



Aligning Technology and Business in the Age of Big Data Analytics

Highlights from a panel discussion at the 2013 SAS Financial Services Executive Summit

CONCLUSIONS PAPER

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Introduction

Who owns your data? Who is responsible for it?

Whose job is it to see that the needed data is captured, cleansed and available for analytics?

If you pointed to someone else – anyone else – you’re not going to get much sympathy from the data management experts on our panel at the 2013 SAS Financial Services Executive Summit. Data is so integral to running the business that it’s everybody’s job.

“I could write a comedy book about some of the answers I get from executives around who manages their data, or what they do about their data,” said a data management executive for a large US bank. “I asked a bank executive how he handled his customer and data problems, and he said, ‘I don’t have any data. Operations and Technology has my data.’ I couldn’t let it go, so I asked him, ‘Do they have your revenue too?’ And he sort of looked dumbfounded, but he got the point.

“Whenever someone says data is someone else’s job, I say, ‘Let’s do the daisy chain. When we book the financials, who’s getting the revenue – the analytics team?’ No, they’re not getting the revenue; the business is getting the revenue – and the expenses of running all of these [support] organizations are paid by the business. If the business doesn’t understand its total cost of ownership – and how much they’re spending on redundant technologies, kluge technologies or pseudo-technologies to run the business – then they’re not doing their job of understanding the bottom line. They’ve got to own it.

“I recall a case years ago where a group developing operational risk models needed time series data that they just didn’t have. The businesses’ answer was to tell Risk Management to do a dumpster dive to recover records and build up the time series. I was on the call, and I was like, ‘How dare you; how dare you say this is Risk’s responsibility. Risk is giving you information, but they don’t own your business. We can look at data augmentation; we can look at different ways of satisfying the lack of the time series, but don’t make it somebody else’s business. It’s your job to run your business.’”

If data is everybody’s business, the relationship between IT and the business needs to continue to evolve. It’s often an uneasy alliance of necessity. Business leaders tend to think of IT as a slow and costly service, while the IT team thinks of business units as the bearers of unrealistic requests. This quasi-adversarial model is unsustainable, now that data-driven decisions are core to business success, and as these issues scale to big data levels and real-time expectations.

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A data management executive at a large US bank

Big Data Changes Everything

As business decisions go, getting it right requires data – lots of it. Operational and transactional systems churn out gigabytes of data, but the business units alone do not necessarily have the tools or analytical rigor to get the most out of that data to benefit the entire enterprise. That requires new levels of agility and speed in data integration, data quality, metadata management, application deployment, analysis and reporting – largely the province of IT.

All of this points to one inescapable reality: The business units had better be on really good terms with IT – and the IT team had better understand the business questions and context their work is addressing.

Financial services firms aren't the only ones facing this reality. IT and business departments in every industry are having to adapt to work together more collaboratively and iteratively. Organizations have to align technology and business departments to answer a larger question: How can we get the most value from data across the enterprise?

This question becomes more challenging in the era of big data. *Big data* is a relative term, less about volume than about data becoming an obstacle – about reaching the point where the organization has difficulty getting to it and truly harnessing it. That could be when data outgrows the limits and processing capabilities of relational database management systems. It might be when data is used primarily to look at the past but ought to be helping to predict and optimize the future. It might be when it takes hours or days to get the answers to time-sensitive questions, while the windows of opportunity close.

How can organizations restructure their data and analytics frameworks to address the new demands? Part of the answer, according to our panelists, is to decentralize and centralize. That is, decentralize the physical location of the data, and centralize the analytics that transforms that data into business insight.

Where Data Lives: From Monolithic Data Warehouses to Distributed Resources

Only a few years ago, a discussion of data strategies would probably center on the importance of consolidating information from all the product silos to build a big enterprise data warehouse, and then giving analytics users access to that warehouse.

That sounds good – and it was the right thinking at the time – but that centralized structure can become unwieldy. Organizations need ways to manage big data faster, without having to bring it all together into an enterprise data warehouse.

For a growing number of organizations, the answer has been to take advantage of distributed processing with Hadoop. Hadoop is an open-source software framework for running applications on a large cluster of commodity hardware. Hadoop delivers enormous processing power – the ability to handle virtually limitless concurrent tasks and jobs – making it a remarkably low-cost complement to a traditional enterprise data infrastructure. Hadoop is often used as a staging area for analytics, as part of extract/transform/load (ETL) or extract/load/transform (ELT) data management processes – and many organizations are expanding their use of Hadoop as an infrastructure component for analytics.

Where Analytics Lives: From Silos to an Enterprise-Level Strategy

At the same time the data is being decentralized, the analytic capabilities to make use of it are coming together. The traditional arrangement – whereby analytics is developed and used in business silos – is inefficient and inconsistent. Several departments will reinvent the wheel, rarely will they share that wheel, and none of them is likely to develop a steering wheel designed to drive the entire vehicle – the enterprise.

Financial services institutions represented on our panel endorsed the concept of centralized analytics with big-picture perspective, but they weren't there yet.

"We have decentralized analytics at our institution," said one panel member. "Retail banking has a group dedicated to analytics and modeling. Risk has its own group dedicated to modeling and analytics. In the Commercial organization, there are pockets of people dedicated to doing it, but not necessarily a defined group dedicated as a cross-functional activity."

That scenario probably looks familiar to financial institutions of all sizes, with analytics decentralized across credit, marketing, retail or commercial banking businesses. In many cases, IT provides the toolset and sometimes provisions the data. In other cases, some of the business units provision the data themselves using their own toolsets. Model development and management is decentralized throughout the organization. Each group, while well-intentioned, has its own way of working – its own policies and procedures that determine how models will be developed and used.

Savvy financial institutions are now putting robust analytics administration in place, such as building out a model risk management team and a data governance team in alignment with enterprise-level data management strategy. For many of them, the vision is to move toward more consistent and centralized toolsets while still granting the business units appropriate autonomy and control. The end result is likely to be a spectrum of self-service capabilities, with IT providing some canned reports as well.

Some organizations have started that governance process by realigning analytics into a higher-level organization under a chief data and analytics officer, and aligning federated information governance with processes and standards established by the central organization. Others are establishing business intelligence or analytics centers of excellence. More on that later.

"The ultimate vision is that we would like to move toward more consistent and centralized toolsets, yet still allow those businesses to have that control."

vice-president of risk management
for a US bank

How Do You Get Buy-In for Data and Analytics Initiatives?

Most institutions will have to go through a cultural reincarnation to position themselves for the challenges and opportunities of big data. But how do you change the culture? How do you convince decision makers throughout the organization to treat data as a corporate asset and make the necessary investments to do it right? Change is always a hard sell, and IT mysticisms are a particularly hard sell to business leaders.

For banks and insurance companies that weathered the financial storms very well, this cultural shift has been slow to materialize, because there was simply no pressing need to change. Back in the day, risk management leaders who called for enterprise-level strategy and governance would get a polite but lukewarm reception. The general feeling was, “We’re fine, we don’t really need it, we can muscle through.” In the next phase, management acknowledged the need for a more mature data strategy but had little impetus to do anything about it. “Maybe we need it, but it’s too expensive, so we’re not ready to spend that money right now.” Later, middle management started saying, “We need it, but management is never going to fund it.” When risk officers started getting management to think about the issues more deeply, fear crept in. The mindset became, “Yes, we probably need to do this, but wow, it’s going to be hard.” Under expanding regulatory pressures, the attitude has now changed to “Are you done yet, where is it?”

Six Steps to an IT-Aware Business and Business-Aware IT

1. Make Data Responsibility Core to the Business

“Data is our raw material,” said one panel member. “You can say you’re booking business and negotiating loans, but if you don’t get the data in your system, you really haven’t booked anything. So getting the businesses to understand their role from start to finish – and to designate key people who recognize that – hasn’t been as difficult as we thought it would be.”

That speaker’s firm has an established data policy as required by the Financial Services Authority (the UK regulatory body that has since been reorganized into the Financial Conduct Authority and Prudential Regulation Authority). Part of that data policy dictates that data management and data quality are included in executive performance measures. “It was important that heads of businesses understand that they have skin in the game. They nominated their data stewards and SMEs [subject-matter experts], and they participate in our governance activities. There is a compensation dimension to recognize their efforts, but it was more important for us to help them be the focal points of the larger cultural shift around data as responsibility.”

“In the past, we were trying to convince people that this was a good thing and we should use tools like this. Whereas here, we had an opportunity, and people weren’t questioning why we were trying to do it. They were eager for that help.”

Risk management executive
for a US bank

Regulatory compliance is a core business requirement that even the most nontechnical executive can buy into. For example, anybody in banking and risk is familiar with the monthly and quarterly FR Y-14 data submissions to the Federal Reserve System. This reporting collects granular data on bank holding companies' various asset classes and pre-provision net revenue for the reporting period. The Fed has rigorous requirements and data quality thresholds for submissions of this data across multiple product lines. Establishing the capabilities to meet these requirements was a project that had to get done. No questions asked.

It became no longer a matter of trying to convince people that it was time to upgrade from spreadsheets and Microsoft Access databases to bona fide data quality tools. The imperative was out there, and people were eager for help with that evolution.

2. Build Bridges Between the Business and IT

Our panelists agreed that the need for collaboration is greater than ever. Whatever the organizational structure, the business people need to understand IT, and IT needs to understand the business. You can no longer toss a request over the wall to IT just in time and hope IT resources will be available. IT has to be involved early in strategic and proactive planning discussions with the business.

Important questions about the data infrastructure and processes can then be addressed early on. How do you want to capture the data? Store it? What's the best approach for sharing and protecting the data? How do you want to analyze it? How do you want to present and use the results? What regulatory requirements are associated with this? What other business units could benefit from this project? What data requirements would those business units piggyback onto this initiative?

These are things IT definitely needs to work with business units to understand. With so many choices available in platforms, deployment options and analytical techniques, IT can play a valuable role in determining the right options for the business unit's purposes.

By the same token, the business users need to be technology-aware. They're not going to understand the nuts and bolts of the IT architecture, but they should understand which systems connect to which systems and how they work, because then they're less likely to ask for Herculean things that can't happen.

Consider designating a cross-functional analyst/advocate to help bridge the gap. At SAS, a new integration analyst position – part of the IT organization – brings both technical expertise and business acumen to the table. Another promising approach is to create a new career path – basically the equivalent of an analytics fellow, a role that can go from executive director level to vice president without managing people. This represents a big cultural change from the tradition that equates power with headcount. In the age of big data, power is in the ability to make better decisions.

“We stretch our tentacles not only into our environment but out to the source systems, and we work with business partners to actually change their behaviors. So part of our implementation isn't just around profiling and trapping data defect, but about changing business processes to make sure there are true behavioral changes at the core to move the data forward.”

A data management executive for a large financial group

3. Think Iteration and Collaboration

Business users should get involved in data and analytics initiatives early and often, our panelists agreed. “We want to make sure they understand the consequences, the interconnections, and that they visualize and internalize the resulting operating model associated with that, before we even embark on writing code.”

A more dynamic business environment calls for a cultural shift in development methodologies. The traditional *waterfall* approach calls for filling out an exhaustive specification matrix at the start of the process. All requirements must be gathered before any development begins. This process can become dysfunctional as executives load all imaginable requirements into the specifications, just in case.

This very disciplined and orderly approach is being supplanted by the *agile* approach of iterative and incremental development. Business users and developers work back and forth to evaluate, change, tweak and improve. Some critics of agile development consider this method too unstructured, but advocates note that there is still structure; it just happens on a speedier cycle – hours and days instead of weeks or months.

Either way, the more you know sooner, the better off you are. “We spend a lot of time on requirements and user engagement, and making sure the businesses understand what they’re asking for,” said one panel member. “From the beginning, we make sure people understand that when they put a system in, it’s more than just a mechanism for processing a loan or credit card application. There’s a whole array of downstream regulatory and business decision-making activities to consider, and all of that initial preparation has to reflect that.”

4. Start Small and Build Incrementally

“The companies represented on the panel ignored some of the industry platitudes about how to best implement data governance,” said Jill Dyché, Vice President of Best Practices at SAS, moderator of the panel. “None of them did the ‘kickoff-and-cold-cuts’ approach to analytics and data governance. None of them said, ‘Let’s have a big meeting, bring everybody in, call in catering and talk about what’s wrong with our data.’

“What they did instead was awesome and an emerging best practice. They started small. They started in a focused way, by clarifying the need, pain or problem they were trying to solve, and using some of those initial answers as the petri dish for expanding those capabilities horizontally over time. This is really a best practice because executives don’t have a lot of time to spend on one issue; they’re mission-driven and looking for results. Starting small and thinking big is the approach that has proven to be successful.”

Some banks struggled with that. They tried to come at it from a more top-down approach and weren’t getting much traction. The real energy behind success tends to be more middle-out.

“We have shifted from a *waterfall* approach – where business leaders load everything they can think of into the requirement specifications – to a more iterative approach, where business experts sit with a small team of talented IT professionals and work very quickly and collaboratively. This *agile* development model has been very successful for us.”

IT Executive from a large insurance carrier

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Jill Dyché
Vice President of Best Practices at SAS

5. Promote Your Successes

Data governance efforts that were implemented for regulatory compliance often deliver significant business benefits as well. For example, one bank represented on the panel improved efficiency by about 50 percent and data quality from about 40 percent to 90 percent – in only five months. Along the way, risk strategists analyzed the process and built in some governance while no one was looking.

Executives understand the necessity of investing for regulatory compliance, but they really appreciate tangible business results. So it's important to keep capturing those tangible and quantifiable improvements, wherever possible.

In addition to executive presentations and word of mouth, some organizations publish a periodic newsletter that showcases analytics successes. As news spreads of the success of one data/analytics project, other business leaders can get analytics envy: "I want some of what that person's got." In the process, everybody gains a greater appreciation for how data initiatives done for regulatory compliance can serve the business better.

6. Establish an Analytics Center of Excellence

As our panelists noted, organizations have help desks to support users if their desktop applications aren't working, their email is frozen or their PC crashed. You have one number you can call, and there's a repository of information and expertise out there to help. Yet these same organizations – even the ones that view data as a strategic asset – often have no equivalent of the help desk for the analytics environment. Since analytics expertise is considered to be in short supply, organizations should take very seriously the concept of an analytics center of excellence chartered to:

- Develop and promote analytics best practices, talent and resources across the organization, sharing and reusing analytical work as appropriate.
- Educate decision makers on the value of analytics as a competitive advantage, and help them use analytics to support their decision-making process.
- Experiment with the art of the possible by developing and testing advanced applications.
- Work to gradually change the internal culture to one where analytics is a natural and embedded part of the decision-making process.

A center of excellence will therefore manage and coordinate many different aspects of the information infrastructure, data stewardship, master data and information governance. The center of excellence will not likely have direct control or ownership over all these areas, but it will work with different groups in the IT and business organizations to address them.

Closing Thoughts

“I have punched my dance card in IT, but I come out of the business and I understand business process,” said one panel member, “and when I hear business people say, ‘It’s somebody else’s job,’ I pretty much have no sympathy. For me, data management and data governance are core to everything. ... That entails a lot of education in making people aware of the consequences of how they use data.

“I’m very fortunate at my firm in that our CFO is my champion, and he’s gotten everybody else onboard. Now, when they have executive committee meetings about what technical initiatives to fund, you find them all talking about, ‘Well, have I really clearly articulated my requirements around this business case? Do I really know my drivers? Am I collecting all of the information that’s going to lead to that?’

“These conversations are important because for us, it’s not just about the regulatory aspect of banking; it’s about how we are going to generate our revenue, and it can’t happen by magic.”

“The climate as a result of regulation and economic events forces us to think about different ways to make money. And you can only do that by looking at what you’re doing, and understanding if you’re in a position to do something better or what you can do differently.”

An information executive at the US subsidiary of a multinational financial group

For More Information

SAS white paper, **Banking on Analytics: How High-Performance Analytics Tackle Big Data Challenges**: sas.com/apps/sim/redirect.jsp?detail=SIM86676_3070

SAS white paper, **SAS® Information Management: End-to-End Continuity, Cohesion and Governance for the Entire Information Path, from Raw Data to Analytic Insight Delivered at the Point of Decision**: sas.com/reg/wp/corp/46615

SAS for financial services on the Web: sas.com/industry/financial-services/index.html

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