The Economics of Cloud Computing

Hard-and-fast formulas just don’t jibe with the cloud. Determining its worth starts with knowing your business’ value drivers—and its constraints.
Cloud Computing Economics 101

If you’ve got your head in the clouds—or, more accurately, your enterprise’s IT infrastructure in the cloud—then you’ve probably already done a lot of thinking about cloud computing economics, or the costs involved with moving your IT operations off-site. Like any good student, you’ve probably calculated the millions you could save in labor costs and capital investment and balanced that against the potential downsides, such as a data breach in the cloud, which could land you in some pretty hot water with your clients, customers or even the government.

As SearchCIO Features Writer Kristen Lee explains in this issue of CIO Decisions, cloud computing economics are complicated no matter how much homework you do, and formulas breaking down the costs of in-house infrastructure vs. cloud services aren’t cut and dry when security is involved.

“It’s always perception that we’re battling, right?” says Cynthia Nustad, CIO at Health Management Systems Inc., who says data is her organization’s life blood but also potentially its downfall if not properly stored. “If a client perceives for any reason that there’s less security, it’s not worth the hassle to try to dissuade them, because it’s always going to be a ‘gotcha’ if something does go bump in the night, God forbid.”
How much is it worth to Nustad—or any CIO—to have that data at the ready and under the enterprise’s roof 100% of the time? How many dollars is the cloud worth if therein lies the potential to unlock new areas of business and reshape enterprise operations? Those are the kinds of unanswerable questions that drive cloud computing economics, but the practitioners and analysts in this issue give you the best possible chance of moving to the head of the class.

Also in this issue, we report on two-speed IT and agility at John Deere, provide an up-close-and-personal take on the chief data officer, and offer our best expert advice on how to not only build, but successfully monetize, a mobile app.

Write to me at rlebeaux@techtarget.com.
CIOs Aim to Crack the Incalculable Cloud

What are the financial benefits of cloud computing? The economics of cloud turn out to be a local affair dependent on a company’s business drivers and constraints. By Kristen Lee

At Health Management Systems Inc., “data is our life blood,” said CIO Cynthia Nustad.

The Irving, Texas-based Health Management Systems (HMS) analyzes petabytes of data for large healthcare programs to determine whether payments were made to the correct payee and for the right amount. Nustad, who joined HMS as CIO in February 2011, doesn’t handle just a lot of data, but a lot of highly sensitive data. So when it comes to calculating the cost benefits of using the cloud for crunching data, the expense of transporting large data sets to the cloud is just one factor she weighs. Data security, of course, is another—both real and perceived.

“It’s always perception that we’re battling, right?” Nustad said. “If a client perceives for any reason that there’s less security, it’s not worth the hassle to try to dissuade them, because it’s always going to be a ‘gotcha’ if something does go bump in the night, God forbid.”

Cloud-based business applications, however, are another story. “It’s pretty easy to
get a Salesforce, Silkroad, a Red Carpet ... that are tuned to what the business team needs,” she said. Indeed, HMS’ use of software as a service (SaaS) predates her tenure, Nustad said, noting that these apps are now mature enough to either meet or beat any on-premises solutions she could come up with—and they save her maintenance costs. “They are easy to get up and running, the value proposition is there, and they fill a particular business need—a win-win all the way around.”

The potential cost savings of cloud computing have long been touted as an obvious benefit of using this relatively new platform. And, to be sure, examples abound of companies that have saved millions of dollars in labor costs and upfront capital investment by migrating IT operations to the cloud. Even cloud security—a cause of concern for many CIOs, not just those trading in super-sensitive data—is gaining traction. Increasing numbers of companies are realizing that cloud-based security providers offer solutions that are not only cheaper, but also better than what they could build and manage in-house.

But as Nustad made clear, any discussion around the economics of cloud is complicated. Hard-and-fast formulas for comparing the cost of cloud services with the in-house delivery of those services are difficult to come by, because for starters, the business models of cloud providers are often not transparent to customers. In addition, many CIOs, for reasons not always in their control, don’t fully understand their own costs for providing IT services. Cultural factors also
get in the way of calculating the economics of cloud, according to analysts and consultants who cover this field.

“A lot of IT departments are defensive about the use of cloud,” said Forrester Research analyst James Staten. “They’re worried that if the company starts using more cloud, they’ll use less of the data center.”

In those instances, the political overlay brings “bias into the analysis” of cloud economics, Staten said, with the result that internal IT staff may claim they’re cheaper, “when in reality they are not.”

Perhaps the biggest reason for the lack of solid financial comparisons, however, is that the business’ main motivator for using the cloud is usually not to save money, said David Linthicum, senior vice president at Cloud Technology Partners (CTP), a Boston software and services provider specializing in cloud migration services.

“The ability for the company to move into new markets, to acquire companies, to kind of change and shift its core processes around … that typically is where cloud pays off,” Linthicum said. “So, even if you may not have direct or very obvious operational cost savings, the cloud may still be for you.”

Staten agrees. “It’s pretty much across the board and universal that they use the cloud for agility first and foremost,” he said, referring to business priorities. It’s only later, after some of those benefits have been realized, that the question of cost savings comes up, and even that push for cost savings, he added, “is usually driven by the IT department … [and] not usually driven by the business.”

**A NUANCED APPROACH TO CLOUD ECONOMICS**

These complex and, at times, competing business needs often result in CIOs adopt-
ing a highly nuanced cloud strategy. While HMS, for example, relies on SaaS for some of its back-end business applications, the analytics it uses to weed out fraud, waste and abuse in healthcare payments is proprietary and deployed in-house.

To crunch the data, Nustad's team mainly uses a combination of open source and vendor tools (from Teradata and MicroStrategy), and the IBM DB2 mainframe software “is still, quite frankly, a cost-effective technology” for the task. Plus, she added, “the bandwidth doesn’t exist” to move the data back and forth to the cloud.

“If I have data that I can’t easily get at that’s in a cloud app or on cloud infrastructure, then I’ve just disabled my business,” she said.

Nustad’s not the only one with a cloud economics strategy that is not just a matter of dollars and cents.

Pat Smith, CIO at Our Kids of Miami-Dade Monroe Inc., a nonprofit serving abused and neglected children, said that she looks at cloud for “availability and reliability that would cost us a lot to duplicate.”

She too, however, has tweaked her cloud strategy to meet her company’s needs. Smith plans to deploy Microsoft Office 365, and although this cloud service offers an archiving solution, she has decided to put the money into an on-premises archiving solution.

“We feel more comfortable,” she said, keeping the archives on-premises. “We have
a lot of e-discovery requirements like many organizations, so that’s a non-negotiable item for us. … We feel like we have more control over it.”

**CLOUD-FIRST ECONOMICS**

But for some CIOs, parsing cloud economics is a moot exercise.

“It’s never been about economics; it’s always been about the benefits,” said Jonathan Reichental, CIO for the City of Palo Alto. “I am solely focused on functionality and quality and those kinds of higher-value items.”

Reichental is working on setting up a business registry for the California city so that when people set up a business in Palo Alto, the registry has all its information: address, what the business does, revenue, number of staff, etc.

Ten years ago, the city would have found a vendor and then built an infrastructure, he said. “The only conversation we’re having today is who can provide this in the cloud and what’s the user experience like,” he said.

One thing is true for all CIOs: Sorting out the benefits of cloud services is a top priority. Our Kids’ Smith thinks that what’s happening with the cloud today is similar to what happened 10 years ago, when CIOs needed to be looking at which services should be provided in-house and which services should be outsourced.

“I think cloud’s in the same sphere right now,” Smith said. “I think if you don’t look at cloud and you don’t look at the economics of cloud, they’ll find another CIO who will.”

Jonathan Reichenthal, CIO for the City of Palo Alto, Calif., focuses on cloud’s benefits, not the economics.
UNDERSTAND YOUR VALUE DRIVERS

One of the first steps in developing a cloud economics strategy is understanding the business’ “value drivers” for the cloud, said CTP’s Linthicum.

“If you’re a big bank, your value drivers around using cloud-based technology are going to be very different [from those of] a manufacturing company, and very different [from those of] a healthcare company,” he said.

At manufacturing companies, for example, business processes tend to be fairly static and stable and, unlike at finance and technology companies, typically not transaction-heavy, Linthicum said. “There’s not a lot of high-end stuff that has to occur. There’s some data analytics, but those may be perfectly addressable with the existing systems.”

Linthicum recommends that CIOs start their cloud economics analyses by examining the three areas in every business where there is potential for value to be found in moving to cloud:

- Operational costs
- Security and compliance issues
- Agility

Identifying the operational cost savings of migrating to the cloud—“the whole Capex vs. Opex thing,” as Linthicum put it—is probably the most straightforward analysis for most companies. “If a company is about to build another $10 million data center and it’s trying to avoid [the cost of ownership], using cloud computing can add to the bottom line,” he said.
In an area such as security and compliance, however, the ROI of moving to the public cloud will be more difficult to calculate. Many heavily regulated companies will indeed decide that the potential risks of the public cloud will outweigh its benefits.

“They just want to maintain the systems and control them more closely than outsourcing them to Amazon or Rackspace or Microsoft [would allow],” Linthicum said. But even in these cases, he recommends that CIOs not jump to conclusions. “In the majority of cases, I find out that’s typically not the case,” he said.

For companies that absolutely need to control sensitive data, an alternative is to use a private cloud; however, this option may not be very economical in the end, because you still need to buy your own software and hardware, among other things, Linthicum said.

NEGO TIMATING CLOUD SERVICE CONTRACTS

A very important part of making sure the cloud will match and meet business drivers and a company’s needs happens in the negotiations with vendors and the contract that is ultimately signed.

Nustad said she never signs a cloud contract that doesn’t allow her ownership of the data. But her chief concern is related to “stickiness.” Vendors look for ways to keep customers on their service, she said, “but you don’t want that. As a purchaser of those services, you need to be able to be nimble. And if one vendor really outdoes another in performance, price and quality, you need to be able to switch.”

Kyle Hilgendorf, a research director at Gartner for technical professionals, agrees that every company and every CIO needs to have an exit strategy for cloud services. “It’s only a matter of time until at least something goes wrong with the provider,” he said,
whether that means the relationship with the vendor sours, or a new CIO had a bad previous experience with that provider and insists on switching.

**VENDOR LOYALTY IS NOT A CIO VIRTUE**

Smith believes that “if you have too close a relationship with any one vendor, you’re not doing your organization a good service.”

Her advice for CIOs is to do their homework and understand what’s in the vendor’s environment that could cause the project to not work or the cost to increase. And on the flip side, they should understand what’s in the vendor’s environment that could be favorable and beneficial. CIOs need to do this research because, in her experience, “vendors will not take the time to really understand your environment enough” to give sound advice, including advice about all the cost advantages their cloud solutions may bring to your particular environment.

Sometimes the only way to get an accurate picture of the benefits of using the cloud versus providing services in-house is to hire a consultant to do the analysis, said Forrester’s Staten—particularly if your IT organization feels threatened by outsourcing infrastructure and services to the cloud.

**CLOUD MONITORING TOOLS CAN HELP**

Once a company has moved to the cloud, Staten advises CIOs to use cloud cost monitoring tools such as Uptime Software and Cloudability, both SaaS applications, to gauge cloud costs. These tools

**KYLE HILGENDORF,** a research director at Gartner for technical professionals, says every company and CIO needs a cloud exit strategy.
allow companies to monitor how everyone in their organization is using cloud services, help find cost overruns and detect anomalies, he said.

For instance, if a cloud application has been left on and nobody’s using it, or if a business department has been scaled up for some reason but then never scaled back down, or if IT has set up big instances for an application but then the application is never used more than 20%—these are all anomalies that can be adjusted and rectified to help companies reduce costs, Staten said.

The cloud management tools also allow a company to put a threshold in place and monitor employee usage. When an employee exceeds that threshold, the company will get an alert that basically says, “Bill is going nuts again,” Staten said.

Not everyone agrees that these cloud cost-monitoring tools are fine-tuned enough yet to be useful—Nustad, for one. “I’m not seeing the maturity there,” she said. In addition, her fellow CIOs, more so than analysts, continue to be her best resource for cloud economics.

“If I really want to find out what one of my friends in the neighborhood has paid, I just pick up the phone and call them,” she said. “That is one of the best ways to get market intel on cost versus going to the analysts.”
A Cloud Analytics Platform That Sticks

⚠️ **THE PROBLEM:** Urbio is an e-commerce startup that sells modular, magnetic, vertical wall organizers. Industrial designers Beau Oyler and Jared Aller launched the company in 2011; Blair Stewart, vice president of operations, quickly found he needed a firm grasp on the company’s e-commerce data. Accessing it wasn’t a problem—it was everywhere. The hard part was making sure it was clean, curated, organized and presented in a user-friendly manner that could drive action. “I didn’t want to go through and manually organize the data,” he said.

🔍 **THE TECHNOLOGY:** Stewart started working with two reporting/analytics tools simultaneously: SumAll and DeepMine, both software as a service tools. He “plugged everything in—Facebook, Twitter, YouTube, Google Analytics”—using APIs. While DeepMine provided SKU information and sales per week, which was useful, SumAll connected with even more platforms and, within a couple of weeks, integrated PayPal data into Urbio’s analytics. The technology’s data visualizations are both beautiful and customizable, Stewart said.

💡 **THE RESULTS:** SumAll connects with social data from feeds like Twitter and Instagram, but Stewart hasn’t explored that data in detail yet: “We’re a small team, so our energies are split across several different areas.” His team can get a general sense of what’s happening and then go deeper if need be. It can skip fancy charts and graphs altogether and look at the pure numbers. In addition, employees can access data on salaries and venture capital and board meetings—a nod to Urbio’s desire for a transparent environment. —NICOLE LASKOWSKI
JOHN DEERE ISN’T readily thought of as a big data giant. But the company’s new agricultural equipment, which is capable of planting the best seed in the best sub-inch of land available—without a human operator—is changing that perception.

This isn’t, in other words, your father’s John Deere; nor is the IT department that’s driving the 177-year-old company forward. One noticeable difference? As IT’s reach extends beyond the company’s walls and embeds in the very products it sells, the organization is leveraging a strategic approach called two-speed IT to meet the demands of internal and external customers alike—an increasing responsibility for today’s CIOs.

“We’ve got an organization here that’s developing products, and then the big IT organization that’s helping the core business,” said Mano Mannoochahr, director of enterprise architecture, information management and computer security at John Deere, at the recent Gartner Catalyst Conference in San Diego.

The “big IT organization” is moving at one speed by using the Waterfall methodology,
a sequential development process whereby one step is completed before moving on to the next one. Those helping build digital and data products are moving at another speed, opting for an Agile approach, which relies on iteration and incremental development to push a project forward, Mannoochahr explained. “They don’t necessarily have to have the same approach in how they build and support things because of the unique requirements,” he said. And, he concluded, they don’t necessarily have to move at the same speed in order to be successful.

“Makes sense,” Richard Johns, a solutions architect at Computer Sciences Corp., said after the keynote. And it would to Johns, who is familiar with the gravitational pull of Agile, having worked on VMware’s now defunct Lab Manager, a software development tool that gave way to even more nimble options like the cloud. “Traditional IT underpins the company and has a mission to keep all of the balls in the air,” he said. But “the speed at which you have to bring an idea to market” requires a different approach, such as automated provisioning.

Eventually, “this new side of the business is going to be a customer at the table. When you’re asking for priorities, they’re going to bring to the table that they need agility to self-deploy,” said Johns, adding that this is a root cause for hybrid cloud adoption.

For conference attendee Aaron Wilson, Mannoochahr’s description of two-speed

“This new side of the business is going to be a customer at the table. They’re going to bring to the table that they need agility to self-deploy.”

—Richard Johns, solutions architect, Computer Sciences Corp.
IT immediately clicked. The Agile-versus-Waterfall debate has been “a struggle for us,” said the quality assurance director for the IT group at Citrix Systems. There, IT is divided much as Mannoochahr described: A group in California’s Silicon Valley provides support for company products and is partial to Agile; Wilson’s group in Florida supports the rest of the business and often deploys Waterfall.

“Agile is the cool, new thing, and you almost have to defend why you’re not doing it,” Wilson said. “But it didn’t feel necessarily right and appropriate all of the time.” Traditional IT manages projects with longer development cycles, where “it’s not appropriate to fire out a solution and deliver something every two weeks,” he said. But for those working directly with the end customer, “you almost have to do that to stay competitive.”

Still, when the Silicon Valley brethren preached Agile to its south-Florida counterpart, it was easy to feel like anything less was wrong, Wilson said. “It took us awhile to come to the conclusion that Agile isn’t best for everything,” he said.

IRONING OUT THE KINKS

John Deere’s Mannoochahr said two-speed IT still has a few kinks to be worked out—namely, should the two groups operate as a single unit or be considered separate entities? “We’ve gone through two or three iterations of this,” he said. Today, the two IT groups are separate, a decision made last year.

The struggle to find the best model resonated with audience members. “When you have a big corporation or business entity, you have to figure out how to get from today to tomorrow. And it’s hard to have that vision,” said a conference attendee who works...
in the public sector. “So there are a lot of reasons why a company would say that part of the organization needs to be separate. There are a lot of arguments for that part of [an] organization to stay connected to the current enterprise.”

The bigger question, according to Mannoochahr, involves a transformation in thinking. As John Deere considered how data and information helped the business make money, “there was a period of confusion: Are we helping the core business, or are we creating a brand new business?” he said.

It’s a question Mannoochahr believes all attendees must answer as they head toward digital transformation. As for John Deere, “the jury’s not done on what exactly this is going to be like in the long run,” he said.

Mannoochahr called it a different model, but it’s also a different time, giving rise to new challenges: The world population is predicted to increase 40% by 2050; farmers have to provide more visibility to oversight committees such as the environmental protection agency; and companies like John Deere have to serve global customers in countries like Russia and Brazil, where farms are measured in square miles rather than in acres.

“We have thought about how to grow new DNA for the big IT organization through this new organization we’ve created. We’re reevaluating and thinking how to best connect.”

—Mano Mannoochahr, John Deere
Agility is in the Air

LAST MONTH’S CIO Decisions e-zine featured a Q&A with Kirsten Wolberg, vice president of technology business operations at PayPal, who discussed her company’s “big bang” Agile transformation, which changed the way 510 cross-functional teams worked. We recently asked our online readers, “Can Agile change how the enterprise operates?”

“It seems intuitive that Agile can change an enterprise, but the degree [it] impacts the organization is the question. If a software development business adopts Agile (from, say, Waterfall) one would anticipate significant bottom-line impact. If an insurance business (and its application development shop) adopts Agile, one may anticipate less bottom-line impact. Why? In the first case, the engine that drives the corporate bottom-line changed significantly. In the second, the corporate profit engine remained unchanged.

"In both cases, I would argue Agile changes how the organization operates, if only from a resources perspective—though there are many other ways an organization changes when moving to Agile, resources are one of the simplest illustrations." —DAVESAMUEL

“The potential is certainly there. It cannot, however, become a religious crusade. Communication is key. What is it we are wanting to accomplish? How are we to proceed? Like any approach, it cannot be force-fed. For an Agile enterprise approach to succeed, it must be transparent and earn its way past the critics through results.” —JOBORN1

Wetware

**WETWARE IS SLANG** used to describe the human element of IT architecture. It can be contrasted with software and hardware, and was inspired by the fact that the human brain is composed of about 75% water. As a noun, wetware is sometimes used to mean *human capital or personnel*—employees who directly affect how an IT system functions. As an adjective, it describes something that involves human needs or activities. Because humans are less predictable, and at times less reliable, than software or hardware, the term wetware is sometimes used in a derogatory manner as a synonym for human error.

COPE

**COPE, OR CORPORATE-OWNED**, personally enabled, is a business model in which an organization provides its employees with mobile computing devices and allows their use as if personally owned. Because corporations can often get IT products at wholesale prices, the COPE business model can be cost-effective and provide the organization with greater power to protect its data. COPE can be contrasted with both bring your own device (BYOD), in which employees purchase their own mobile devices and use them for work too, and the traditional IT provisioning model, in which employees are assigned computing devices that remain permanently in the workplace. Both COPE and BYOD reflect an ongoing trend toward more fluid boundaries between personal and work-related use of technologies.

Source: WhatIs.com, Art: Alexandr Dubovitskiy/iStock (L), DigiClack/Fotolia (R)
Up Close and Personal With the Chief Data Officer

Who is the chief data officer, really? Four CDOs describe their first 90 days, their primary objectives and their biggest mistakes. NICOLE LASKOWSKI

CHIEF DATA OFFICERS are having a moment, judging from the spate of stories about them cropping up in mainstream and industry publications. Why all the buzz? According to Gartner Inc., there are only about 100 CDOs around the world, a tiny cohort compared with other C-suite positions, including CIOs. The role, however, is growing rapidly, doubling in size from 2012 to 2013, with highly regulated industries such as banking, government and insurance leading the charge.

But what does the CDO role actually entail, who’s doing it, is it long for the C-suite, and how, for Pete’s sake, do CDOs differ from CIOs? Last we heard, the “I” in CIO stood for information.

For answers, SearchCIO went to the source—a distinguished panel of CDOs at the recent MIT Chief Data Officer and Information Quality Symposium, where the discussion ranged from job function to reporting structure to missteps. One big lesson these CDOs learned in getting their teams off the ground? Spend more time with IT.
WHAT DOES THE CDO DO?
TD Ameritrade’s CDO Derek Strauss summed up the role in two words: data czar. His description, however, suggested that the data czar is also something of a data shepherd at most companies. For TD Ameritrade, the CDO needed to be “someone who could pick up all of these different, festering issues people have been complaining about for a long time, bring it all together and take it forward,” said Strauss, who also acted as panel moderator.

Of the panelists, four out of five took on the position after the financial crisis, suggesting the CDO role tends to materialize after some fateful miscommunication in how data can, should and needs to be used. Indeed, the panelists in general described their mission as overseeing data governance, data management and data stewardship across the enterprise, acting as a bridge between business and technology.

Strauss described his position, for example, as being composed of four pillars, two of which represent the business: data governance and demand management for data and analytics; and enterprise analytics and data science. The two remaining pillars—data architecture and data asset development—represent IT.

“It’s end-to-end—it’s business and IT—bringing it all together,” Strauss said. “That was the center-of-excellence kind of approach we took.”

WHEN IT COMES TO ORG CHARTS, TO EACH HIS OWN
The chief data officer role, however, is not one-size-fits-all, but varies from industry to industry and company to company, which can influence the reporting structure. Brian Baczyk, CDO at the investment management company Conning & Co., reports to
the chief risk officer. Conning’s investment services focus on the regulated insurance industry. Baczyk’s team is in charge of building an enterprise data governance strategy and identifying data owners, but they also act as a client’s third-party administrator for regulatory filings, he said.

Another approach comes out of EMC Corp. John Smits is the storage provider’s CDO for the global sales and business operations team. As the youngest CDO on the panel—having served just 24 days at the time—Smits reports to the vice president of sales strategy and analytics. “Part of what I’m challenged to do is to find all of that information that sits within isolated repositories and put it into the hands of reps and service leads so they can act upon it,” Smits said.

“Part of what I’m challenged to do is to find all of that information that sits within isolated repositories and put it into the hands of reps and service leads so they can act upon it.”

—John Smits, CDO, EMC Corp.

Strauss embedded himself in the business to find out what data and analytics pain points existed, he said. His listening tour included meetings with managing directors and employees on the front lines. Once he identified the top three “red-hot button opportunities,” he returned to the managing directors to get their buy-in on his findings and establish a working council, which helped prioritize what pain point to solve first. The working council cut across the enterprise and established a place where members “would be the owners of the initiative,” he said.

THE FIRST 90 DAYS: SHOW SOME VALUE
During his first 90 days, TD Ameritrade’s
“[For] the first 90 days, it was all about answering the question why?” Strauss said. “If you don’t have a good answer to the question why, you’ve got a real problem from the word go.”

Micheline Casey, CDO at the Federal Reserve Board, was hired in 2013 and has a similar story (though she wasn’t there to tell it herself). “As a result of the financial crisis, the board saw an exponential growth from the amount of data and the complexity of data that needed to be governed and managed,” said Peta-Gay Tessy, lead information architect for the Office of the Chief Data Officer at the Fed and Casey’s stand-in.

During Casey’s first 90 days, “she spent most of that time engaging the stakeholders across the board to understand the culture of the board, understand their pain points with data, understand the data landscape—to really figure out what kind of organization she needed to put in place to support that [board],” Tessy said. Not exactly an easy task, since Casey, who reports to the COO, aimed to create ways of governing and managing data that matched the more agile style of the business.

Baczyk, who was hired in the fall of 2012, also spent his first 90 days getting the lay of the land. “The CEO came up to me and said, ‘OK, you’re not an employee; you’re a consultant. I just hired you. Tell me what’s going on here.’”

Describing Baczyk’s position as “consultant” gave him freedom “to talk to everybody from corporate finance to the heads of our two other businesses, including asset management,” he said.

**THE ROAD AHEAD: PUSH THE ENVELOPE**

After his first 90 days, TD Ameritrade’s Strauss set out to define the scope of the CDO position and craft a plan for developing
the company’s data and analytics capabilities. “We realized pretty quickly that [at the time] we only had one arrow in our quiver, and that one arrow was the enterprise data warehouse,” he said. The technology automatically became the default for data, analytics and integration. Strauss wanted to expand that thinking and began searching for and exploring components that could tackle big data, master data management and data virtualization. “By no means were we saying, ‘We don’t need no stinkin’ warehouse,’ because we definitely needed one. But it was one component in the total set of capabilities.”

At the Federal Reserve Board, Casey established a governance council that comprised “stakeholders from across the board” and “key liaisons from other areas around the Federal Reserve System,” Tessy said. The council identifies governance priorities, and then smaller working groups figure out how to address the priorities. The governance council, for example, wants to introduce a data stewardship program. But “when you don’t know what data assets you have, it’s really hard to assign data accountability for it,” Tessy said. Casey’s team is trying to correct that by putting together an enterprise data inventory, she said.

**MAKE MORE TIME FOR IT**

If Strauss could go back and do it all over again, he’d make more time for IT. Strauss said next time he would help IT “connect the dots” and provide more transparency about what “changed behaviors” needed to take place so that the CDO’s vision could be smoothly implemented.

“I guess I assumed that most [of the IT organization] would pick it up. Didn’t happen,” he said. “That caused a lot of delays and a lot of heated debates.” Strauss, for one,
measures the success of his office by adoption. “Frankly, we’re running a little behind in that area. [But] we’re through a lot of that now,” he added. “We’re teed up and ready to move in lock-step with our IT partners.”

Baczyk seconded Strauss’ words of wisdom. “Work with IT—get them on your side,” he said. Like Strauss, Baczyk’s insight comes from experience. With his deep IT background, Baczyk saw some of Conning’s infrastructure “was just dated and needed some refreshing,” he said. But much of it was also homegrown, and his observations created an almost emotional tension between IT and the CDO’s team. “There was a lot of, ‘I’ve worked on this for the last 10 years; you’re not telling me that this is not going to survive the next 10,’” Baczyk said. He advised CDOs be sensitive to the shift IT likely has to undergo.

“We’re teed up and ready to move in lock-step with our IT partners.”

—Derek Strauss, CDO, TD Ameritrade
A Career on Tech’s Leading Edge

BIG DATA, MONETIZING data, digitization, globalization? Stephen Neff, enterprise CTO at Fidelity Investments, has been at the forefront of the new new thing in IT since his first job at IBM. Unlike some CIOs whose careers took them from industry to industry, Neff found his focus early on in financial services, where technology and data has long been integral to business success. Even at IBM, his initial job was supporting the company’s banking customers.

From IBM he moved on to Wall Street investment firm Salomon Brothers, working in its New York and London offices. He joined Fidelity in 1996, serving, among other roles, as the CIO of the investment firm’s asset management businesses. Here, he traces his career arc and discusses the increasing digitization of his industry.

How did you get from being a math major at Rutgers to what you do today?
Well, I was a math major, but I also took quite a few [computer] science] courses—COBOL as a programming language, for instance. And when I got out of school, I actually started work with IBM in New York. I was in a branch office, but supporting a customer base that was in financial services. It was primarily banks at the time. So, my exposure to technology started in financial services from the early days in the ‘70s.

I worked for a number of years there, and then worked inside of IBM, managing a systems team that had one of our data
centers that supported the field for us, for IBM. And then I left IBM in the late ‘80s and went to Salomon Brothers. I actually had a connection—someone who had left IBM. It was a completely different change in direction. It was still technology, but from the customer perspective. When you work for a supplier, you do see customers. This was actually to work inside of the customer. And that was a completely different change.

Financial services was all about rapid change; [the] pace was fast, but the information flow was absolutely amazing at the time.

Even then. And I worked in New York for a number of years for Salomon, then over in London for two years. So, I was very fortunate to get a global perspective fairly early on. And then I came to Fidelity in ‘96 and I’ve been here since. And again, with Fidelity, I’ve seen just the investment and the view that technology is a primary enabler for business success and for our customers, which has been kind of the mantra of the company.

In financial services, did digitization happen sooner than it did for [other] companies? I think financial services is one of the industries that has been pretty far out in front with not only the use of technology, but also using information to produce results. And the results may be anything from, you know, better trading performance, investment performance, but ultimately it comes down to who’s your client, who are your customers and what are they trying to achieve as outcomes.

So the whole notion of big data in financial services goes pretty far back. It’s a huge topic right now in a slightly different context, but anyone that was involved in the early ‘90s with the early digital trading floors that we’ve built got to see big data in a very big way in those years.

—LINDA TUCCI
Bullerly, large and small are being urged to develop mobile applications that will capitalize on the mass consumer adoption of mobile devices. But what are the odds of developing a mobile app that will pay for itself, much less be a runaway hit?

Not great, according to a panel of experts at a recent Boston summit on the future of mobile computing for business. Beyond the estimated 1.75 billion mobile users downloading apps, there is also a legion of 3 million mobile developers, according to Matt Gross, CEO of Mobile First Software, a mobile strategy consultancy based in Boston. Of these developers, 50% make less than $100 a month, 20% make up to $1,000 a month, and 1.6% make $500,000 a month, he said.

Still, there are best practices that aspiring mobile app developers can adopt to increase their odds of success, the panel said. Here are their tips.

**FORM AN EFFECTIVE PRODUCT STRATEGY—THEN PREPARE TO TWEAK IT**

Nick Bogovich, executive director of GSN

Make Money Off Your Mobile App

Monetizing your mobile application isn’t easy. Three experts share the secrets and offer advice on how you, too, can develop a successful app. BY KRISTEN LEE

Monetizing your mobile application isn’t easy. Three experts share the secrets and offer advice on how you, too, can develop a successful app.
Games, a maker of social casino and gambling games for TV, online and mobile apps, stressed that it is important to put in the work to validate the business model.

“We didn’t [just] go out and say, ‘Hey, we’re going to build a slot machine and make it really cool,’” Bogovich said. “You might have a really great idea, but if you can’t figure out on paper how that great idea is going to make money for you, chances are, by the time you build it and put it out in the market, you’re not going to figure it out then either.”

One way to help ensure your app makes money is to figure out where users spend most of their time within the app. Analyzing user experience is critical to managing your build costs, Bogovich said. And sometimes the aspect of the app your users find most valuable is not the reason you developed the app.

“You may have an idea of what your app is going to stand for and what it’s going to look like,” Bogovich said, “but you’ll soon find that as soon as you put it out in the market … the market’s going to react, and you might find there’s a particular part of your experience you didn’t realize people are finding value in.”

**FREE GOES ‘FREEMIUM’ TO BUILD LOYALTY**

This certainly proved to be the case for Lose It!, a popular weight loss app that was developed in 2008; the app has been downloaded over 20 million times and has helped people lose a collective 33 million pounds, according to co-founder and CEO Charles Teague.

Up until 2012, the popular app was free, he said. However, when he and his team analyzed the success rate of Lose It! and other weight loss industry apps, they discovered users fell into two distinct groups: people who quickly gave up on the app and loyal
customers who stuck with it.

“What you see in weight loss is a very high attrition rate, but then mashed with that are users that love your product, [because] you’ve actually created a very substantial change in their life,” Teague said. He cited the example of a user who credited the app with helping her lose enough weight to reverse a diagnosis of pre-diabetes.

As a result of this research, Lose It! changed its product strategy by creating a better version of the app that people would pay for—Lose It! Premium—to capitalize on those loyal users by providing more value to them.

But offering a premium version doesn’t mean you can get away with making your free version a “crapplication,” as it’s known in mobile app dev circles. Teague warned that taking shortcuts can cause you to turn off free users, which are your “acquisition pool” for the paid version of your app. While the conversion rates from free to premium are not high, every conversion counts when monetizing your app, he said.

**CONFRONTING COMPETITIVE PRESSURE**

Though the freemium model worked for Lose It!, it does not come without its challenges.

One is all the other free competitors that will inevitably put pressure on the free version of your app as well as on your paid version, Teague said. They represent an alternative (and possibly a better one), and while this is good for customers, it’s tough for companies working in this space.

Lose It! has helped people lose a collective 33 million pounds.
Another challenge is pricing. In this case, Lose It! focused on comparables that weren’t apps. For Lose It!, that comparable was Weight Watchers, which charges around $250 a year to use its online services, Teague said. Compared with what Lose It! charges ($39.99 in app purchase), Lose It! looks cheap.

And then there is the fundamental problem associated with monetizing any motivational app: How do you lure back users who fall off the wagon, so to speak? “How do we convince you to come back to Lose It! after you’ve decided to have that pizza?” Teague said.

Still, he said, “freemium turned out to be exactly the right model for us, and I think mobile turned out to be a great platform for freemium business models.”

**Key Performance Indicators That Define Success**

**WHATEVER MODEL YOU** ultimately decide to use in order to monetize your app, don’t forget to measure how well your app is doing. GSN’s Nick Bogovich stressed that it’s important to identify your key performance indicators and establish target values ahead of launch.

“Once your apps are out in the marketplace, you should know how many users you expect to be using your app on a daily basis, what percentage of those users are going to be monetizing within your app and how much money each of those users is going to be spending within your app,” Bogovich said. “[This] can help you generate your target daily revenues, for example.”

Added Bogovich: “At the end of the day, if you plan well, if you make decisions like these along the way, you’ll be in a good position to succeed.” —K.L.

**MONETIZATION THROUGH ACQUISITION**

But, for would-be mobile developers, there is still another way to go.

“We made the decision to kind of give up on monetization,” Mark Kasdorf, CEO and
founder of Intrepid Pursuits, a mobile strategy consultancy in Cambridge, Mass., said in reference to Timbre, his company’s signature mobile app.

Founded in 2012, Timbre is a live music search app that takes all the live bands near the user’s location at that moment, puts them into a playlist, and allows the user to purchase tickets to a show. In 2014, the app was acquired by Seatwave, an international marketplace where people can buy and sell tickets for everything from concerts to sports games to theater performances.

“We didn’t optimize those purchasing experiences; we didn’t focus on selling more tickets,” Kasdorf said. “We focused purely on, ‘Let’s build a huge user base. Let’s get people to absolutely fall in love with our app. Let’s become critical.’”

From the beginning, Kasdorf said, Timbre was developed for the purpose of acquisition. This meant Kasdorf and his team had to ask themselves questions like: Who needs their app? Why would Google or Apple or Ticketmaster or Amazon need their app?

“We stopped caring about whether we were making money, and we started caring about [building] a company to be acquired,” Kasdorf said.

For Kasdorf and Timbre, this monetization strategy paid off.
CIOs Aim to Crack the Incalculable Cloud

An Analytics Platform That Sticks

A Marriage of Management Methodologies

Agility Is in the Air

Wetware/COPE

Up Close and Personal With the Chief Data Officer

A Career On Tech’s Leading Edge

Make Money Off Your Mobile App

LINDA TUCCI
is executive editor for SearchCIO. Write to her at ltucci@techtarget.com.

NICOLE LASKOWSKI
is senior news writer for SearchCIO. Write to her at nlaskowski@techtarget.com.

KRISTEN LEE
is features writer for SearchCIO. Write to her at klee@techtarget.com.

About the authors

CIO Decisions is a SearchCIO.com e-publication.

Rachel Lebeaux
Senior Managing Editor
Christina Torode
Editorial Director
Nicole Laskowski
Senior News Writer
Kristen Lee
Features Writer
Fran Sales
Associate Site Editor
Ben Cole
Site Editor
Lindsay Chase
Production Editor
Linda Tucci
Executive Editor
Linda Koury
Director of Online Design
Neva Maniscalco
Graphic Designer
For sales inquiries, please contact: Amalie Keerl
Director of Product Management
akeerl@techtarget.com

© 2014 TechTarget Inc. No part of this publication may be transmitted or reproduced in any form or by any means without written permission from the publisher. TechTarget reprints are available through The YGS Group.

About TechTarget: TechTarget publishes media for information technology professionals. More than 100 focused websites enable quick access to a deep store of news, advice and analysis about the technologies, products and processes crucial to your job. Our live and virtual events give you direct access to independent expert commentary and advice. At IT Knowledge Exchange, our social community, you can get advice and share solutions with peers and experts.