information. The problem that needs to be resolved here is that various data sources are likely to have defined the data in quite different ways. Information transformation consists of four distinct activities carried out under the umbrella of Unified Metadata Management.

These are:

- **Governance:** This covers activities involved in modeling and structuring information and can involve the formulation and implementation of policy determining the valid use of data This can include developing a common business vocabulary and using a business glossary, so that consumers of information are all working from a common set of data definitions.
- **Profiling and Cleansing:** Profiling is a specific process to statistically measure and infer data content and relationships based on the actual underlying data as well as validating the data against technical and business rules. Cleansing is the

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basic activity of standardizing, merging and correcting data. These activities help to ensure the quality of the data .

- **Transformation:** This involves extracting and then combining and restructuring information so that it conforms to a global model of data, which may include new data structures built by combining data from multiple systems. These transformations might be quite complex and high volume in nature.
- **Delivery:** As well as automating the delivery of data to the data stores, this involves synchronization and the management of data distribution.

Data Stores

Once the information transformation activity is complete it becomes possible to deploy data from operational systems to the decision platform. It can be guaranteed that all data distributed from this activity has achieved a specific level of quality and has been subjected to the appropriate rules of governance.

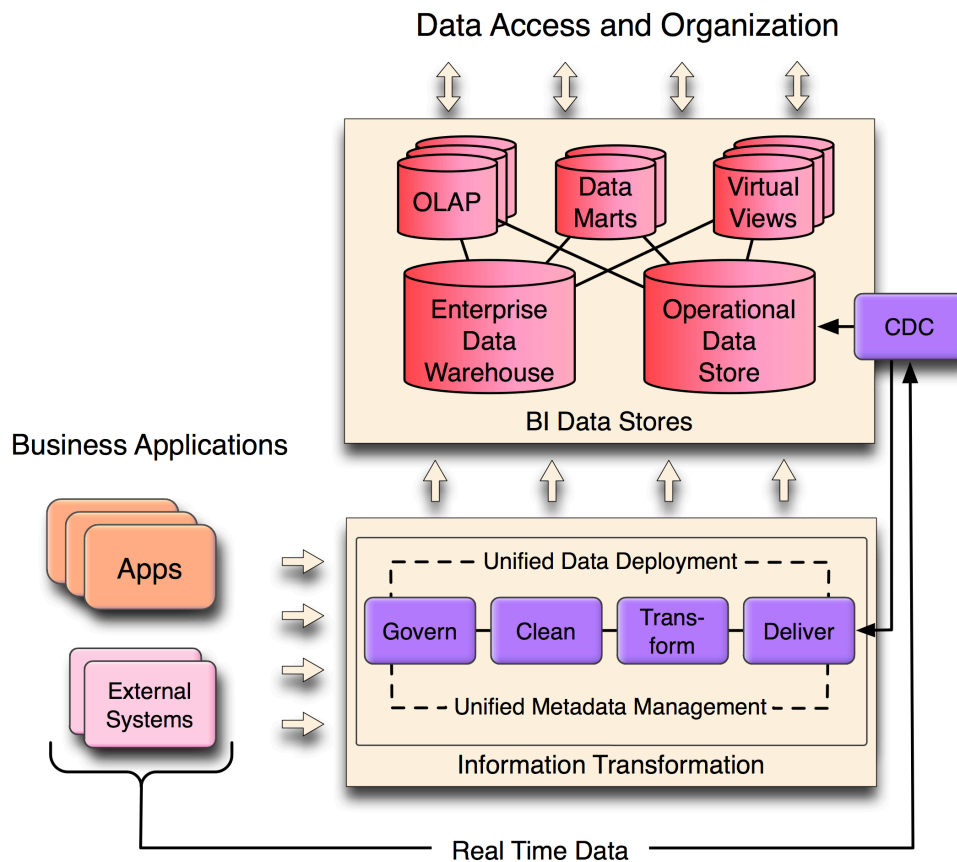


Figure 3. Information Transformation and Data Stores

Figure 3 shows the primary Data Stores, where data is gathered for eventual delivery to Decision Services. It includes two distinct types of global data store; an Enterprise Data Warehouse and an Operational Data Store. The Enterprise Data Warehouse (EDW) is a store of all the organizations data within a clearly defined global data model. The Operational Data Store (ODS) is not a comprehensive store of data like the data warehouse. It is, instead, a collection of recent (possibly close to real-time) operational data aimed at satisfying urgent BI needs. It is fed directly by a Change Data Capture

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(CDC) utility which feeds transactional information directly from operational systems to the data store. A CDC capability can usually take data directly from database log files and hence can feed data to the ODS an instant after a transaction takes place. CDC could also feed directly into the Information Transformation stage and have that feed the Operational Data Store.

There are a variety of ways to make use of this data staging process. Data Marts, OLAP databases and even materialized views can be prepared as a data staging activity from the primary data stores. Alternatively, analysis need not be entirely dependent on a data warehouse. Open data access and a common business model that underpins the decision platform ensures a consistent view of information even when all data isn't stored in the data warehouse - as in indicated in the diagram below.

The Decision Platform

The second part of the infrastructure (Figure 4, adjacent) deals with the preparation of data and provisioning it for use by the decision platform as well as the overall analysis capabilities of the platform itself.

Figure 4 also shows an arrow indicating direct access to data from business applications. This is often a transition capability. In organizations where Decision Services have access to operational business applications it may be necessary to preserve that capability until the full global Information Transformation capability has been implemented or if there is a continued need to provide specific operational reports within the BI view for the business.

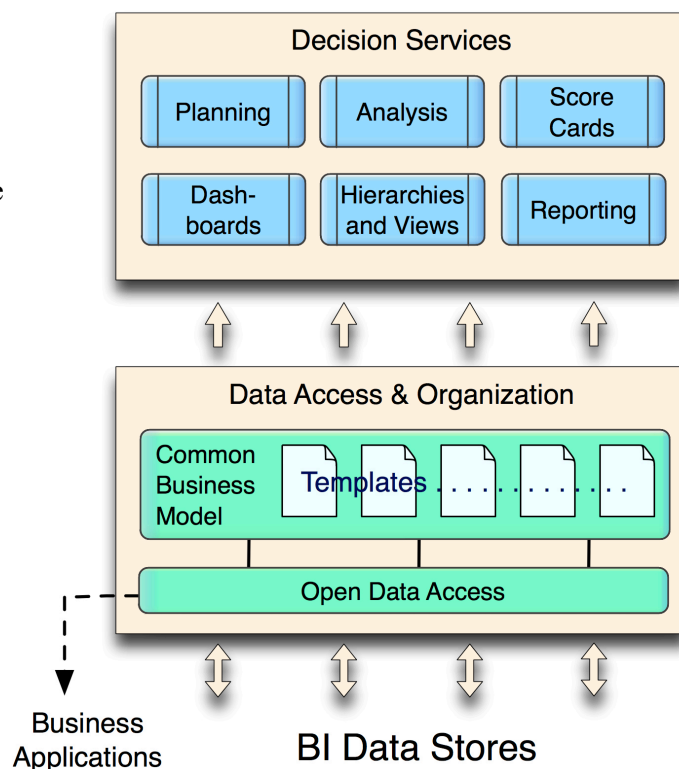


Figure 4. The Decision Platform

An important feature of data access is the implementation of a common business model that the Decision Services work against. The common business model is defined to reflect how the business wants to see the information and organized to support how it wants to make decisions. The foundation of the common business model is sourced from the global data model established during Information Transformation to minimize any introduction of errors or misalignment in the process. For global companies this model must support multi-lingual so there is no need to duplicate and potentially produce errors for different divisions. The data needs to be structured in a way that reflects the key measurements of the business so that Decision Services, particularly planning applications, scorecards and dashboards can present and capture a true representation of the information that business understands.



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Under Decision Services we have listed six distinct types of performance management capabilities. For organizations that want to maximize their effective use of structured information it is necessary, to understand how to use each of these capabilities effectively. The capabilities are:

- **Reporting:** Employed primarily for regular reporting, but most productive where users have the capability to build their own reports through a configurable self-service interface.
- **Analysis:** Analysis can be “slice and dice” drill down analysis typically supported by OLAP data stores of various kinds. This kind of analysis enables users to easily identify trends and the root cause of certain events. Intuitive 2-dimensional interfaces such as charts and geographic maps can help users to understand the analysis more easily. Analysis can also be much more sophisticated and involve prediction or other complex algorithms.
- **Dashboards:** In general dashboards provide at-a-glance perspectives on specific activities and business processes users want to monitor. They provide easily understood key metrics, news items, summaries, and charts with the ability to provide drill down capabilities to users to investigate any numbers that spark their attention.
- **Scorecards:** Scorecards are used primarily to track Key Performance Indicators (KPIs) where specific targets or performance levels have been set so a plan or forecast is measured against actual performance. They ensure everyone in the business has visibility into the strategy and how decisions made in every area of the organization drive business outcomes.
- **Business Hierarchies:** Business hierarchies are typically not held in the source applications but only known to business users; influencing the way they want to reshape and view the data in support of decisions. Enabling the business to define, agree and apply their hierarchies and attributes ensures the information is organized into views that make most sense to them for decision-making.
- **Planning:** This is a performance management activity that occurs once the business has determined what corrective action needs to take place based on its analysis and reporting. Planning involves adjusting investment, resources or other aspects of the business to modify operations to get the business back on track. Planning tools help managers to gather relevant information and assess the impact of alternatives and scenarios. The planning outcome is often used as metric for ongoing measurement and monitoring of business activities in order to directly manage the performance of the business.

Above and beyond these individual capabilities, it is also important that business users can seamlessly navigate from one capability to another, from dashboard to detailed analysis and back, without having to switch data sources or learn new tools. In addition, the wide variety of ways that users want to access information nowadays needs support; from desktop devices to the whole gamut of mobile devices employed by “road warriors.”

Best Practices

The goal of business optimization is to provide trusted information to the organization in order to help make the right strategic and tactical decisions and compete effectively. In order for effective business optimization to occur, all of the data problems, from cleaning and structuring data through providing it to analytical and performance management applications in a usable and interactive way to inform and engage the business have to be solved.

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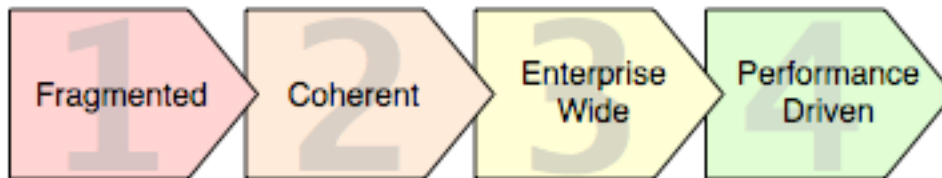
If an organization has a reasonable understanding of what can be achieved and what its needs are, there are no technology obstacles to satisfying those needs. However there is a requirement that goes beyond technology and the nature of the existing systems that an organization runs, and it is this:

An organization needs to learn how to make effective use of this technology

An Information Framework Maturity Model

There are many BI and performance management capabilities from simple reporting through to complex planning and simulation tools. Likewise, there may be multiple ways that users want to interact with the data. Most organizations have implemented some of these capabilities and have probably realized some business benefits as a result. What we have described so far in this paper is a highly sophisticated global BI capability.

Of course the reality is that very few organizations are anywhere close to having such a sophisticated capability. However, it is also the case that such a capability is feasible and



will deliver greater business benefits than an ad-hoc scattering of analytic capabilities.

For organizations that wish to improve their capabilities, it does not make sense to start building and hope something useful will emerge. It is better to think in terms of a BI Maturity Model and gradually move the organization from where it is through logical evolutionary stages, realizing incremental benefits at each step.

- **Fragmented:** This is the situation that most organizations are in. They have a collection of BI projects, which will be supported by a variety of underlying technology, but there is no coherence to this set of capabilities.
- **Coherent:** Moving to Coherent BI involves the planning of a global BI support capability and the beginning of its implementation. Equally important is that users are better trained in the way they use the Decision Services available to them - an effort that will normally involve assigning of BI roles to users and more effective use of existing BI capabilities.
- **Enterprise-wide:** Moving to Enterprise BI implies that the underlying support architecture is established making it possible to enhance and expand Decision Services in an incremental manner. At this stage, the whole of BI has been standardized and a complete information transformation and data distribution capability has been established.
- **Performance Driven:** The final step in the maturity model takes the organization beyond BI as it is usually conceived, to the point where it becomes possible to drive the business through performance management capabilities applied at every level from the department to the division to the enterprise.

Often companies find it difficult to move from a fragmented to a performance driven BI strategy for the reasons outlined above: a fragmented infrastructure, an architecture that doesn't meet the needs of a performance driven strategy, lack of skills, organizational and

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cultural issues, and so on. These organizations may need some guidance in getting from a fragmented to a performance driven business optimization strategy. This is where competency centers can help. Competency centers should be established to support the organization no matter where it is in its BI maturity.

Competency Centers

A competency center is a formal structure where a group of people from multiple business units work together in partnership with IT as a community. The competency center has a number of different roles. It can help to drive the information strategy alignment across the company by determining the architecture, standards, and governance models. The group can also share best practices, advise and consult with other organizations across the company, and help to educate staff in information related issues. Finally, it can provide a community of services including modeling, development, and review services. In fact, a competency center can help to align business and IT goals and drive the pervasive use of trusted information across the enterprise.

A competency center enables IT to come together with the business to create a common base of shared knowledge and experiences about the business and its requirements, processes and goals. One of the top priorities of a competency center should be to promote consistency and repeatability of processes and performance within the context of company and industry best practices. Best practices need to cover domains of industry as well as company specific knowledge, skills, and experience. Other priorities are to ensure the establishment of information governance processes that are well supported by the organization and to manage the flow of information throughout all areas of the business. The competency center would also establish metrics that would help to determine whether it is meeting its goals and objectives.

The benefits of deploying a competency center include:

- Eliminating the communications gap between business and the traditional IT department
- Maximizing the efficiency, use and quality of BI and performance management capabilities across all lines of business
- Driving productive end user adoption of BI/performance management components
- Getting a better return on BI/performance management investments by reuse
- Enabling business optimization as an embedded organizational behavior through a formal base organizational structure

While a competency center is a formal structure in one sense, it can also be considered an umbrella concept because an organization does not necessarily have to have one large competency center. Rather, the competency center can actually be a community of shared service centers. This means that there might be something called an “Information Management Competency Center” at a company which consists of a groups of individuals

BlueCross BlueShield...

BCBST chose to continue to deploy IBM InfoSphere and Cognos software to help solve its data transformation issue and to help with its BI/performance management plans. InfoSphere was used to provide a unified timely data delivery to its data warehouse. The InfoSphere software helped BCBST to understand, cleanse, transform and deliver trusted structured data to the data warehouse. Prior to using InfoSphere DataStage, loading claims, enrollment, payment and other data could take 170 hours of processing time each week. With the new version this now takes just 14 hours. DataStage also helped enormously in the data transformation stage. Business rules change some and data has to be reclassified in order to provide a consistent set of data for certain analytics functions. In fact, BCBST has had to reclassify five years of data. The company believes that DataStage is helping it to do these complicated transformations quickly and efficiently.

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from across the company that come together to help guide the company, share their expertise, best practices, and so on. They do not necessarily report to the same individual, although their competency center duties may be their primary job function.

Getting Started

Business optimization hinges on a company's ability to provide trusted information for analysis and planning purposes to those who need it in the form that they need it. This ensures an optimal decision-making feedback loop and increases the potential of a successful business outcome. Of course, in many organizations, this is easier said than done. Companies face a number of challenges that they need to address in order to be successful. In fact, most companies are still fairly early in the BI maturity model that we outlined in this paper. Hurwitz & Associates suggests the following guidelines to help get your organization started in its business optimization journey.

- **Assess where you are.** This doesn't mean simply doing an inventory of what tools and technologies you have at hand to deal with business optimization. Business Optimization forces a company to think differently about its information. It is best to first ask what business you are in and what your business goals are. This will then help you determine the kind of information you need and what your analysis goals are.
- **Put together a plan and roadmap.** Based on where you are today, think about where you want to be in the future. Consider what your greatest information challenges are and what is important to your company. Then, determine where you are as a business in terms of information maturity. This will include an assessment of organizational skill level, processes, and technology. After this, put together a phased plan; much like BCBST did. This plan needs to be a joint effort between IT and the business. Your plan needs to combine a business perspective, a technology roadmap, and an organizational initiative.
- **Think about business partners.** Ask yourself how you are going to accomplish your goals. It may be that you don't have all of the skills in house to effectively execute your plan. Your company should consider business partners to help you at the beginning of your journey, if it is necessary.
- **Prepare your organization.** You need to let the whole organization know what the plan entails and what is expected of them. This may include training in new technology and processes. Many companies appoint someone, who has executive support, to educate the organization about the plan. If the plan includes outside partners, it is especially important to let people know where they stand.
- **Take incremental steps.** Don't try to boil the ocean. Pick your initial targets to gain experience and demonstrate success. We recommend a high profile project where you can see results quickly. Many organizations (such as BCBST) first put together Proof of Concept applications to demonstrate the benefit of a particular application to the business.

BlueCross BlueShield...

On the analysis front, BCBST is using Cognos to help in internally facing and externally facing functionality. It deployed Cognos 8 Planning to consolidate planning and budgeting across the enterprise. Initially, the company utilized the slicing and dicing functionality of multidimensional Cognos cubes to help it understand how much its members go to the doctor, hospital, and so on. It now is providing 24X7 internet access to its largest external clients (i.e. employers) to access the claims experience of its members. It uses Cognos Software web-based reporting and analysis capabilities for this application.



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- **Consider a Competency Center.** Depending where you are in your business optimization journey, your company should consider a competency center to leverage expertise from across the organization.

IBM Solutions

IBM has a number of solutions in all three of the areas we discussed in this paper. These include:

Information Infrastructure

The IBM InfoSphere Information Server is a platform that addresses the information integration requirement for business optimization. It consists of a series of modules that can help companies understand, cleanse, transform and deliver data to a data store. It also provides a set of services that are built on a common metadata management environment that enables data to be shared throughout projects in the organization.

The main components of the InfoSphere Information Server are:

- **IBM InfoSphere Business Glossary.** This is where the business terms (such as customer, products) used by the organization are recorded to provide a business context for the data. Business subject matter experts and other business users may deploy this component to establish an understanding of how the data elements are defined by the business.
- **IBM InfoSphere Information Analyzer.** This component provides data profiling capabilities and determines the relationship between data across fields and sources. The business-side subject matter experts and data analysts can use this product to ensure that integration of data sources is based on a thorough understanding of the available data.
- **IBM InfoSphere QualityStage.** Based on certain rules that can be adjusted by the business, this product is used to clean up the duplicate records and enable organizations to create a single view of their customers or products across various data stores. It provides probabilistic matching capabilities to ensure high quality data. The business rules are stored in a metadata repository and shared with other parts of the IBM InfoSphere Information Server to support the audit function.
- **IBM InfoSphere DataStage.** This product is designed to carry out the transformation of information across data stores. It is the core for the primary ETL (extract, transform, and load) functions of the integration process. It leverages parallel processing capabilities to deal with high volumes of data.
- **IBM InfoSphere Change Data Capture.** This product ensures that data stores have the latest information available to end users. Change data capture ensures that data can be loaded in real time.
- **IBM InfoSphere Warehouse.** IBM InfoSphere Warehouse software offers unprecedented simplification in the deployment, integration and maintenance of a data warehouse. In a single package, IBM delivers the foundation for dynamic warehousing and all of the capabilities needed to cost-effectively consolidate, manage, deliver and analyze information.
- **IBM InfoSphere Metadata Workbench.** This is the metadata repository for IBM Information Server. The metadata services infrastructure of IBM Information Server is designed to allow metadata to be more easily managed, accessed by those who need it, and shared across heterogeneous technologies through a SOA.



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It enables metadata reporting, management, and insight across the InfoSphere Information Server modules.

- **IBM Infosphere Industry Data Models.** IBM also offers a series of industry models it has developed over the past 15 years while working with hundreds of companies in the banking, insurance, healthcare, telecommunications, and retail industries on data warehouse engagements. Based on the experience gained from these engagements, IBM has developed a set of Industry Models that leverage its expertise and best practices. The Models provide a business-focused framework for helping business and IT to collaboratively define business reporting requirements.

Decision Platform

IBM Cognos Software offers a range of decision-making products. These include:

- **IBM Cognos 8 BI**
IBM Cognos 8 Business Intelligence provides reporting, analysis, scorecards and dashboard capabilities. These capabilities are fed from a common business model so that all users work against a consistent set of data. The data accessed can include OLAP cubes or any relational data source. Cognos 8 BI also provides multi-lingual capabilities and all capabilities can be delivered across all channels (e.g. mobile, desktop, etc).
- **IBM Cognos Now!**
IBM Cognos Now! Is a real-time BI solution that continuously monitors key performance indicators and line of business operational metrics. It is tightly integrated with Cognos 8 BI and is delivered as a virtual, software, or hardware appliance.
- **IBM Cognos 8 Planning**
IBM Cognos 8 Planning is a solution that provides real-time visibility into resource requirements and forecasted business results. It supports best practices such as driver-based planning and rolling forecasts. It is built as a high participation model, meaning that different people across the organization can provide their input into the planning process.
- **IBM Cognos TM1**
IBM Cognos TM1 enables users to consolidate, view, and edit large amounts of multidimensional data for use in what-if analysis and what-if planning. It uses a patented 64-bit in memory OLAP server to do this. It is available as a large enterprise or mid market solution.
- **IBM Cognos 8 Platform**
The Cognos 8 Platform provides the technical foundation for analysis, reporting, query, planning, scorecards, and dashboards. It provides a single query service that enables users to access data from relational data sources (such as data warehouses and operational data stores), OLAP engines (such as Cognos PowerCubes, Cognos TM1, Hyperion, Microsoft, etc), Cognos Now! and transactional systems such as SAP or PeopleSoft. It provides metadata modeling to apply a business layer on top of the source systems metadata in order to deliver a consistent view of information across sources and insulate people from information complexity. These models support multiple languages and can be published to the user communities in an



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easily digestible format. In addition, it provides system administration capabilities including setup of security, load balancing and auditing. The platform is purpose-built as a set of SOA services.

- **IBM Cognos Performance Blueprints**
IBM Cognos Performance Blueprints are predefined data, process and policy models that have been built in conjunction with customers and performance management experts. They address a number of functional processes and are industry specific. These blueprints can be linked together to help fulfill company objectives.
- **IBM Cognos 8 Analytic Applications**
IBM Cognos 8 Analytic Applications are adaptable pre-packaged analytical software solutions targeted to help companies improve business performance in areas such as HR and finance. It includes configurable connectors to popular ERP systems, dynamic models for performing analysis, and interactive packaged reports. The product is built on the Cognos 8 Platform, so users can extend the product to incorporate the full range of Cognos 8 BI and planning capabilities.

Best Practices

IBM recently expanded the established Information On Demand Competency Center that includes services as well as best practices offerings. The IBM IOD Competency Center approach includes a number of functions - from aligning strategy to best practices, data governance, enterprise architecture, education and communication and evangelism. The services component of the IBM offering is designed to help companies jumpstart their competency center efforts. It begins with a competency center readiness assessment. IBM works with the company to determine how mature the competency center is. Then IBM and the company work together to set goals and priorities and develop a roadmap. After this, IBM can also help in the development and enablement of a competency center as well as provide operational support.


Conclusion

The benefits of successfully leveraging information for business optimization can be far reaching for organizations. The BlueCross BlueShield of Tennessee case study, printed in the sidebars of this paper illustrates some of these benefits.

By utilizing IBM's Information Server technology to help understand, verify and enforce the quality of its data, BCBST knows that it has data it can trust. Additionally, this data is no longer in silos, it is globally available. The company's Enterprise Data Warehouse now provides the foundation for all of its analysis.

The company believes that it is more competitive because it has a better understanding of its business and it is building relationships with its members and providers. For example, it views its IBM Cognos Software based reporting and analytical capabilities that it provides to larger group accounts as a key selling feature for new clients. Its own internal use of performance management software, as part of its performance management strategy, is also helping to keep the company focused and on track.

The shift to business optimization is a planned journey. It cannot be achieved by the delivery of just one aspect of what we have discussed in this paper since it has multiple components. It involves establishing a fundamental software infrastructure, providing



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decision-making applications, implementing best practices and ensuring that staff have the knowledge and skills to make effective use of new capabilities as they are delivered.

Ultimately though, an organization that devotes itself to acquiring effective business performance management will not only be more efficient, but also better able to use business intelligence to drive business optimization.

About Hurwitz & Associates

Hurwitz & Associates is a consulting, research and analyst firm that focuses on the customer benefits derived when advanced and emerging software technologies are used to solve business problems. The firm's research concentrates on understanding the business value of software technologies, such as Service Oriented Architecture and Web services, and how they are successfully implemented within highly distributed computing environments. Additional information on Hurwitz & Associates can be found at www.hurwitz.com.