How to Manage Your Data as a Strategic Information Asset

Insights from a webinar in the 2012 Applying Business Analytics Webinar Series

Featuring:
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Webinar host Mark Troester is a former IT/CIO thought leader and strategist at SAS who oversaw SAS marketing efforts for data integration, data quality, master data management and enterprise data access, which are critical components of SAS® Business Analytics and its business and industry solutions. Troester also led SAS’ CIO and IT strategy. That area includes SAS High-Performance Analytics, SAS OnDemand and SAS IT Intelligence solutions that deliver superior performance, scalability, manageability and deployment flexibility to SAS customers.
“The old way of doing data management, where you’re looking at things very tactically, is not going to cut it in the future,” said Mark Troester, former IT/CIO thought leader and strategist at SAS. “Organizations need to evolve from a tactical perspective to a more strategic, holistic approach with their data.

“Instead of looking at data management at a project level, we have moved to a comprehensive, unified platform that looks at data integration, data management and master data management in concert. Now we’ve taken that concept to the next level with end-to-end governance that ties data management into the analytical life cycle. In the process of this evolution, organizations move from being reactive to proactive in managing their information assets – and even to a predictive state, where they can anticipate and prepare for change.”

Eight Reasons for a New Data Paradigm

Why is it so important to rethink how the organization manages and uses its data? Why now? Troester pointed to eight key factors that collectively create the perfect storm:

• **Big data.** “If you don’t have an infrastructure that supports the growing variety, volume and complexity of data, your organization is going to struggle,” Troester warned.

• **Changing patterns of data consumption.** “We’ve long since moved away from designing solutions just for people sitting at a desktop,” said Troester. Users are consuming data on a growing diversity of mobile devices, such as smartphones and iPad® tablets.

• **More complex data management requirements.** Users or applications might require data migrations from disparate systems, consolidation for an enterprise-wide view, unique data prep for analytics, integration of vendor or customer data, etc.

• **Data demand from more applications.** The data management framework has to support front-office applications such as customer relationship management (CRM), back-office applications such as enterprise resource planning (ERP) and many different use cases.

• **Pressure for faster turnaround.** “From a temporal perspective, we’ve moved away from big batch windows to real time or near-real time,” said Troester. “If you are running in batch, you’re probably pressured by shrinking batch windows.”

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• **More deployment options.** “The IT architecture could be deployed on premises or in the cloud, and the cloud could be a public cloud, private cloud or hybrid,” said Troester. Greater choice calls for a broader view of the enterprise’s data needs.

• **Different needs for different roles.** The information management strategy has to support multiple levels of use as well as very different types of users, from data stewards to IT professionals, quantitative specialists, business users and executives – even customers.

• **A new way of thinking about architecture.** “IT does a great job of thinking in enterprise architecture concepts when they develop applications,” said Troester. “We suggest that they adopt the same enterprise perspective in developing the information management paradigm.”

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*Figure 1: Eight key forces are driving the need for more cohesive and strategic information management practices.*
From Tactical Data Management to Strategic Information Management

The business and technology backdrop is compelling organizations to move beyond traditional, reactive and silo-based data management approaches to a managed – even predictive – approach that treats information as a strategic asset and uses it to create business value.

At SAS, that approach is called information management, said Troester, and although it includes the gamut of data management capabilities, it is far more than that. “It is a combination of unified technology solutions and strategy, coupled with implementation services that enable organizations to fully exploit and govern their information assets, resulting in competitive differentiation and sustained business success.”

SAS defines information management as the confluence of three important capabilities:

- **Data management** – managing and governing the data from a unified platform, including data integration, data quality, data governance and master data management (MDM), with the ability to access any type of data source across the enterprise.
- **Analytics management** – managing a portfolio of analytic models in a systematic way – including model development, testing, deployment and monitoring – and using the results of those models as new information assets.
- **Decision management** – embedding information and analytical results directly into business applications or processes at the point of decision, and supporting a feedback loop as decision outcomes are cycled back into the process.
“All of this is wrapped by a layer of governance,” said Troester. “Common governance across the entire decision cycle is absolutely imperative.” The three pillars are supported by a unified platform that provides common services across the information continuum, such as security, metadata, rules, workflow, case management, reporting and monitoring.

“It’s not just about technology,” Troester noted. “It’s also about the process, people and best practices that can drive success.” SAS® Information Management provides the technologies and tools that facilitate process and collaboration among the key constituents, platforms and entities.

**Figure 2: Information management brings unity and cohesion to the entire information continuum, including data, information and decision insight.**

**Data Management: The Essential Foundation**

“Given that SAS is the leader in analytics, people often think of SAS Data Management as data preparation for analytics, but SAS does much more than that,” said Troester. “We can support all the different use cases that are necessary, such as projects in data integration, data quality, data consistency and master data management. We can address all the different types of projects and use cases, including front-end and back-office applications, as well as preparing data for analytics or business intelligence.”

Because of the complexity and scale of data management demands, a growing number of organizations are embracing cloud computing, where an external provider houses the servers and software, and the organization’s users have secure access to their data, models and reports over the Internet. A cloud deployment was the perfect fit for the women’s fashion retailer Chico’s, said Barb Buettin, the company’s Director of CRM-Enterprise Information Management.
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“The exciting thing for me, being in IT, is I don’t have to worry about the servers being up; I don’t have to worry about upgrading to the latest version; I don’t have to worry about any kind of database issues, because SAS handles all of that for us,” said Buettin. “That’s a beautiful thing in IT, to not have to worry about that, so we can help the business focus on integrating the data, developing insights from that data, and creating the marketing that we need.”

SAS Data Management pulls data from many different sources, cleanses that data as it comes into the analytic environment, and rationalizes data by key assets, such as by customer or by product. All of that sits on top of an enterprise data access foundation that makes it easy and seamless to access multiple data sources.

In addition to the usual array of internal data – such as demographics, campaign responses, sales, revenues and other customer data – Chico’s now integrates information about customer online behavior, the competitive landscape and the local trade area into its customer data warehouse.

“We’re very excited to be able to bring all of this data into the database,” said Buettin. “With our prior solution, we couldn’t quick-turn integrate data at all. It all sat in disparate data sources, and it took a technical team to get to that data and to have any understanding – or we exported it out to vendors to do the work for us. The SAS solution enables us to get our hands on it ourselves and understand it. While we have the normal scheduled business rules and integration schedule, if there’s some data that needs to be quickly integrated into the database, my team can actually write to this database. That’s what they cared about the most.”

Marketing managers and business analysts appreciate hands-on access to the data without having to rely on developers or statisticians, Buettin said. “We put up SAS Web Report Studio [a visual, self-service reporting tool], but once our business users got their hands on the data in SAS® Enterprise Guide®, that’s what they wanted to use. This is a little bit of an unusual situation, but with our prior solution, business users very much had to be in the data, so they are very data-savvy. This enables them to get to the root of everything that they want, quickly.”
Analytics Management: The Analytics Model Factory

To some people, analytics means building a model that will reveal new knowledge from data. That’s too narrow a definition, according to Troester. Now that predictive models are high-value organizational assets – essential tools to manage uncertainty and risk – the models and their underlying data must be managed for optimal performance throughout the analytical life cycle.

“It’s not only about developing the models,” said Malene Haxholdt, Senior Global Marketing Manager for Business Analytics at SAS. “It is also about deploying them, embedding them into a business process and monitoring them over time. With the demand rising for predictive models, you want to have an enterprise view on managing them.”

As Haxholdt noted, analysts don’t just develop one model to solve a business problem. They develop a set of competing models and use different techniques to address complex problems. They will have models at various stages of development and models tailored for different product lines and business units. As a result, an organization can quickly find itself managing thousands of models.

Furthermore, the model environment is anything but static. Models will be continually updated as they are tested and as new results and data become available. “You want to build the best predictive models you can, using all the data you have accessible,” said Haxholdt. “It’s a much more iterative process than the IT process of building applications. The model management environment needs to be able to handle that.”

With a formal model management framework – an “analytics model factory” – it becomes far easier to document models and collaborate across departments and internal agencies. “An analytics model factory closes the loop in the analytical setup to get your value,” said Haxholdt. “You need to consider how you monitor to make sure the models you develop continue to add value, or whether they are no longer working and need to be retired. Just as important, you need a mechanism to feed model results back into the decision-making process, because that is how the analytical model serves a purpose and drives the value.”

“Predictive models use your data to tell you about the likelihood of some future event. Since nobody knows exactly what’s going to happen in the future, managing predictive models is about managing the uncertainty of future outcomes across the organization.”

Malene Haxholdt, Senior Global Marketing Manager for Business Analytics, SAS
Connecting Analytics with Data and Decisions

An information management approach bridges analytics with data management and decision management. This cohesion is important for three key reasons:

- **The raw data might not be presented in the way the model needs it.** “You might need to transform some of the data, categorize it, or make some kind of statistical transformation on it to be able to develop the best performing predictive models,” said Haxholdt. “That process varies among models. For each thing that you model, different aspects of the data would be relevant, so you need an analytical environment that enables you to juggle data around in that way.”

- **The model development process is by nature iterative.** “The IT department should be instrumental in preparing the infrastructure and getting the data ready, but then a quantitative specialist builds the actual models,” said Haxholdt. “They may want to work with different sources of data, try different models, and repeat this process over and over to optimize for the best analytical results. And then once a model is in production, they need to monitor the model to see if it needs to be updated based on economic factors or other things that are happening in the data.”

- **Models aren’t much use if they only feed reports and dashboards.** The results of analytics should guide business decisions, and the results of those business decisions should be fed back into models. This closed-loop process requires a close coupling of analytics with the third pillar of the information management approach: decision management.
**Decision Management: The Business Value**

“Data is only important if it can be turned into information that can drive valid decisions,” said Troester. “Decision management is all about taking the analytics or information service and embedding that into the production system.”

For example, when a credit card organization is processing a card swipe, fraud detection should be embedded in that process. When call center agents have a customer on the phone or tellers have a customer at the counter, analytics should be giving them the information they need behind the scenes to make the most of the interaction – right now.

The right IT architecture allows organizations to embed analytics into ongoing work processes in three ways:

- **Automate decisions** that must be made frequently and rapidly without human intervention, such as for fraud detection, real-time offers, dynamic forecasting and facilities control.

- **Deliver analytics via Web applications or enterprise systems**, for tasks where most of the needed information is available electronically, but expertise from a human is required, such as for supply chain optimization, sales forecasting and advertising planning.

- **Manage information flow, workflow and collaboration**, often drawing information from enterprise systems into desktop productivity tools, such as for case management – and closing the loop by factoring the results of analytics back into the process.

YouSee, Scandinavia’s biggest distributor of TV and Internet solutions on the cable network, embeds analytics into its contact center system to tailor each conversation with customers and ensure that each one receives the most appropriate message or offer.

“The models we have in production score all the customers for an event, such as for churn or cross-sell,” said Martin Jonassen, Advanced Analytics Consultant for YouSee. “We may set a cutoff, say, the top 10 percent high scores will get a certain offer if they call.” When a call comes in, a model scores the customer as having a high probability of accepting a certain offer, which drives the script for the call center agent.

“We have not only one script for churn, one script for cross-sell,” said Jonassen. “We have differentiated scripts chosen in a process much like a decision tree.” Within a category, different scripts are offered depending on various customer attributes, such as the combination of YouSee services to which the customer subscribes. Customers then feel that their offers are truly differentiated, rather than generic and available to all.
Closing Thoughts

“Think about the entire information management life cycle,” said Troester. “Don’t think about the data piece separate from the analytics piece separate from the decision piece. And when you think about the data management piece of it, think very expansively. Don’t think about individual use cases; think about everything that you need to do across the enterprise.

“And think about flexibility. When you design the architecture, think about the inevitability of change. You can’t always anticipate what will happen in the future, so you need an enterprise architecture approach that will allow you the flexibility to be ready for the future.

“And finally, think about delivering analytics or information services directly to the point of decision. Don’t think about analytical and operational capabilities as separate processes; think about how you can apply analytics to drive better decisions in real time.”

Top Takeaways
An information management approach:

• Applies data quality, data mastering and governance in a pervasive fashion.
• Covers the entire analytics life cycle, from data preparation to model development, overall deployment and monitoring.
• Expands data governance to include analytics governance.
• Facilitates collaboration among business and IT stakeholders and across functional areas and business units.
• Embeds the results of analytics into operational systems to drive decisions at the point of contact or trigger automated actions.
• Supports a closed-loop decision process, so decisions are constantly validated or modified based on new input.
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