

Enterprise CIO Decisions

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WHEN IT COMES to business automation, be careful what you wish for—or at least how you go about it.

Just ask Joseph Marcella, CIO for the city of Las Vegas. Reducing technology spending, mostly by cutting almost 40 staffers through the automation of processes, was “like dancing through a food processor,” he told SearchCIO.com Senior News Writer Linda Tucci.

The risks are great, but so are the rewards, as is the necessity to create change through technology. Marcella’s efforts in Las Vegas were required to cut costs and still enhance the services enabled by the technology.

“Remember that the economy has caused us to look at our services, and we don’t have the people in the back-room anymore to do all the kinds of things we need to do,” Marcella explains in this issue of *Enterprise CIO Decisions Ezine*. “So it has to be not only self-service, but the citizen has to be part of the overall process. In the past, citizens have always come to government—‘Give me the service’—rather than being part of the process. Now we have the technologies that make them part of the process.”

So as the role of the CIO changes, from technology manager to facilita-

tor of business services, the vision must stay focused on what needs to be accomplished, not on what the process is built on or how the process is created, advises SearchCIO.com Advisory Board member Ed Bell.

In his role as interim CIO serving the House and Senate of the commonwealth of Massachusetts, “I educated the senior leadership team on what IT does, what a software development lifecycle is, what the roles of a project like this are—and not just the IT roles,” he says in this issue. “I emphasized the point that we are in this together, or we fail together.”

He continued, “When I evaluated it, the platform they had then was not good, but they could limp along with it. I said, ‘Let’s step back. Let’s figure out what we really want to get out of it, and re-engineer the whole thing.’ My point was that they were going to have to spend money on this either way. Do it right. Don’t settle.” ■



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ON THE JOB

AUTOMATING YOUR WAY TO THE CLOUD

NO MATTER HOW hard IT departments have tried, historically there has been a lag between when a business unit decides what it wants in terms of technology and when it gets it. There may have been good reasons behind the sometimes lengthy evaluations and approvals of requests. But put this long, drawn-out process up against the easy availability of user-provisioned services such as cloud computing, and CIOs now have a management challenge of universal proportions, expanding in every direction.

The best way to keep cloud services from spiraling out of control, experts say, is to accept and adopt the pillars of cloud provisioning: self-service, policy and automation. It's also time for IT departments to

look at information technology as business technology, an approach experts consider the enabler of on-demand services within the enterprise.

IT departments looking to provide self-service cloud provisioning would do well to remember the beast unleashed by virtualization. Although virtualization was intended to cut energy and capital costs, it actually increased administration costs "because virtual machines multiply like rabbits," said Dan Weiss, director of IT management advisory services at Unisys Corp. in Blue Bell, Pa.

Automation brings administration costs back to earth, according to Weiss. "IT automation will recoup up to 97% of management costs," he estimates.

With 95% of requests to the IT department relying on a standard build, he said, the key is to create software assemblies that push the

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fine-tuning out to users. However, it's critical that metrics be built into the software assemblies so business technology can properly charge back business units; this will temper the inclination to overprovision, he added.

"Hand over the controls [and] change what you're doing," Weiss advised. Provide self-service application deployment to the business users, building usage rules into the environment to guarantee fit and function. Provide a self-service environment that allows the business to see the applications in business terms. And remember that automation relies on policies, the bedrock of business technology and cloud provisioning. —LAURA SMITH

BY THE NUMBERS

ARE BPM AND BPA RECEPTIONPROOF?

How vulnerable are business process management/automation projects to potential budget cuts due to the overall economic climate?

Not very vulnerable	41.67%
Not vulnerable	25%
Somewhat vulnerable	16.67%
Very vulnerable	16.67%

NOTE: PERCENTAGES ARE ROUNDED TO THE NEAREST WHOLE NUMBER AND MAY TALLY MORE THAN 100%.
SOURCE: 2009 IT PRIORITIES SURVEY, TECHTARGET

QUICK QUOTABLE

“It’s possible to get some benefit from automation without any of the BPM basics. However, I think the real payoff comes from automating processes that have been vetted through the BPM disciplines.”

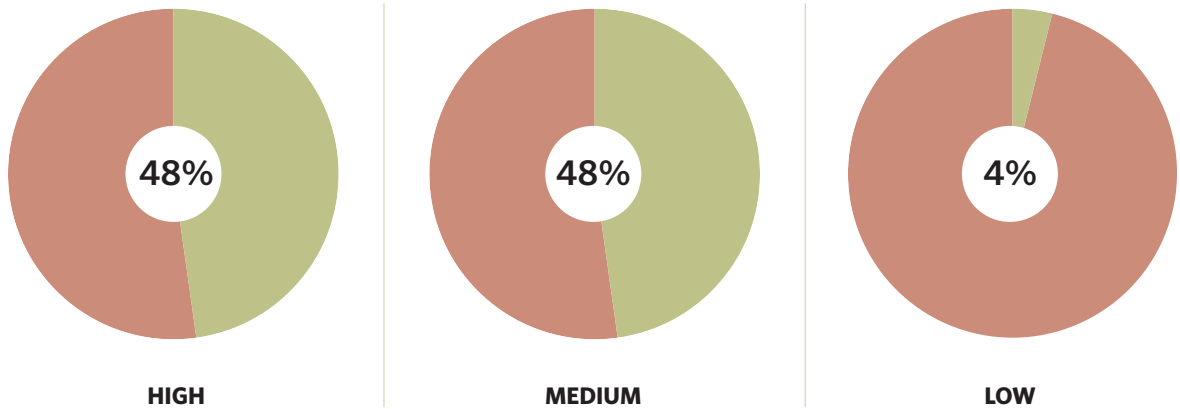
—JOHN VILIM, *chief technology officer, Waterton Residential*

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ON THE AGENDA

PRIORITIZING BPM AND BPA

What priority will business process management/automation projects have in 2010?



BASE: 50 CIOs AND SENIOR IT MANAGERS. SOURCE: TECHTARGET'S 2009 IT PRIORITIES SURVEY.

WHAT'S THIS?

BUSINESS PROCESS MANAGEMENT and **BUSINESS PROCESS AUTOMATION** may sound like interchangeable terms, but there are important strategic differences for CIOs to consider:

Business process management (BPM) is the methodology used by organizations to improve end-to-end business processes in five stages: design, modeling, execution, monitoring and optimization. Typically, it begins by defining the steps in a process, improving on those that add value and consolidating or eliminating others, then tweaking electronic workflows to match the process maps.

Business process automation (BPA) is the automation of business processes. BPA can be a standalone strategy as well as part of a larger, overarching business process management strategy. On its own, BPA automates known processes. When it's part of a BPM initiative, automation usually follows some level of process analysis or modeling to determine process efficiencies, while leaving the door open for continued future improvement.

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ONE ON ONE

BPA HAPPENS IN VEGAS, STAYS IN VEGAS

NAME: Joseph Marcella
TITLE: CIO
TIME IN THIS ROLE: 13 years
COMPANY: City of Las Vegas
HEADQUARTERS: Las Vegas
EMPLOYEES: 2,300 city employees, 604,000 citizens



JOSEPH MARCELLA, CIO of the city of Las Vegas, may be using the “same old methodology” for business process automation, but the role of BPA in the business is certainly changing. The recession, the demands of a new workforce and the public demand for social media and mobility are transforming how the city conducts business. A recent example is a mobile website that makes citizens part of the municipal workforce—and city workflow. Here, Marcella details his struggles to evolve with ever-evolving business needs on a limited budget and in new mediums.

How long have you been at business process automation, or business practice re-re-engineering, as you call it, for Las Vegas?

About 12 years. The city’s organization needed to be addressed in the first place because every department and every division was vertical, each doing those things that they did best. But whatever they did before was how they did it forever.

However, there was a very wise city manager who decided that he ought to have all of the information of all of the divisions at his fingertips.

Now, if you look at our website carefully, you will realize that there is no real department presence. It is almost like we took a standard government website and turned it upside down. What you, as a citizen, are looking at is a whole city, and then virtually and electronically behind it is every one of our systems. So we provide what the citizen is asking us for, rather than requiring a citizen to understand that that the Public Works Department does potholes.

How does social media come into the mix?

Government has been reluctant in the past to use social media because, first of all, what does Facebook have to do with what we do? But if you get right down to it, many of our citizens are of a different generation, and that is how they are now communicating. Not only are they communicating in that way, they are asking for services in that fashion. If we are not part of that

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conversation, if we don't realign our processes internally and change the way we address the citizen, we won't be able to figure out the kind of services that they need.

For instance, we just deployed our mobile website. It is the same stan-

“With automation, we focus on the general solution that works for most of our constituency. We can't handle all of the exceptions.”

—JOSEPH MARCELLA
CIO, city of Las Vegas

dardized thing that most governments do: they call it *m-something*. It is mlasvegasnevada.gov. Any device, any phone anywhere can report any issue, so I now have a new workforce, and it is called “The Citizen.” They are out there finding graffiti, abandoned cars or issues with roads. They are now reporting those things to us, at the site, when they see it, and we are fixing them while we are out in the field. Obviously, there are efficiencies in having things this way. Now the citizen is not only part of the process, but also getting immediate satisfaction for helping solve problems.

And, by the way, while reporting

something on our mobile website, that citizen might just as well take care of other things, like paying a traffic ticket. It is their connection to the overall city via their social media for this new demographic. I'm a baby boomer. I need to think their way, not my way.

When you don't know how to automate a process, where do you go for your information? Is there a business process automation textbook? It's not like this is trivial stuff.

It's the same old methodology that we have always done, called SDLC: Systems Development Lifecycle. You get in the trenches and do the job with them. But not everything needs to be automated.

With automation, we focus on the general solution that works for most of our constituency. We can't handle all of the exceptions. With any of our business process re-engineering, particularly in the analysis, you use the 80/20 rule: Am I going to go through 80% of the effort for that last 20% of the citizenry that one councilman or a policy maker perceives has an issue?

I just heard someone say that the new role of the CIO is as cultural anthropologist, that it's imperative to observe how work gets done and design for the human behavior.

I am a classically trained bio-chemist. I understand I was not



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classically trained for IT. The point would be, it is part of the CIO's responsibility today. Years ago, the role of the CIO kept changing. It was almost like CIOs were going to be eliminated: They either became business people and responsible to the overall community, or they were going to be a technician and eventually replaced by a business professional.

The role of the CIO has changed so much, in the sense that you need to understand the community, the demographics and the services you are going to deliver. Our city manager recently said to us she has three priorities, based on the economy and our community: financial responsibility, preserving services wherever we can and saving jobs. She doesn't really mean *save jobs*. She's saying preserve our skills inventory.

So, the preservation of the necessary skills is finally the ultimate in business process management for the CIO?

It is an *alignment* of those skills. What happens in a lot of government, based on union rules, is that the schedules that your people work are based on particular parameters within the contract. One of those rules allowed our internal workforce to petition for alternative work schedules. They don't necessarily fit the business reason.

I made the individual divisions

within my IT organization give me the business reasons and alignment as to how their schedules facilitated the community. And if their use of the alternative work schedule didn't have a good business rationale, then they need to change back and wait until the economy changes and then reassess—and they agreed to it.

I need the skills inventory, so I cannot afford to lose them. I have to get agreement.

That's really a long way from deploying technology to automate business practices and IT services.

I will tell you that, in my mind, technology is easy. Once all of that is settled in your head, and agreed to, there is always a technological solution, either off-the-shelf or something you can assemble, that facilitates the need. And it only works when it is matched to the need. When you buy software, you are typically trying to cover about 80% of the functional needs that have been identified. The worst thing you could possibly do is buy something or build something that is specifically adjusted according to the way things used to be done. Every time you buy a piece of software and decide you are going to refresh or consolidate, you need to go through this business practice analysis, then the re-engineering, and then align the software to what it will become, not to what it is. —LINDA TUCCI

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BPM's Role *in* Transformation

Collaboration and real-time analysis move BPM out of IT and into lines of business. **BY LAURA SMITH**

WHILE HEAVILY REGULATED industries might be leading the business process management (BPM) charge, businesses of all types are feeling the pressure of change.

According to Jon Nam, director of technology at Macy's Merchandising Group Inc. in New York, the company's corporate, systems and merchandising groups and various store brands currently run their own enterprise resource planning or BPM systems.

"Our business is constantly changing, with new brands coming up. Even the P.O.S. [point of sale] is changing: How do we appeal to Gen-Xers and Millennials who don't want to wait in line?" Nam asked, thinking aloud about checkout options that are more like E-Z Pass, where customers might be able to pay with a phone, and someone checks the bag. "A fast lane of shopping. Or a customer could walk into a store and get bonus points. The

question is, how do we leverage technology" to make the experience more expedient for the customer?

Change often comes on like a freight train, as when the economy collapsed and then was infused with cash and new regulations in the industries hardest hit: financial services, insurance and health care. In response, CIOs in those enterprises are using BPM disciplines to stay agile amid oncoming changes by streamlining and automating business processes, experts say.

BPM is a management practice that leverages a technology stack for fueling enterprise agility and delivering better business value more efficiently, according to BPMInstitute.org. Along with the economic impetus, new developments in BPM tools and business process modeling notation standards are adding steam to the practice of business process, which analysts at Forrester Research Inc.

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believe is fundamental to business transformation.

"The model we're seeing in insurance, financial services and health care is more about being able to respond to rapid change," said Clay

With more BPM suites offering collaborative capabilities that take advantage of Web 2.0 features, BPM has become a strategic tool that is transforming business roles.

Richardson, an analyst at Cambridge, Mass.-based Forrester. These industries will face the greatest amount of change within the next five to 10 years, dealing with large compliance burdens and changing customer bases. "With health care legislation coming down, we have seen an uptick in BPM demand," Richardson said, describing how one health care insurer is "looking at going to horizontal business processes and cross-functional silos" for a patchwork of visibility into the business.

In the past, BPM tools were used by IT to support the technical pieces

tying the legacy systems together, Richardson said. There may have been a process improvement team, but it probably didn't work with the BPM tool because of its narrow technical focus. Now, with more BPM suites offering collaborative capabilities that take advantage of Web 2.0 features, BPM has become a strategic tool that is transforming business roles.

With the debut two years ago of Lombardi Software's Blueprint collaborative approach for capturing business models—and more recent offerings from IBM (with BPM BlueWorks and Software AG with AlignSpace)—the trend is going from an IT-oriented and -supported BPM to a business-focused or end-to-end business BPM. "We're seeing some enterprises move some of the application development into the business units to help drive process transformation," Richardson said. Organizations also have to think about the compensation model: It's no longer just about motivating the line-of-business manager, but it's also about creating a compensation plan focused on end-to-end process and driving success, he said.

CHANGING FASHIONS AND PLEASING CUSTOMERS

The customer-centric viewpoint at Macy's is particularly keen as businesses leverage BPM across appli-
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A Graphical Notation Is Worth a Thousand Words

WITH BUSINESSES TRYING to trim the fat in a lean economy, business process management (BPM) has been revived as a discipline that can also help companies adapt to changing market conditions. But experts say a bigger boost to the BPM bandwagon may be the rise of the business process modeling notation (BPMN) standard.

BPMN is a graphical way of depicting and coordinating the end-to-end flow of a business process, according to Object Management Group Inc. (OMG). The standard allows companies to coordinate processes from behind or beyond a firewall that can span multiple business partners. In a world of complex hybrid computing platforms, business process modeling notation provides users, vendors and service providers with a standard way of communicating business processes.

"We've always had dueling standards, [such as] XPD, BPEL and vendors adopting different standards—or none at all," said Aleks Buterman, founding partner of IT and business management consulting firm SenseAgility LLC in Northbrook, Ill. "With BPM 2.0, we're seeing the industry coming together to standardize on BPMN. Each offering is going to be different but allow for some level of portability on platforms."

Microsoft's Visio—a widely used tool for basic process modeling—expanded its set of features with Visio 2010 to include a BPMN stencil of shapes and swim-lanes. The emergence of standards such as BPMN has also helped open source tools such as BonitaSoft and Questetra become viable alternatives to more expensive commercial tools, Forrester Research Inc. analysts Henry Peyret and Derek Miers noted in their report, "The Shifting Market for Business Process Analysis Tools."

The Workflow Management Coalition created the XML Process Definition Language (XPD) to interchange business process definitions among different modeling tools and management suites. XPD is currently the best file format for exchange of BPMN diagrams, as it contains elements to hold graphical information such as the X and Y position of nodes, as well as executable aspects to run a process, according to OMG. BPEL was created by open standards group the Organization for the Advancement of Structured Information Standards to help developers describe business process activities as Web services, with the goal of achieving application interoperability across varied platforms using Web standards. —L.S.

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cations and business units, according to experts. Financial services companies are asking, "What do customers need from us?" Health care organizations are asking, "How do we engage customers better?" But to cope with inevitable change,

To cope with inevitable change, use of BPM itself as a method is not enough.

use of BPM itself as a method or approach is not enough, according to Aleks Buterman, founding partner of IT and business management consulting firm SenseAgility LLC in Northbrook, Ill., and former chief architect at Lincoln Financial Group and Allstate.

BPM without a service-oriented architecture is nothing but legacy management, Buterman said, noting an insurance company that went all out on a BPM path but didn't coordinate it with its master data management (MDM) strategy. In fact, only 8% of organizations link BPM with MDM, a "hair-raising" statistic, according to Buterman. "In 90% of organizations, there is major friction [caused by the impasse] of two major investments."

There is an ROI with BPM, Buter-

man granted, and it is used sometimes for cost control as well as transformation. One of the more interesting projects he has seen involved business intelligence on top of the BPM system, with hooks that allow the process to be event-driven and measured with each step, and real-time ability to change rules on the fly.

PROCESS FIRST, TOOLS LASTS

Buterman said he recognizes that with vendors touting the latest features of their BPM suites, CIOs can get carried away with the promise of technology. But it's essential to understand your requirements and process flow before even thinking about a BPM stack, he said.

Another mistake is focusing on a small subset of what BPM can help with. "With horizontal engines like BPM or MDM, the real value is that they can be reused and reused and reused," Buterman said. By limiting the project scope to five or 10 applications out of 100, CIOs shoot themselves in the foot, he said.

"The real value is when you run BPM across multiple applications and business units. By itself, BPM is not enough. It has to be married with SOA and MDM," Buterman said. "The ones who don't will be left behind." ■

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Business Process Improvement vs. Automation

Business process automation is king in IT shops, for good reason. But automation for automation's sake? That's a recipe for failure. **BY LINDA TUCCI**

WHEN ED BELL was dispatched as a consultant to the Commonwealth of Massachusetts' Senate and House of Representatives, the gig was to last four to six weeks, and his mission was fairly straightforward. A veteran CIO from the financial services industry, Bell was asked to assess a failed business process automation project to streamline the work of the state legislature and point the way forward.

"When I evaluated it, the platform they had then was not good, but they could limp along with it. I said, 'Let's step back. Let's figure out what we really want to get out of it, and re-engineer the whole thing,'"

recalled Bell, who was named interim CIO shortly after taking the assignment. "My point was that

Automating for the sake of automating can cause more problems than it solves.

they were going to have to spend money on this either way. Do it right. Don't settle."

Business process automation (BPA) is popular in IT shops because it saves money, cuts redun-

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dancies and enforces a fluid, repeatable workflow. But automating for the sake of automating can cause more problems than it solves, say CIOs like Bell and analysts who cover this discipline.

“Mostly, what I tell my clients is take a higher look. ... The outcome will impact the approach the project will take.”

—ELISE OLDING,
research director, Gartner Inc.

BPA projects need to focus on business outcomes, not technology. Business leaders need to be part of the team. Successful BPA efforts depend on knowing how the automated parts fit into the end-to-end business process and, just as important, what should *not* be automated. In other words, the emphasis in business process automation should be on improving business processes, not simply automating them.

“Mostly, what I tell my clients is take a higher look,” said Elise Olding, research director in the BPM group at Stamford, Conn.-based Gartner Inc. “Are you trying to reduce cost? Are you trying to increase customer services, or get out new products or

services more quickly? The outcome will impact the approach the project will take.”

Sometimes, the BPA project will end up not so much automating processes as using IT to make human actions more visible, Olding said. An example is the widely reported innovation by Geisinger Health System, which offers patients a flat fee for coronary artery bypass surgery and pre- and post-op care. The Danville, Pa.-based hospital system also guarantees payment for the treatment of any preventable complication from the heart surgery up to 90 days after the operation. The policy stemmed from an analysis showing that its doctors, on average, were doing 21 of the 24 steps recommended for this surgery by the American Medical Association, but in a random order.

“What they implemented was not classic automation, but an automated checklist to make sure all steps were followed in order,” Olding said. The results of that automation process, in turn, led to the hospital system’s unusual guarantee.

COMMUNICATION, COMMUNICATION, COMMUNICATION

In the case of the Massachusetts project, determining what legislators wanted out of a re-engineered business process automation platform took five months. But even

before hammering out the optimum workflow for taking a bill from filing to the governor's office, Bell said it was absolutely critical to sell the project.

"I educated the senior leadership team on what IT does, what is a software development lifecycle, what are the roles of a project like this—and not just the IT roles," Bell said. "I emphasized the point that we are in this together, or we fail together."

He met on a weekly basis with the chiefs of staffs of both the Senate president and the House speaker, and was in the offices of the counselors and clerks probably every other day. "Communication is key," he said.

In fact, Olding said, one of the biggest sticking points in many business process automation projects is getting the business involved. The BPM group often finds that people on the business side simply don't want IT looking at their processes, because it might expose too many flaws in how they go about their business, or it could eliminate jobs. Explaining the benefits of the automation is important. But so is the proverbial stick.

Gartner interviewed business process improvement guru Geary Rummler shortly before he died in 2008. Rummler said he found that business tends to be much more willing to give up privacy when a project addresses a pain point.

Bell said he certainly found that to be true. "Not succeeding in the past, the leadership became much more open-minded. They knew they had to do something different," he said, adding there was another factor in his favor: "This was a good time in

"At the end of the day, [a business] process has to be simple to follow, understand and, most importantly, adjust."

—**SHELLY BARNES**, senior director of PMO, infrastructure and IT services, Newmont Mining Corp.

Massachusetts to tackle this because the House and the Senate got along. At other times, it could have been a lot more contentious."

Shelly Barnes, senior director of PMO, infrastructure and IT services at gold producer Newmont Mining Corp., said the same holds true even when automating IT service processes. IT is currently taking on an IT Infrastructure Library initiative by beginning with the organization's main pain point and going from there. She said probably the biggest lesson she's learned from doing business process automation and IT service automation is that the tool

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has to account for change.

"At the end of the day, the process has to be simple to follow, understand and, most importantly, adjust," Barnes said. "I can't develop such a complicated set of tools that will cause a detrimental effect if our environment changes."

BPA REPRESENTS PROGRESS AT THE STATEHOUSE

Back in Massachusetts, the newly re-engineered platform, in testing this fall, will be ready for work when the new session begins Jan. 5. The technology is predominantly a Microsoft platform, using SharePoint for content and documents, as well as search capabilities.

Bell said one of his biggest satisfactions is that the new platform, which he shepherded over the past year or so, is built for the future and actually anticipates a need: the desire to redesign the public website for the statehouse.

So the project not only integrates the entire workflow processes of the Senate and the House on a single platform while accommodating their nuances, but it also includes a fully re-engineered public website. "It will be a full real-time application, so if a

bill, for example, gets placed into a joint committee, two seconds later the public will see where that is. It will be real-time transparency," Bell said.

On the intranet side, the workflow includes alerts and to-dos, so legislators know what's required of them as legislation goes through the system. In principle, anyway, the platform can get rid of the Post-it notes, hallway conversations, email and phone calls that have long been the grease that moves a bill along, Bell said.

But he has no illusions it will, as he has learned from his 15 months of getting to know the business of the statehouse. "This is a relationship organization, and that is how they connect and make decisions. I wasn't trying to eliminate that but complement it," he said.

Still, make no mistake: The platform represents progress, Bell is pleased to say. Elected officials and their staff will be able to work from their district offices and home, as well as within the statehouse. "They have never been able to do that in the past." ■

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Affirming the Value *of* Enterprise Application Architecture

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Without a heterogeneous enterprise application architecture, tackling business process management can be onerous. Here's how one CIO reaffirmed the importance of a strong enterprise architecture. **BY NIEL NICKOLAISEN**

THIS MUST BE my season for enterprise application architecture. To be honest, I have not even thought about application architecture for a long time. But recently, I have been confronted by three separate application architecture situations.

In the first, I was having lunch with one of my IT gurus. This guru is typically on the forefront of the next wave in IT, so I like to get together with him every so often and pick his brain. As we were discussing the looming "anytime, anywhere" nature of IT, he leaned back in his chair, looked at the ceiling and

asked, "Do we really even need to talk or think about enterprise application architecture anymore? It seems that we have outgrown it."

He then returned to our conversation about "anytime, anywhere" IT, and I kind of blew off his comments about enterprise application architecture being passé.

A week later, I got a call from one of my CIO friends. Her company recently completed a global enterprise resource planning (ERP) implementation. The rationale for the ERP project was to get the entire organization on a common set of

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business rules and horizontal processes. Now it seems that each department and business unit is busy creating application silos by localizing their business rules and defeating the purpose for the ERP. After she had explained the problem, she asked for my advice. My first thought was to blurt out, "It sounds like you need to develop a solid enterprise application architecture." But, haunted by my guru's comments on application architecture, I instead offered my condolences and asked for some time to think about her situation.

Then, to confirm that I am suddenly living in the nexus of the architecture universe, the vice president of engineering for a software company asked me to assess his company's suite of applications. It seems the engineering team, in order to be responsive to the demands of the business, has created a lot of potentially overlapping applications. For example, the company has six payment processing applications and four customer registration modules.

At this point, I decided the application architecture gods were sending me a clear message, so I decided to once again think about

enterprise application architecture.

And, after spending a few hours with the software company's development team leads, I have reached a new set of conclusions about application architecture. These conclusions are:

- **My guru was only partially correct.** Application architecture is not critical if our applications are homogeneous. For example, at my company, we have been able to get all of our ERP, CRM and business intelligence tools from a single supplier.

In effect, we purchased an application architecture when we standardized on that platform. However, if the environment is heterogeneous, an application architecture is a great way to either design for or trend toward standardization. For the vice president of engineering, a well-thought out, accepted architecture would avoid development teams working on the seventh payment processing application. For my CIO friend, an accepted architecture might hedge against the drive to localize the ERP business rules.

- **In order to lay out a cohesive application archi-**



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ecture, think horizontally. For example, payment processing is an application that cuts horizontally across much of the organization. The foundation of a good architecture consists of applications that are horizontal in nature.

- **Use building blocks of common services.** As you think horizontally, identify the set of common services and interfaces that will allow you to build applications for today and the future. The best toy I ever purchased for my active, demanding sons was a huge collection of Legos. With just

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a few common, reusable, yet differently shaped blocks, my sons could entertain themselves for hours. What are our common, reusable, yet different services? For my CIO friend, we identified that each business unit needed to place an order, ship an order and account for an order. The resulting application architecture defined the standard

set of applications that provided these services and the set of standard interfaces for communicating among the services. With these defined, there was no need to localize the services as long as the services placed an order, shipped an order and accounted for an order.

- **Treat exceptions like exceptions.** Too often, our application architecture becomes heterogeneous when we attempt to automate the handling of all possible exceptions. Exceptions are called *exceptions* because they occur infrequently. My architecture anticipates that we will handle exceptions manually until they become the norm.

- **Complexity is the enemy of flexibility.** My CIO friend was right to worry about localization of the ERP business rules. If each business unit and department created its own ERP configuration, complexity would rule. Complexity is the bad gift that keeps on giving—and not just the costs of supporting the overly complex ERP and its future upgrades. In an age when time-to-market is essential, complexity stands in the way of IT and business agility. One goal of a good application architecture is simplicity.

- **Finally, make sure the business understands why an architecture that is horizontal, uses common building blocks, treats exceptions**

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like exceptions, and is simple is a great thing. There are solid business reasons for a quality application architecture, and I have never yet had anyone fight me on architecture as long as I explain why these characteristics are important to the business (and not just IT).

There are solid business reasons for a quality application architecture.

The vice president of engineering developed a pilot architecture that consolidated and standardized various services. The result was more development resources to work on products that created competitive advantage (and a seventh payment processing application definitely did not). My CIO friend worked with her business units and departments to define an architecture that thwarted most localization attempts. And I have been avoiding my guru friend—I don't want to tell him he is wrong about enterprise application architecture. ■

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