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Using analytics to create competitive differentiation

An excerpt from an Accenture CIO roundtable: “How leaders use information to out-think the competition”

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Introduction

Accenture recently held a gathering of leading CIOs in Boston to discuss the decision-making process in today's organizations and how analytics can help to improve business decisions and ultimately generate a competitive advantage.

The moderators were:

- **Bob Thomas**, Executive Director of the Accenture Institute for High Performance Business
- **Tom Davenport**, who holds the President's Chair of Information Technology and Management at Babson College, and is the author of, "Competing on Analytics: The New Science of Winning"
- **Howard Gardner**, the John H. and Elisabeth A. Hobbs Professor of Cognition and Education at the Harvard Graduate School of Education, and a world-renowned psychologist and author of more than 20 books translated into 27 languages

The panelists included:

- **Jerry Grochow**, Vice President for Information Services & Technology at the Massachusetts Institute of Technology
- **John Glaser**, Vice President & Chief Information Officer, Partners Healthcare
- **Dan Wakeman**, Vice President & Chief Information Officer, Educational Testing Service
- **Ravi Kalathil**, Chief Information Officer, Fresenius Medical Care

Today's podcast will focus on a question posed by Tom Davenport. After many years of collecting data, have organizations really progressed in using the data they have to drive decision making for competitive differentiation?

We'll start off with Bob and Tom discussing decision making in today's organizations. Then, we'll hear what the panelists have to say about how they use analytical capabilities for decision making.

CIO Roundtable Discussion

Bob: I'm curious. It's one thing for companies to be collecting massive amounts of data. I mean, after all, they're plumbed so that they can pump out lots of data. But, are they really using it to make decisions?

Tom: Well, that's a complicated issue. I was interviewing a company yesterday, and one of the questions that I had for people that run it relates to decisions. This company is a health insurance company and they had gone to huge efforts to create better information for financial decision making. They created a financial data warehouse—I was somewhat taken aback by this figure—they said they spent 80,000 man hours, human hours, reconciling all of their financial data so that they had one version of the truth. Kind of an elusive goal for many organizations, but 80,000 hours seems like a lot.

So I said, "What value are you getting out of it? Are you making the right kinds of decisions now?"

They said, "Well, we don't really know. This was kind of an infrastructural project. It's used for a lot of different financial decisions around the organization. We get fewer complaints about our data. But we're not really sure was it worth it, and are we making better decisions as an organization as a result of this really huge expenditure?"

So, I have certainly found examples of organizations that make better decisions about which customers to offer certain promotions to, or which people to hire, or how much inventory we should have in the supply chain. But whether we're getting better overall at making more analytical decisions, I'm not sure, because we don't really look at decisions that much in terms of the information used for them, I think.

I've always been more interested in information rather than technology. So I'm interested in anything anybody is doing relative to "How do you create a better information environment?" Are you increasingly focused on the information itself and not just the underlying technology? But this question of decision making is the one that I'm really quite focused on now. My hypothesis is that despite all this information that we've created, we're still not very good at tying it to specific decisions in most businesses. So, I'd love to find out to what degree you're thinking now about decisions. Do you know what the key decisions

are in your organization? Do you feel like you have the right information to make those decisions more effectively? And are they getting made well? Are you intervening in decision processes and saying we can do a better job of this? Because to me that's kind of the last untouched frontier. A lot of work in business processes of various types, but they tended to be the more operational processes rather than the more decision-focused processes in most organizations, anyway.

Bob: Terrific. Well, any immediate responses? Otherwise, I'm going to pose these questions to you guys. I'm not afraid to cold call. Jerry, what do you think?

Jerry: This is my first stint in administration of an educational institution. I spent most of my career in a company competing with Accenture and working for start-ups and things like that. So, I was a little surprised in coming into the university as to how decisions were made and so on. And what I realized in thinking about this over time is that it wasn't that people didn't use information, of course. It's MIT. It's very quantitatively oriented. We have reams of information. I was surprised to see people coming in with charts that actually went back 25 years worth of information. I've never seen that in the corporate world, quite frankly. But then the decision-making criteria or the decision-making function was much more complex than I've seen it in the corporate world.

So, on the whole discussion, I think, of competing on analytics or managing on analytics, we're very analytical. We get a lot of data in; we look at that data; we use that data, Tom, to your point. But then when you look at the way in which the decision is made, you realize that that information is only one part of the process of making that decision. So I think that's been to me, that sort of realization, maybe, gets to this issue of underlying themes, and so on, and is actually very important in helping me then in working with our senior academic officers who have been academics their whole professional careers, in helping to get decisions made and drive things forward.

Bob: John and Ravi, I'm curious: You've got your own professionals that you deal with in terms of them thinking through data and making decisions. Is it a similar story in your organizations?

John: Well, I think a couple things, sort of threading them through a variety of questions that have come up here: If I look, Tom, to your, or things that I think we're doing at our perhaps different information, decision making, there are sort of two threads here. One thread, and we'll well focus on it, there are lots of decisions that get made. Could be an oncologist at the Dana Farber or a primary care doc at a health center or whatever. And there is not much question, there is evidence, there's a medical science. So what's the evidence for treating someone with breast cancer, the right way to do it? What's the evidence for treating someone with high blood pressure, etc.? And it's not private evidence. In fact, it has to be public evidence. So it's not like we've got a lock on the right way to treat somebody. You want it published for a whole bunch of reasons, the discipline itself, the way you reimburse, etc.

So, you have public information about the right thing to do and a doc who wants to do the right thing. And the question is: how do you deliver it in a way that facilitates the compliance and the following of this stuff? And they have 12 minutes in a busy clinic and when and how you introduce all this stuff. So, there's this aggregation of what we know about Mrs. Smith who is in front of you, care decisions that have been made. And given what you have decided to do—and we have to know what did you decide to do—can we track that, interpret, and for the 2 percent or 5 percent that need guidance, errors of commission or omission, let's deliver that to you in a way that you get, fits into work flow, etc. So, there is a delivery challenge. Not so much an evidence challenge, although there's lots of challenges on the other end because the e-science conflicts at times. We don't know why people sleep, for example. We don't know why certain cancers come and arrive, etc. So, again, it is different from locking intelligence. It is public and delivery method which is our fundamental challenge at this point. So that's one thread and the decision support we talked about over the course of years.

The second, which is not competing on analytics, but it's the creation of capabilities you did not have before. And I'll give you an example here. Looking at all this data we get about all these people we take care of, it's very clear you could see the Vioxx thing in our data. You could see 2001 the rate of

myocardial infarct admissions picking up at the Brigham and MGH, up 25 percent, persisting for four years, and then dropping off when it was withdrawn from the market. Very clear. You could see that and you say, "Holy smokes! Four years it went up. Four years people were having death and disability as a result of this stuff." Can you do much earlier detection of adverse events? And the answer is: you sure can. Within a year there's enough data that the confidence intervals get small enough. So there's this capability of managing and detecting adverse events, whether device or drugs that we didn't really have before.

There's another set that says we can capture information. I'll give you an example: When we do bariatric surgery on people, shorten their intestines, on average they lose 35 percent of their weight. Some lose nothing. Some lose so much that in fact they're malnourished. So you've got this variance of response here. Why is that? It's genetic. It appears to be a genetic underpinning here. Studies that look at associations between treatment or disease variability and your genetic makeup. We can actually look at the data and identify those in about a fifth of the cost and an order of magnitude faster than the traditional way of doing these things. So, all of a sudden there's these analytical capabilities, which are new businesses in a way. They're not making current decisions better or practicing current medicine in a more precise, method-based way. It's just abilities we did not have before.

So there's one thread—delivering known data or evidence to someone in a way that causes appropriate action. And there's a second in realizing the data actually creates opportunities we didn't have before here.

Tom: Can I provide another comment on what John said? I think one of the reasons why I admire John's work so much and Partners in general is that they really have made this connection between information and a really critical decision. I think you determined at one point, what decision in a hospital is more important than a decision at the point of care, the interaction between a physician and a patient? And you figured out what information and knowledge was necessary to make that better. And you by God said, "We're going to get that information to the physician." And you still think a lot about, is the physician really using it? I remember once you said, "We realized we were providing some kinds of warnings that were so obvious that it made the physician tune out from the whole system. So we took that warning out." So I think we need a lot more focus of that type. And unfortunately you kind of spoiled things for me. I found this great example and I can't find it in too many other places of really looking hard at how we can prove decision making that really matters through the use of information and knowledge.

Bob: We're going to return to a couple of these items later on, but I'm curious. Ravi, you and Dan? Dan, I saw you nodding your head at one point when both John and Tom were talking. How does the availability of data influence the behavior of decision making at ETS?

Dan: What's interesting is when I first came to ETS six years ago and people were explaining many things, like they were explaining evidence-centered design to me, I kept hearing over and over the word complexity. And it was used as a positive attribute. Now I had always been trained as a developer, an IT person, that simplicity was the real beauty in design. If you could get something down to the fewest lines of code with the fewest number of iterations, you had actually done something quite elegant. I think it was Pascal who wrote once that, "I'm sorry this letter is so long. I don't have time to write a short one." And I've always thought if you think about... Many of you have seen an Escher diagram, I'm sure. This is the mastery of taking something very, very complex and bringing it down to a very simple diagram to help you make a decision. And I think the great issue we face is that it's very difficult to take all this information that we've collected and put it into a simple format to make decisions.

Now what has ETS done? Well, you get a score when you take a test. And that test score is one number. And that one number helps somebody make a decision, an admission counselor. The evidence we gather to make that decision, there's a lot of rigor put around that. Now one could argue that, like in your field, the evidence could be better or that we could know better about how people think, learn or whatever. That we could gather better evidence. But we've spent many years trying to at least get as best as we can with the state-of-the-art that we have, at understanding how people think or learn or how they demonstrate

evidence of what they do, so that we could produce this very simple score so people could make a decision. And to me that's the beauty of business intelligence.

If you see what people really want, whenever you go to Cognos or SAS or whoever, what do they always do? They always put up their elegant dashboard. Looks like the car cockpit almost. They've got gauges and dials and everything. What's the concept there? I want to make decisions and I want to do it fast and I want it simple, and I want you to take all this information, aggregate it for me and help me make decisions that I'll use my other five senses or my other four sense or whatever to use to help me make those decisions, but if I have that evidence coming to me in a very simple format.

So a complex algorithm, the ability to synthesize the information using computer technology, taking vast amounts of information, which I'm sure the financial industry does a tremendous amount of, and then making it easy for somebody to make decisions based upon their other innate skills is really the beauty of a true, good business intelligence system.

Bob: Ravi, I'm curious. What are your thoughts?

Ravi: To me when I look analytics, part of our problem, just to state the box that I am in, and it's partially similar to the cardinal box, and that is that we make our money by aggregating assets, OK? So there's one trend in healthcare which operates where John is going, and that is specialized care. So if you have a problem, you need ankle surgery or elbow surgery or knee surgery, go to a specialist because of the high chance if you go to a general hospital, one in 16 chance you will pick up some other infection. And these guys do, say knee surgery very well. And that's our business model.

And so partly what we have done is we have taken thousands of mom-and-pop stores and aggregated them and essentially we make our money on synergizing G&A as well as vendor purchasing power. But when you look at that that, our business is run by the 20 percent outliers of people who are not doing well. So you can call it a scorecard, a number, whatever you want, but it is absolutely critical for us to look at data—and we have terabytes of data mods and data warehouses and other things that they are calling them—to just understand on a monthly basis who is not doing well. Because if we manage that, we would do very well as a business,

So one comment about it is that we spend a large part of our resources just putting up these scorecards. We've got thousands of quality indicators that tell you who is doing what. We debate endlessly about what should the dashboard look like. What is it you really want to measure in terms of measuring performance? And one funny thing we find is that organizationally, financially, clinically, when you find indicators begin to go down any one of those categories, they begin to go down in all categories. It's a strange linkage across the board which is really very surprising. So the analysis of data is very important to us. One quick point there would be that we tend to make it very static. To me that's not good enough. One advice I would give is that any time you look at a dashboard like that, make sure you've got a trending dashboard, too, so that you're telling people not who looks bad right now as a snapshot, but who is going to look bad a quarter from now. I mean there has to be that trend, that rolling line. That's a minor nuance to that.

Now having said all that, I'd like to quickly disabuse the group of the value of that analysis. One thing is a cliché which is it tends to be internally focused. That's partially true. So, when you have lots of numbers, companies tend to internally look at their internals as opposed to what's happening strategically from an external perspective. So, one of the things that we are very careful about trying to do is to link our internal analytics with what's happening in the market. So, a great example is you might look at an EBIT margin of a clinic and say this is fantastic, the performance is very good. That information is not of great value unless you correlate it with "Is it happening in a market where there's good growth for a business?" And also the payer mix is such that the revenue for treatment is looking very good. Because if you have a situation where the government is paying, as John painfully knows, for your procedure as opposed to a commercial payer, you're going to be in a lot of trouble. So, we are obviously trying to go to a place where

that payer mix will be better. And the combination of an internal and external dynamic is extremely important from an analytic perspective.

Closing

This is the end of our CIO roundtable discussion on how organizations use information technology and analytical capabilities to create competitive differentiation. Three key points came from this discussion:

1. The delivery of data is very important to cause appropriate actions, such as to enhance patient care or provide the right scores to admission counselors.
2. Data can create capabilities that you didn't have before, such as detecting adverse effects of drugs or medical devices.
3. The industry still needs to work on simplifying how to synthesize data such as dashboards that include trending data to understand current snapshots or incorporating market data to understand the external perspective of your business.

Don't miss future podcasts on the discussion of synthesis to create actionable information. If you are interested in other materials related to analytics or information management, be sure to visit www.accenture.com/cio.