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Modernizing Your Analytics Environment

Thomas H. Davenport

Purchased $1.5 million last year

New project starting in Houston

Just received $45,000 in manufacturing equipment in Sacramento location

Analytics, although the focus of much recent attention from the business and technology press, are not a new capability in business. Although I am reluctant to date myself, I started working with them in mid-1970s, and I know people who started earlier than that. You could write your own statistics programs from the beginning of computers, but the key vendors of analytics software got started in the late 60s and 70s. So it's been almost half a century that organizations have been using externally-supplied statistical and data management software to make sense of their information.

The reason for this history lesson is that some organizations I visit don't seem to have changed their analytics technology environment much since those early days. I often encounter companies with 70s-era base statistical packages running on mainframes or large servers, data warehouses (originated in the 80s), and lots of reporting applications. These tools usually continue to work, and there is a natural—but dangerous—human tendency to leave well enough alone.

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What You're Missing with Old Technologies

But those who employ such "throwback" technology architectures are missing out on forty or fifty years of progress. Not surprisingly, much has changed in the meantime. Vendors have produced a variety of new tools for predictive and prescriptive analytics, and they offer many custom analytics solutions for industry-specific problems like anti-money laundering in banking, or churn prevention in telecom. Visual analytics are easier to generate, are much more visually appealing, and even offer recommendations for what visuals would best depict a particular type of data or variable relationship. Many visual analytics models can now be created by business users on their own. Open source software like Hadoop can lead to dramatically lower costs for simple data management and storage. Hardware vendors offer much more powerful and inexpensive servers, data exploration platforms, and in-memory processors.

These new tools have led to a dramatic increase in the speed and scale with which analytics can be performed, and much greater integration with business processes. Firms also employ new technologies to deal with relatively unstructured types of data. I've referred elsewhere to this set of changes as "Analytics 3.0," and many large, established firms have adapted these approaches. They make it possible to make analytical decisions in near-real time, which often yields benefits in terms of increased conversions, optimized operations, or other results. And the process of generating analytical models has become substantially more agile.

Not taking advantage of these analytics modernization opportunities has some substantial implications. If you don't modernize your analytics, they're likely taking too long to run, are not sufficiently visual, they cost too much to operate, require too much expertise to use, and so forth. Earlier statistics programs took a long time to churn through large datasets, which means that it's difficult to adopt exploratory and iterative approaches to data analysis. Today, with in-memory and grid-based analytics, analysts can get answers back in seconds and easily refine their models. Most organizations don't regularly evaluate the "cost of preserving the status quo," but it can be rather substantial in the case of analytical technologies.

Of course, organizations don't fail to modernize their analytics only because they become accustomed to older hardware and software. There is also a substantial issue involving "wetware," or analysts themselves. They may become comfortable with the analytical technologies they used in their educations or at the beginning of their careers, and resist movement toward newer and more effective technologies. But the fact that they are comfortable does not mean that they are working with an optimal environment, and they might become substantially more productive with a modernized analytics architecture. And many analysts appreciate the opportunity to learn new tools and methods.

Modernization Case Studies

There are some dramatic benefits that can result from analytics modernization. One telecommunications firm, for example, decided to upgrade its analytics capabilities substantially for customer relationships. Working with Deloitte as a consultant, the company implemented a variety of new analytics capabilities and applications, including a Teradata Aster data discovery platform, an in-database processing model, and new analytical software. For customer acquisition, it employed a new network model to identify members of customer "tribes" who were substantially more likely to adopt new products when other tribe members had adopted them. In customer retention, it adopted a new churn reduction model that combined subscriber and network data, employed new visual analytics tools from SAS, and led to reductions in churn rates of 50% in one quarter. Integration of churn models with real-time marketing offers made it possible to offer deals to those customers who were most likely to need them.

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At a large regional U.S. bank, the focus of modernization was on faster decisions in commercial lending. Lending officers employed a credit-scoring model that ran on every commercial client overnight. But in fast-changing credit markets, they often needed more up-to-date information than a nightly batch run could deliver. The bank's IT organization installed a new in-memory data discovery environment, a Hadoop cluster, and new SAS credit scoring analytics solution. The result was a new ability to run credit analyses in less than half the time it previously required. Lending officers could request a score on a new potential borrower and have it before a meeting later in the day.

It's easy to see how the better, more frequent decisions made with modernized analytical environments could easily pay for the costs of the upgrade. As these examples illustrate, it's important to have the target application domains for modernization in mind from the beginning. Otherwise, the benefits will end up being diffuse and difficult to measure.

The Process of Modernization

As with many substantial changes in organizations, analytics modernization can be undertaken step-by-step. I'll describe five steps in the process below:

Step 1:

Assess Technical and Human Capabilities: As you might expect, the process of modernization often begins with an assessment. What can't we do today that we would like to do? Where is there technology that would enable a faster or better approach to analytics? Where in the current analytical technology architecture are existing technologies outdated?

As an organization begins to identify promising new analytical technologies, it should also assess its human capabilities. Some data management technologies, including Hadoop, require special skills that may be difficult or expensive to hire in some markets. New analytical software may require familiarity with different statistical or mathematical methods than current staff have mastered. Some skill requirements, of course, can be addressed through retraining rather than new hires.

Analytic Modernization powered by Deloitte, SAS, and Intel: Analytic modernization isn't just a technology issue, it's a business issue. With the proper alignment between a company's IT and business goals, investment in next generation analytic platforms, and having skilled teams for analytic discovery, companies can become more adaptable in an effort to modernize and successfully position themselves for long-term and sustainable growth.

Step 2:

Proof of Concept for New Technology: Since analytics modernization involves use of a new set of technologies, companies will usually want to gain experience with them on a small scale before jumping in wholeheartedly. Modernization initiatives often proceed quickly to proofs of concept (POCs) rather than full production projects. POCs make it possible to rapidly confirm that a new technology can deliver value and that it can function within an existing technology architecture.

Step 3:

Begin Redesigning the Work Process: At the same time new technologies are being explored, companies will want to begin addressing process changes that the new technologies enable. It is great that an analytical result can now be obtained in seconds or minutes rather than hours or days, but that must lead to changes in the business or decision process in which the result is employed. It may mean, for example, that multiple modeling alternatives can be explored, or that customers can be given a much faster response. It's never too early to begin designing the new technology-enabled process. Early process prototypes can be refined and put into production over time just as technology POCs lead to production applications.

Step 4:

Address Business/IT Relationships: Companies that succeed with leading-edge analytics on a large scale tend to have close and collaborative relationships between business leaders and IT organizations. On a small scale, of course, it's possible for business groups to adopt and implement analytical technology on their own. However, as applications and architectures grow, the majority of business groups will find it burdensome to maintain these initiatives by themselves. Collaboration between business and IT groups from the beginning will minimize disruptive midstream handoffs.

In some cases, IT/business partnerships can accelerate analytical initiatives at an early stage. At Intel, for example, a partnership between the IT and Strategy groups to advance analytics across the company led to a company-wide analytics summit, identification of barriers, and approaches to educating senior management about business opportunities from analytics.

Step 5:

Measure Outcomes: Since the analytics technology environment will continue to change and require new investment, it's important to measure each project involving new technology to illustrate the value of modernization. The easiest way to measure outcomes is at the particular application level. A common approach is to assess how a decision was made before the new analytics, and how much cost and value the old approach required. Then a comparison can be made to any new approaches.

There is little doubt that we are in the age of analytics, and strong analytical capabilities demand modern analytics technologies. Those companies that have invested in new technologies have achieved great results. I know of few types of investments that will yield greater returns than well-targeted analytical modernization programs.

About the Author

Thomas H. Davenport is the President's Distinguished Professor of Information Technology and Management at Babson College, a research fellow at MIT's Center for Digital Business, and the co-founder of the International Institute for Analytics. He is a senior advisor to Deloitte's analytics practice. He has written or edited five books on analytics and big data, the most recent of which is Big Data @ Work.

Learn more

For more information about how Deloitte and SAS can help you modernize your analytics platform, visit www.deloitte.com/us/sas or contact one of the representatives below.

Contacts

John Houston
SAS Global Alliance Lead
Deloitte Consulting LLP
jhouston@deloitte.com

Rick Joplin
Global Alliance Director, Deloitte
SAS
rick.joplin@sas.com