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TECH MEISTER

BNY Mellon CIO
Suresh Kumar
spearheads IT
makeover



**FOUR TRENDS
CHANGE BANKING**

**MAKING USE OF
“TRID” EXTENSION**

CIO Suresh Kumar in BNY Mellon's N.J. Innovation Center, which has no private offices.



Photos by William Alatryste

MORE TECH THAN BANK

BNY Mellon's ongoing tech makeover provides a roadmap for how banks can, and must, up their game *By Bill Streecher, editor & publisher*

It's all well and good to start a tech company in a garage and build it up into a Hewlett-Packard, Microsoft, Apple, or Facebook. It's the stuff of American legend. By contrast, the process of recasting the culture of a 231-year-old financial institution into a nimble, lean, innovative technology company is, perhaps, a less dramatic story, but, in many ways, a more remarkable one.

Banking has set its share of technological firsts, but in recent years, the rap has been that many players in the industry are encumbered by unwieldy legacy IT systems festooned with applications grafted on as needs change. Add to that the tendency for having various business and support units operating within "silos," a situation made worse because of multiple acquisitions over the years. Taken together, you have a condition that could be described as "too complex to change."

Which makes what is being undertaken by the country's sixth largest (and oldest) banking company quite impressive.

USE WHAT OTHERS BUILD

When Suresh Kumar rose to senior executive vice-president and chief information officer of \$341-billion assets Bank of New York Mellon Corp. three years ago, he faced a well-functioning but cumbersome technology infrastructure, typical of that described above. Kumar was no stranger to the company, having been CIO of the company's Pershing securities clearing and settlement company for ten years.

Kumar, who sits on the parent company's executive committee, was CIO of Pershing from 2002 to 2012. Before that, he spent several years with Donaldson, Lufkin and Jenrette, where, in the late 1980s, he helped create the first online brokerage service running on Prodigy, AOL, and then the internet. (That product subsequently became DLJ Direct.)

At Pershing, Kumar oversaw the creation of NetX360, a widely used open-architecture wealth management platform.

So he knows first hand about the "build it here" approach

commonly used in financial services. Yet he also is a keen student of technology trends. In recent years, he has seen how sweeping changes have transformed much of the technology business and has recognized that banks must adapt.

"In the old days, people tried to do everything themselves. They were very vertically integrated," says Kumar. "To some extent, Apple tries to do that even now to ensure a better experience. But most of the world is figuring out how to share and use what someone else is doing so that you don't have to build everything yourself."

To Kumar, the development of open-source software and the ability to do things in the cloud are major innovations because they mean tech development has shifted to being a variable cost instead of a capital expenditure.

Any organization's challenge, he says, is how to manage technology investment and technological obsolescence. That's become more of an issue because the pace at which technology is changing now outstrips long-lived systems and prevents a bank from taking advantage of new developments, or doing so efficiently.

The way services are consumed—be it desktop, mobile, smartwatch, in a car, or via the "internet of things"—will constantly change, and a bank doesn't want to have to change every time that happens, Kumar explains.

That's why he believes that one of the major shifts in the technology "ecosystem" is the ability to consume services—discrete functions or applications—somebody else built. "It moves the service to a variable-cost basis," he says, "and allows you to consume it when you want to and give it up when you don't need to," which, in turn, spawns innovation.

ROLE OF INNOVATION CENTERS

Kumar has spent the last few years laying the groundwork to take advantage of this seismic shift—not only as a user of technology services, but as a provider. BNY Mellon has a long

history of providing services to other financial institutions.

The challenge, as Kumar describes it, is “getting all of the technology groups supporting our various businesses to work differently, to be more productive in the way we build technology and in the way we keep up with new technologies.” He sums it up: “Act more like a technology company than a bank.”

One component of this strategy is the establishment of innovation centers. Four are in full operation—in Palo Alto, Calif.; Jersey City, N.J.; and one each in Chennai and Pune, India. Two more, in London and Pittsburgh, are set to open soon. Each has a somewhat different purpose

time, is a short train ride under the Hudson River from the iconic 1 Wall Street tower that is BNY Mellon’s corporate headquarters in lower Manhattan.

• The purpose of the Palo Alto center, says Kumar, is “pure and simple: attracting talent familiar with the way technology gets built in Silicon Valley.” He adds that while people can read about the Silicon Valley approach and try to emulate it, “it’s a lot easier to hire people who actually worked at PayPal, eBay, LinkedIn, or Netflix,” who can then influence the rest of the organization.

• In Chennai and Pune, says Kumar, the centers more easily allow for service sharing and adaptation of new

architecture by putting tech and operations employees in a common location.

• The center in London will be focused around getting clients in Europe to “spend time with us to understand industry challenges and cocreate solutions,” says Kumar, whereas the center in Pittsburgh will collocate the bank’s technology and operations groups based there.

The article below, “Messing around with blockchain and other fun stuff,” gives some examples of the centers’ work.

VALLEY MINDSET

As visible an indicator of change as the innovation centers are, other initiatives Kumar has set in motion to shift the

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to suit the needs not only of the company’s internal clients, but its customers, consultants, and even fintech companies.

• The center in Jersey City, Kumar says, is a “bridge between business strategy and technology—to make sure whatever we do in technology as a whole is aligned to what the business strategy is.” This center, where Kumar spends much of his



Messing around with blockchain and other fun stuff

Trying out new technology is part of what they do at BNY Mellon’s Innovation Centers. While you can’t schedule innovation, if you take groups of talented people and give them a challenge, they will respond and, in the process, discover potential for various new technologies for use within the bank and, ultimately, by bank clients.

Take blockchain, for example—the underlying technology used by Bitcoin. Recognizing that it could have wide-ranging implications for financial transactions, BNY Mellon CIO Suresh Kumar earlier this year gave the green light to several Innovation Center teams to create an internal private cur-

rency as a way to learn about blockchain technology and to demonstrate its potential.

One team created the currency, which it called BKoins (BK is the bank’s stock symbol), using the open-source blockchain code. Another team created a digital wallet and a user interface so that BKoins could be used on the company’s intranet. Each tech employee has a wallet and can give or receive BKoins. One use is to recognize a particular employee’s achievement. Although BKoins have no value, in the future, they may be able to be exchanged for prizes through an internal rewards program.



Framed by a giant multi-panel screen, Kumar explains a new technology during a rehearsal for a board meeting.

venerable company's culture are, perhaps, more significant.

Here, he openly embraces and borrows from the modern tech scene.

"Silicon Valley is a very sharing culture," he says. "Most companies there are more than happy to present how their technology works, how they solve a specific problem, and, in more than a few cases, they open-source their technology so you can actually see the source code." Kumar is using this approach to meet

very specific financial services needs.

"That's where we intersect—it's almost like Wall Street meets Silicon Valley."

Is that intersection a good fit?

"Actually, a lot of people *here*—in New Jersey—want to work like they do in Silicon Valley," he says. Until recently, they did not have the ability to do that. Kumar explains that the usual way technology has been built in large organizations is very structured—it's project-oriented and often takes a long time to accomplish

anything. Whereas the way Silicon Valley builds, he says, is more continuous delivery and continuous integration with a tremendous amount of reuse of services and components.

They build things quickly, get client feedback, and make adjustments, Kumar continues. If a particular service or component is not working well in some new system or solution, and there is a better third-party component, they'll just change to that, even though they may

The bank didn't have to invest capital or build anything new, says Kumar. It's all done using open-source applications. A test system was running in one week.

"It's a way to see how we manage the network, and what the implications are if we want to take the concept and apply it to a different business," says Kumar. "By doing this, we can demonstrate to the whole organization the concept of blockchain and how it's used, so everyone can experience it themselves and see how it's a faster way of moving funds." That will lead to applications in corporate trust or treasury or wealth management.

"Instead of just giving a presentation or writing a white paper, we are actually showing the businesses something they can use," he says.

The same is being done with other new technologies, including how banks could use the "internet of things."

Other initiatives are further along, including one called Digital Pulse. It uses big data and the cloud to give a real-time look at transactions, positions, and exposures. When rolled out, it will give traders and operations people the ability to see where potential problems are in real time.

A few years ago, this capability would have been too expensive to create, says Kumar. Now, it was developed in two months using APIs (application programming interface) and other tools and standards described in the main article, without having to create anything or buy hardware.

—Bill Streever

have built the original component.

By contrast, to make such a change within “the old vertically integrated approach,” says Kumar, “you had to change the whole application, which was not practical.”

To him, having many services available, and being able to manage each service independently, gives the bank great flexibility to keep up with technology.

CREATIVE CONSTRAINTS

Kumar is transitioning the company from building systems in silos to building technology platforms that enable the IT group to solve many different problems without having to reinvent. The bank’s new NEXEN technology platform is an example. It is written mainly in open-source code and uses APIs (application programming interfaces), which can be used to create banking and trading applications. It is being used internally now, but will be offered to clients at some point in the future.



As part of this transition, BNY Mellon has moved away from a traditional project management approach to community-based development—much the way open-source software gets built.

“We’re building an ecosystem,” says Kumar, “that allows people to solve different problems by creating reusable components instead of the historical way of creating a system to solve the problem.”

Previously, he explains, somebody would have written a requirements document; they would have done the design; they would have built it themselves; and it would have gone live. And that would likely have taken a year or two.

Now, a developer will say, “Okay, I need to solve this problem, and it requires 20 different things. Ten of them already exist in the ecosystem, and four are very unique to the problem.” Those four, says Kumar, need to be purpose-built. For the other six, however, the developer and his team will create them in such a way that they’re reusable.

As a result, the time it takes to solve a business problem gets shorter and shorter, and the cost of building something is less.

“That spurs innovation,” he says, “because if I tell somebody it’s going to cost \$2 million to do something, nobody wants to take the risk” because it costs too much and takes too long. “If, on the other hand, I say, ‘Give me \$100 grand, and I can build something for you,’ people will say, ‘You know what, let’s find out, let’s learn from it—it’s okay if it doesn’t work out.’ So the ability to fast-fail is an ingredient to spur innovation.”

To move this concept into the realm of

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standard operating procedure, Kumar has established what he calls “constraints.” Unlike many constraints, these are intended to motivate people, not hold them back.

One constraint is money. Says Kumar, “Basically we say, ‘Last year we spent \$X to accomplish something. This year we’re going to spend something less than \$X, so let’s get creative in how we solve business problems with fewer dollars.’”

The other constraint is time. “Instead of giving people a lot of time, now we are saying, ‘This is all the time we have. Here are all the resources we have. How quickly can you get this done?’ It’s a way

of getting people to think differently and to reuse what somebody else has done. Instead of feeling the need to build everything ground up, now you have to rely on your partners to do their thing.”

“ASSUME YOU ARE CEO”

One-fourth of BNY Mellon’s 50,300 employees are in technology. Since taking over as CIO of the bank in 2013, Kumar has been working to move the technology group into what he calls a “service-oriented culture.” That term plays off the IT concept of “service-oriented architecture.”

As part of this, he says, the IT group cataloged all the different services it offers to make sure there was clarity of ownership—to make sure the owners understand who their clients are, what service they offer them, what their unit cost is, what their risk is, and what is their strategy to improve.

“We’re trying to create an entrepreneurial spirit,” says Kumar. “So we tell each service owner, ‘Assume you are the CEO of that particular service. Think like an entrepreneur—like a start-up with a team of people. Our businesses can either use your service or go get the service from somebody else. That means you need to compete with the best-in-class. So how do you do that?’”

Kumar believes most people are competitive, and when they see that others have been able to accomplish something, they want to excel, too. More than that, he has been making it clear that promotions, rewards, recognition, and incentive compensation will be based on success within this service-oriented culture.

“People understand that to be successful in this organization, you need to have this service orientation where you continuously improve.” Toward this end, the bank uses a metrics-based approach called CPI, for continuous process improvement. Every service owner and his team has to measure their success. “They set goals at the beginning of the year,” says Kumar, “and on a periodic basis, publish a scorecard so they can track progress instead of me sitting here on the top setting metrics.”

Kumar is not relying on his thinking alone to assess the benefits of these initiatives. A group of MIT Sloan School of Management students and, separately, an MIT PhD student are studying how well these arrangements are working.



Where formerly separate tech teams commingle

Bank of New York Mellon's New Jersey Innovation Center occupies three floors of a modern office building. It is one of what will soon be six such centers.

"Historically, we had different technology teams supporting different businesses," explains CIO Suresh Kumar (above, in the N.J. center). "And those teams were all located separately. So there was very little leveraging and sharing." The innovation centers bring together teams that create shared services and teams that support lines of business.

All told, about 850 of the bank's IT staff work in the New

Jersey center. For those not there, the bank implemented a secure social networking system it calls MySource Social.

Kumar spends at least three days a week at the New Jersey center, where there are no private offices, and all desks are the same. He says the layout helps create a great deal of energy. In his earlier days as CIO, he would have meetings scheduled three months out. Now, in New Jersey, meetings are rarely scheduled, and he will have 20-30 a day. Most are quick conversations as he drops in on a meeting or stops by a team member's desk to ask a question. —*Bill Streeter*

WHY THEY INSOURCE

Asked if the various changes he's implemented have led to much turnover, particularly among long-time employees, Kumar says that hasn't happened.

He says that BNY Mellon's existing tech people "have so much knowledge about the business and the technology that they've built over the years," that the thought was to complement that, not replace it.

"In technology, we feel head count is not an expense," says Kumar. "Talent is an asset. We want to invest in that."

The bank has worked to recruit people from two main sources—Silicon Valley and the bank's campus recruitment program.

The interesting thing, Kumar notes, is that the company has been able to lower technology costs—infrastructure and people—year-over-year, at the same time it has increased capacity.

One way it has accomplished that is to rely less on outside consultants. It still uses them for short-term needs to solve specific problems, but not for providing core services.

"Why would we want to educate consultants about our business so they can go work for our competitors when we no longer need them?" asks Kumar. "That's why we insource, because we truly feel that employees are our assets."

All this leaves Suresh Kumar feeling positive about the overall outlook for BNY Mellon. As he says, "We are a regulated financial institution, and we have a great balance sheet, and we have a great client base. If I can leverage that by also being a great technology company, we'll be in our sweet spot." ■

