White Paper
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Managing the Complexity of Business Change – The Adaptive Application Framework

Information Management

Cognos. software

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Executive summary

Be careful what you wish for …

Most technology pundits and analysts were quick to herald the dawn of the Information Age. Faster computers and integrated networks. The Internet. Information at everyone's finger tips. All this would make organizations leaner, more competitive and connected to a wider global marketplace.

At least, that was the idea. The trouble is, no one bothered to explain what to do with it all. Already into its teen years, the Information Age has seen multi-million dollar investments by organizations in applications and information management technologies that have generated good returns.

Information has indeed become readily available, whether you're working at a branch office in rural China, or in the heart of London. But information's value and context has become obscured by the complexity and increasing cost of managing it. And while its volume continues to grow, organizations are challenged more than ever before, not only by the delivery of information on an enterprise scale, but also by what it means as an evolving strategic asset.

According to an IBM study, 60% of CEOs agree that they need to do a better job of leveraging information, while more than 50% of users lack confidence in the veracity of their information, which is often tainted by multiple versions and inaccuracies.[1]

What's required, then, is a shift from the way information is currently managed and reported: from silos of information, silos of talent and skills, silos of technologies, silos of projects to an environment where information is a trusted, strategic asset that is shared across an organization in a standard reporting context.

That's just the first step, however. The second step is more problematic. It involves posing fundamental questions regarding the sustainable value of information assets: namely, how does one interpret and analyze data in a constantly changing business climate? And how does one ensure that critical data assets and the technology tools required to optimize their value are sustainable and relevant?

This is the principal challenge that the Adaptive Application Framework (AAF) addresses and the central issue that this white paper examines.

Lost in translation – the meaning of business change

"A corporation is a living organism; it has to continue to shed its skin. Methods have to change. Focus has to change. Values have to change. The sum total of those changes is transformation."

Andrew Grove, former CEO and Chairman, Intel

Andrew Grove, one of the founding fathers of the Information Age, got it right. Business is never static. Change is inevitable. Transformation is a normal part of an organization's response to business change.

And yet, managing transformational change in a complex, dynamic data environment with disparate data sources is not for the faint hearted. More often than not, it's expensive and time consuming, often fraught with ambiguity and uncertainty.

Navigating the rough waters of change requires an organizational capacity to collect information though many channels and actively mine it for insights. Here, the business case for optimizing back-office functions such as HR and finance, is fertile ground for beginning to manage and respond to changing business conditions from the local to the global levels.

Unfortunately, data from these functions often resides in the deep recesses of an organization's enterprise resource planning (ERP) systems and other best of breed solutions. It's data without context, often presenting multiple and, at times, conflicting versions of an organization's performance.

Fundamentally, this is the heart of the performance management challenge. The capacity of organizations to answer: How are we doing? Why? And, what should we be doing? It represents the start of a journey to begin optimizing business processes to answer these fundamental questions. But processes must be optimized to proactively manage change globally, while reflecting the regional business circumstances and providing a consistent perspective on the performance and speed by which business change can be harnessed for competitive advantage.

This is where analytic applications are proving their mettle, for they are providing critical business context for the raw data. Take this example. Many line-of-business managers are under pressure to contribute more strategically to their organizations' bottom lines. Getting cross-functional insight from different data sources, such as ERP systems and best-of-breed solutions, and conducting analysis against specific business metrics is one of their principal challenges.

In some cases, this information can be reviewed through packaged reports and analyzed in a data warehouse, where it can provide insight into operational business issues. But creating and implementing an enterprise data warehouse with packaged reporting content is not easy. It involves a series of complex steps and activities, and requires expertise in numerous specialized areas. It is also time-consuming, typically taking 18-24 months to complete. Analyst reports vary on the project completion rate for developing in-house applications. The Standish Group estimates that in-house projects are completed on time and within budget only 10-15% of the time.

Just as no market or business is ever static, so too are organizations' data and reporting environments. How IT departments respond to change is often a major contributor to their organizations' ability to tackle business transformation and the opportunities it affords. And yet, this requires re-thinking the role of IT from simply provisioning technology to a role that ensures the relevance of information for business users – ensuring that information is optimized for delivery and continuously relevant to the current and future goals of organizations.

Despite the substantial hurdles, some IT departments elect to build data warehouses themselves. It is not unusual for these projects to be over budget, behind schedule or even abandoned, due to the unanticipated complexity of building an effective model for extracting, transforming, and loading data.

Nonetheless, because many organizations have BI tools in-house, it may appear cost-effective to build a solution. For many organizations, these existing tools and skills provide sufficient justification for building an analytics application. But to not just build but effectively use the application, requires institutional knowledge of the tools and end-user business needs.

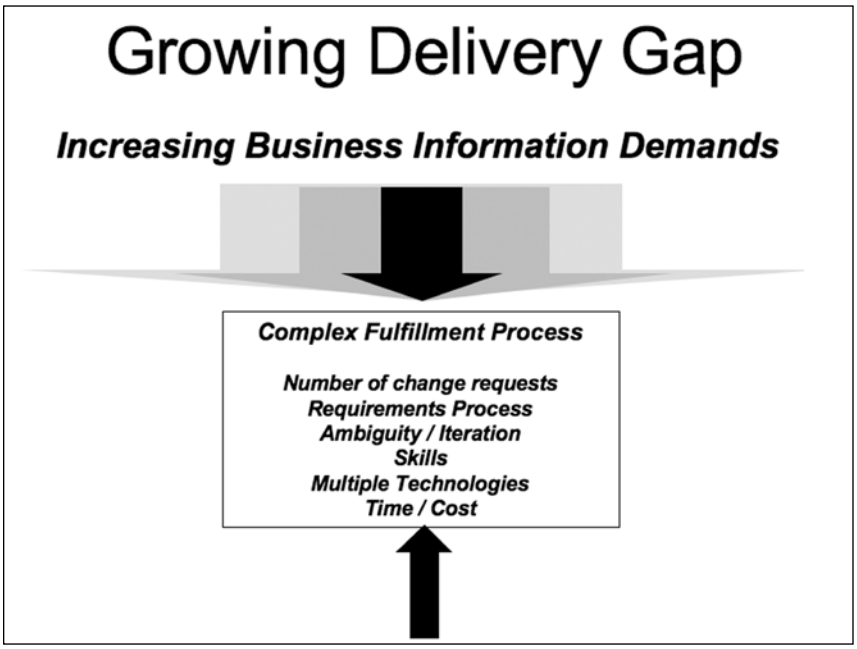
Now add in the specialized knowledge for financial, human capital management, or other areas of business reporting. To create a truly robust application, the organization's developers need to understand key performance indicators and how they are measured in specific business contexts. Once built and deployed, the custom application will also need to be maintained and upgraded. Adding new functionality is expensive. In fact, according to some prominent analysts, service is the single largest cost of owning a solution, sometimes several times the cost of the software itself.

In terms of the long-term value of the application, organizations need to ask themselves the following: What if the business conditions that shaped the underlying assumptions of a reporting environment change? What if a new company is acquired, or new business metrics are created?

Packaged Applications – Reality Check

It's the response to and cost of changing an installed application that is ultimately what the Adaptive Application Framework seeks to resolve. For the executive or line-of-business manager, who is likely already resource constrained, an approach is required that not only makes it simpler and more cost-effective to drive business change using technology, but also extends and sustains the value of these investments.

As mentioned above, the current approach to packaged analytic applications requires users to make a critical decision: namely, either to adapt their working practice to fit the application or have the application adapt to fit their needs. In either case, the process is expensive and demands undertaking a thorough requirements (or gap analysis) phase, a significant activity between a business team and its IT counterparts.



The process of thrashing out the business specifications for the application can be long and painful. In general, it is usually highly iterative and time consuming, involving trade-off discussions to reduce the scope, even at a very early stage, as IT becomes aware that they do not have the capacity and time to do all of the work requested by business users.

The difficulty is compounded by the challenge of translating business needs into technical specifications – a common failing that is only discovered much later in the process. Business users, for example, may find it difficult to describe their needs effectively and, without viewing initial development versions of the application, are challenged to make corrections early in the application's life cycle.

Once this phase is complete, IT still has to design, implement and verify the changes to the packaged reporting content, which requires the skills of a highly trained corps of IT personnel, including source data analysts, ETL developers, warehouse designers, BI modelers, and report authors. Changes that may appear minor to the business community can involve a large team to make coding changes, with all the associated testing and verification, taking days, weeks, even months. In fact, the average cost to create and manage a data warehouse is approximately (US) $3 million.

When users finally do get to see something – usually in a rush of analyses and reports that are suddenly available to review – they often struggle to consume and understand the avalanche of information. At this point, even if they can identify the additional changes needed to make the reports relevant and usable, it may be too late or expensive to refine the requirements and work the changes back through the development cycle.

In some cases, reports may meet initial requirements; however, so much time has passed during the development cycle that what users need now may well differ from what they needed six months or a year before, when the project first started. And then, there is the cost of ongoing maintenance to satisfy the inevitable demand for changes as the business evolves and new information needs are identified.

AAF removes the ambiguity of a traditional requirements process. It establishes a common point of reference that IT managers, line of business managers and executives can use to define how they are performing against standard measures. It simplifies the process so that end users and IT can rapidly collaborate to make decisions on how they want to adapt their analysis to meet new reporting requirements.

This is the context of adapting to business change through simpler data management and more agile business analytics.

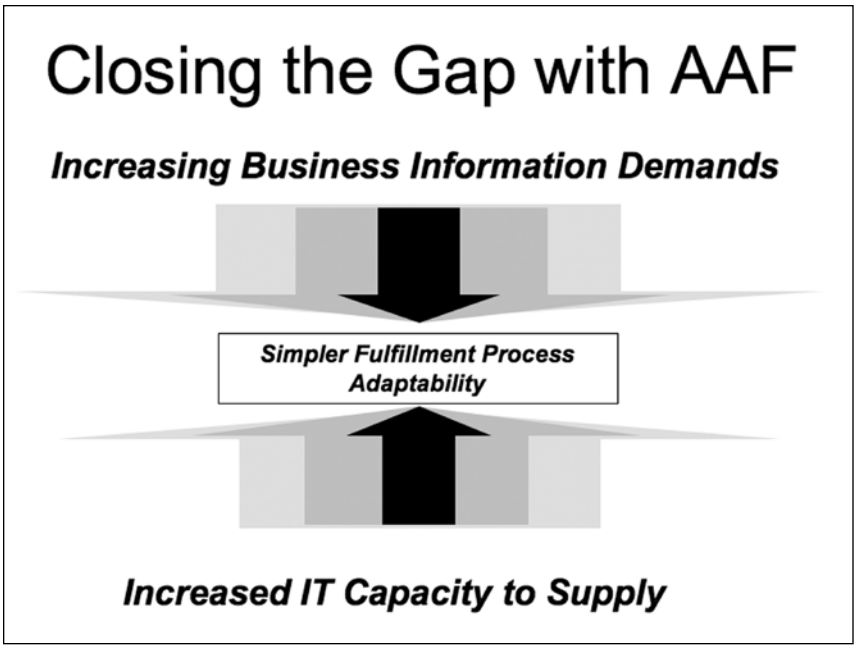
Automating the management of business change – the adaptive application framework

"If you are going to win games, you had better be ready to adapt."

Scotty Bowman, coach of multiple National Hockey League champions

AAF supports a dynamic business environment, where the only constant is change itself. Solutions built and managed using the AAF contain a library of critical measures and hierarchies – defined in the metadata – that are relevant to the business problem at hand. AAF provides a simplified and agile approach to the management of the library, so that it does not take months for an army of IT experts to make changes. This simplification allows a new conversation between business users and IT to accelerate access to new information and for changes to existing analyses. It does this through a configurable process completed via a single touch point that uses a drag and drop GUI to automate and streamline the management and implementation of changes.

In an AAF environment, the time-consuming, labor-intensive traditional tasks of data analysis, ETL coding, warehouse design, BI modeling and report authoring are dramatically reduced. This is because instead of managing large quantities of code in multiple environments, AAF manages metadata, and then enables automatic generation of reports and analyses that are published to a corporate portal so they can be distributed securely throughout the organization.



Simpler and More Agile

AAF replaces the labor-intensive tasks associated with the traditional development process with two configurable models that drive the automated generation of the data warehouse and the related reports and analyses. The input model manages the data warehouse, and the output model uses best-practice "analytic type" templates to publish reports for analyses.

In such an adaptable environment, models can be configured faster, easier and more effectively, and managed over time as necessary reporting changes are identified, simply by pointing and clicking in a consistent, intuitive GUI.

AAF also enables an incremental approach to the delivery of reports, allowing business end users to focus 100% of their time on servicing immediate reporting needs. Less immediate needs – often shaped by initial experience with the solution – can be defined later, and quickly met by configuring the packaged measures. This means that IT is able to provide users with what they need quickly and accurately.

Creating a Foundation for Adaptable Business

AAF consists of two core components: Adaptive Warehouse (AW) and Adaptive Analytics (AA). It works by providing a wrapper around IBM Cognos 8 Business Intelligence to simplify the initial deployment and ongoing evolution of analytic applications. Integration with IBM Cognos 8 enables end users to extend its value by accessing industry-leading business intelligence solutions, such as dashboards, scorecards, ad-hoc query, business event management, full data integration, search and mobile capabilities.

The Adaptive Warehouse (AW) manages the input model, pulling information into the solution from source systems, such as ERP and best of breed solutions. AW comes with a source metadata model that connects to and maps data from these source systems. It reads the source data dictionary, so unique business terminology used by an organization can be analyzed in the warehouse.

AW also creates the target warehouse – quickly and without any coding – using a drag-and-drop GUI that easily configures the target data model to ensure that it meets the reporting requirements of end users. As a result, the model mirrors user requirements and sets the stage for success early in the development process.

After the data model is configured to meet end user needs, AW generates ETL code to extract, transform, and load data from the source into the warehouse. It also generates the data definition language (DDL) to define the database structure. AW then generates a target IBM Cognos 8 Framework Manager model to be used in the Adaptive Analytics, the reporting layer of the AAF solution.

Driving Business Transformation

Adaptive Analytics (AA) is the second component that leverages IBM Cognos 8. AA uses the Framework Manager model generated by AW. The AA output model is configured based on user roles, providing specific information and context tailored for different business users.

An analyst, for example, can work with business users and the data model to ensure that the reporting model meets their needs – to create relevant reports and analyses, and deploy them via a corporate portal.

As a result, configuring the application to meet user needs is easier, faster, and less costly. And because there is less coding and report authoring, the output can easily be modified to adapt to changing business needs, while ensuring that packaged reporting content is relevant and the application sustains its value over the long term.

AA reporting model output consists of metrics, reports, and analytics, complete with drill-paths generated without the need to author reports. Since the reports and analyses are role-based, a single report can be generated for many users. For instance, AA can generate one report for all line managers, burst it securely to show only appropriate data for a division or region, and then deliver customized, web-based reports to end users throughout the organization.

Optimized Insight for Changing Organizations

AAF facilitates dynamic and state-of-the-art reporting environments that help businesses accelerate decision-making to improve performance. And it does so through a single touch point, with faster configuration of reporting changes, lower total cost of ownership and access to a broad suite of IBM Cognos 8 BI tools.

Fundamentally, AAF places the power of insight into the hands of the business user. Static data becomes information optimized for analysis and readily adaptable to changing business environments. In short, it *makes corporate information assets simpler to manage and organizations more agile and adaptable to business change*.

AAF's common business model ensures that all users maintain consistent access to their data. Collaboration and management features reduce the time needed to generate data models, resulting in quick response times and consistent reporting for business users.

And by developing requirements and reports interactively, it ensures that results meet users' present and future needs. Because implementation time is shorter and management is automated, AAF enables organizations to gain a fast return on their investment in a much shorter time.

The end result is an optimized BI reporting environment that evolves at the speed of business change.

About IBM Cognos BI and Performance Management

IBM Cognos business intelligence (BI) and performance management solutions deliver world-leading enterprise planning, consolidation and BI software, support and services to help companies plan, understand and manage financial and operational performance. IBM Cognos solutions bring together technology, analytical applications, best practices, and a broad network of partners to give customers an open, adaptive and complete performance solution. Over 23,000 customers in more than 135 countries around the world choose IBM Cognos solutions.

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Footnotes

1 "The Enterprise of the Future: Global CEO Study," IBM, 2008.