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BY ESTHER SHEIN

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Transforming analytics into business impact

Getting the most from analytics requires a laser focus on business outcomes. Here, IT leaders shed light on how they transformed their company's analytics practices into business assets.

BY THOR OLAVSRUD

Many organizations are struggling to get business value from their analytics. According to Gartner, through 2022, only 20 percent of analytic insights will deliver business outcomes. When it comes to AI, Gartner says 80 percent of projects this year will remain "alchemy, run by wizards whose talents will not scale in the organization."

Setting up analytics projects or an analytics organization is one thing, but deriving value from analytics is another. And with the COVID-19 pandemic disrupting economies around the globe, companies will likely take a close look at ROI when it comes to analytics and data science groups.

"It's not about analytics. It's not even about insights. It's about impact. If you're not making an impact, you're wasting your time," says Mike Onders, chief data officer, divisional CIO, and head of enterprise architecture at Cleveland, KeyBank.

Here, ruthless focus on business outcomes is key, as is the ability to rapidly prove analytics can have a business impact and then deliver results at scale.

"We actually work backwards from specific business outcomes we're looking to achieve," says Shri Santhanam, executive vice president and general manager of global analytics and AI at Experian. "Ultimately, ML [machine learning] and AI tend to be vehicles

"You've got to **incentivize business managers** to care about data and to care about how well their data can be consumed by other lines of business."

to get us to the ultimate goal, but really, what we talk about, what we share, what we drive with our customers is a better set of outcomes."

Hurdles to analytics value

Institutional roadblocks are among the biggest obstacles to analytics ROI, says Brian Hopkins, vice president and principal analyst serving CIOs at Forrester Research.

"The problem we see is that CIOs' data strategy involves a lot of business-level change, business process change, new organizational structures outside of IT to make decisions about definitions of data and make decisions about priorities, enforce data privacy policies, and other things that the CIO can't control but have a cost."

Hopkins says many companies are turning to their CIOs to offer a technology solution for deriving value from their data but aren't seeing the bigger picture. Regardless of how much they budget for technology, they may need to invest twice as much in broad business change.

"This big chunk of firms who have this lofty vision of data strategy that's fallen on the CIO in terms of budget to invest in the technology solutions are going to recognize that the cost of data strategy is much bigger than just IT and it involves a lot of business change," Hopkins says. "It includes process change, application change, organizational change management, incentive changes."

To get started, CIOs must create partnerships with business stakeholders. Ultimately, though, senior leadership must create incentives to drive those partnerships.

"You've got to incentivize business managers to care about data and to care about how well their data can be consumed by other lines of business," Hopkins says. "That's not something that most CIOs can readily wave their wand and change."

Here, IT leaders shed light on how their organizations made the shift to analytics-driven impact and offer advice to those seeking to transform their data practices into business assets.

Analytics accountability

Onders says KeyBank has addressed this issue by making line-of-business stakeholders partner closely with the analytics team—and be accountable for the business outcomes of the analytics projects they request. For each project, KeyBank creates a one-page charter that describes the outcome the business seeks and the metrics for assessing that outcome. The charter lists the business sponsor, product lead, analytics lead, risk lead and tech lead.

"The one-page charter says, 'What metrics are you looking at?' They have to list the metrics. If these analytics are going to change something, what metric is going to change? We're going to hold you accountable that you're expected to be this, by this date. How are the analytics going to get you there? It's just a much more aggressive kind of metric-driven, impact-driven charter with a senior business leader that's accountable for it," Onders says.

Every two months the business leader must deliver a report show-

ing how the analytics have affected the business outcome to justify continued investment in the project.

Experian's data team also relies on close partnerships with the business to drive analytics initiatives, including an emphasis on getting "clarity on the business outcomes in a quantifiable way," Santhanam says. But Experian's analytics philosophy also allows for a more flexible, iterative approach.

"We start by doing things which don't scale and hack through the business problem itself. This allows us to deviate from what might be a set of constraints, allowing us to operate very quickly and to experiment and understand where the leverage is," Santhanam says.

Upskilling for analytics success

But for a business-IT collaboration on analytics to be successful, culture change is essential, as business pros must not only be versed in data-

driven processes and technologies but also help fill gaps in areas where demand for skills outpaces supply.

Jabil is one company educating business pros and executives on what it takes to transform analytics into impactful business initiatives. The manufacturing services company has focused on becoming

more data-driven for years. When it struggled to find data scientists, it created a Citizen Data Science program to help it mine the data at its disposal.

Jabil CIO Gary Cantrell says the two key components of Jabil's push to become more data-driven have been a ruthless focus on addressing business problems and a closely related push for executive sponsorship.

Getting business leaders and

senior executives on board was challenging but ultimately one of the most important factors in Jabil's analytics success. As part of its Citizen Data Science program, Jabil created an executive-level training cohort that put key executives through a focused, two-day data science training program. The

program helped executives understand the importance of becoming a data-driven organization and garnered their enthusiastic sponsorship as they started hunting for business problems to address with data. The program continues to reinforce executive sponsorship by inviting senior executives to participate in debriefings when each cohort finishes the program.

"We really started getting buy-in and traction across the executive

team when they started seeing their organization's problems being addressed and results coming out that could help them get better," Cantrell says. "In all fairness, it took us a lot of selling on the front end. And then it took the better part of three years to get the senior executives excited about

it. But now, the question the last two years has been, 'OK, what are you doing with analytics? What's next?' It took a little while, but we finally got the message across by relating it back to the business, where they see the value."

Breaking down data silos

Legacy data practices can also stifle an organization's ability to transform its data into business value. The chief culprit? Data silos.

Institutional roadblocks are among the **biggest obstacles** to analytics ROI.

For the past several years, Bayer Crop Science has sought to apply machine learning and artificial intelligence to every aspect of its business. Precision agriculture has been a key focus. Michelle Lacy, data strategy lead for R&D in the plant biotechnology division at Bayer Crop Science, says the company's adherence to FAIR data—a set of guiding principles for scientific data management and stewardship published in Scientific Data—has been funda-

data easily, users should be able to access the data they need when making decisions (while still following cybersecurity policies), data should be interoperable, and data should be reusable.

"It's extremely important," Lacy says. "It's the foundation of our data strategy."

Often, data developed by one group can be helpful to work undertaken by other groups. To make efficient use of the data, the various groups need to know the data exists

data together," Lacy says. "You can think of it as a jigsaw puzzle and all these different assays you run are pieces of that puzzle. The project lead has to put those pieces back together."

Trust

As with many transformations, the shift to a data-driven organization hinges on trust—among teams members, in new processes, and that insights derived from data will have a positive impact on the business.

banks would do with their analytics models.

"A lot of the positioning models have been fairly simple logistic regression models for the very reason that the confidence in building something more complex and opaque creates a level of risk which feels outside the risk appetite of organizations that are heavily regulated. What we are seeing, though, is both the regulatory framework and businesses in this space are recognizing the value of more complex algorithms and more complex techniques and taking more of a staged approach of responsibly moving into that space with explainable AI frameworks," Santhanam says.

"Ultimately, driving impact requires all four of those things, and it's quite easy to lose your way if you don't have the business outcomes in mind as your goal," he adds. ♦

Historically, the **issue of trust has limited** what banks would do with their analytics models.

mental to its data-driven transformation, helping it break down silos of data.

FAIR (findable, accessible, interoperable, and reusable) is a sort of data bill of rights that says users should be able to find their

and how to find it, and the data must be compatible.

"If you're running various assays on a single plant, whether it's field assays or you're running different experiments in a lab, you've got to be able to bring that

At Experian, four pillars guide every machine learning and AI project, Santhanam says: performance, scaling, adoption, and trust.

Historically, Santhanam says, the issue of trust has limited what

Thor Olavsrud is a senior writer for CIO.com.

EXECUTIVE VIEWPOINT

Rahul Pawar

VP of Product Management,
Commvault

Rahul Pawar is Vice-President of Product Management with Commvault, helping to define and manage the roadmap for intelligent data management software solutions.

Data is critical to digital transformation

What are you observing among customers when it comes to innovating with data and DX projects?

Organizations have digital transformation goals to improve customer service, optimize operational efficiency and be more competitive.

Data is critical to digital transformation—as is data protection that is agile, scalable, flexible and secure. Customers are concerned about fragmented data and data loss.

It's very possible to streamline data management, even for the largest organizations. No business wants to lose money—or customers—to a preventable issue. Data that is your biggest asset can become a liability without proper checks, and data sprawl is common.

Customers ask what innovations, what data discoveries, what new insights may be hidden in their data? Making data accessible is a key step for innovation.

Business is global; data needs to be globally accessible as well.

What might be missed in the excitement to move data and digital transformation projects forward that can leave a company vulnerable?

We see five common mistakes.

First, moving only what is necessary. Duplicate data and data sprawl are common issues we see.

Second, securing cloud data in flight and at rest. While the cloud is highly resilient and highly available, protecting the data is your responsibility.

Third, make sure you're choosing the proper cloud storage tiers with limited access and immutability.

Fourth, cloud cost optimization via automation policies that provides lifecycle management auditing, automatic tiering and auto-scaling, which offers both security and savings.

Last, SaaS applications need data protection. We saw a huge adoption of SaaS to accommodate remote work. The data in those applications is normally not protected by the SaaS vendor.

What kind of risks do organizations need to guard against when it comes to data protection?

There are several ways to guard against risk.

First, have a disaster recovery plan that covers your critical data—applications, including SaaS applications, plus your virtual machines, your container workloads, down to files and endpoints. Commvault will help you secure immutable data copies to protect against ransomware. Use key management services and auditing to ensure that proper and needed access is present.

Second, test that disaster recovery plan. Make sure you can achieve the RTO and RPO. Test recovery of mission-critical applications in a different cloud geographic region—or in another cloud.

Third, employ a data protection strategy that shows your risk assessment. Be able to report up to your board, your leadership team, your auditors. For example, Commvault includes clear, accessible reporting to show the readiness status of data across geographies, on-premises or cloud storage locations.

To learn more about digital transformation, go to *www.commvault.com*

COMMVAULT

The CIO's guide to navigating office politics

The CIO role is rapidly changing. So too are the politics IT leaders encounter when collaborating on digital initiatives. Here's how to keep IT on task and above the fray.

BY MINDA ZETLIN

The meeting went south almost as soon as it started. A company was moving from a service-driven to product-driven business model and adopting an agile approach at the same time. Al Sporer, executive vice president and general manager for digital consultancy Anexinet, was there to facilitate. Less than five minutes in, a longtime general manager from the business looked across the table at the CIO. "I don't know why I have to be here," she said. "I've told you for over a year that we need a new digital customer interface. You can't get anything done!" Furious, the CIO got up and walked out of the room.

Sporer and his team continued the meeting, although they knew that with the CIO absent, little progress would be made. When Sporer talked to the CIO afterward, "He was still so angry he could barely speak." He'd heard that same accusation from that same manager many times before. For six months, the CIO and his team had been asking for requirements so that they could start work. "The business leader always turned the conversation around and said, 'You guys are the tech experts; you should know what we need!' It had turned into a standoff," Sporer says.

With some calmer dialogue, reaching agreement might not have been that difficult. The business user just wanted IT to update the front end and create a modern

customer interface, but because this was a very outdated system, that wasn't possible. "You couldn't do a forklift upgrade," Sporer says. "So IT needed requirements around what functions had to move over and when. The business manager needed a technology expert to guide her." Instead, communications had completely broken down. "Neither side was willing to actually say what they thought; they just agitated each other," Sporer says.

They had both encountered what Tina Nunno, a distinguished vice president at Gartner, calls a "political land mine."

"Politics is the real reason we frequently cannot get things done in change management," says Nunno, who is also author of *The Wolf in CIO's Clothing: A Machiavellian Strategy for Successful IT Leadership.* "They're the things we don't often feel comfortable talking about; sometimes we can't even identify them." And yet, she says, when

someone steps on these landmines, "our reactions are not only physical, they're visceral. Sometimes your brain is telling you to be rational and you can't."

Solving for the wrong variable

Land mines tend to occur, Nunno says, when someone feels threatened in one or more of these areas: control, status, resources or beliefs. "Whenever anyone threatens to touch on these things, people become irrational," she says.

Unfortunately, they usually won't admit it. As Nunno notes, it's not socially acceptable to say something like, "I don't want to go along with your integration

project because you're in my territory and I'm afraid you'll take away my control and status in the organization." So many people will say something else instead—for instance, that the project is too expensive or unnecessary. Faced with these objections, a CIO might do what seems logical and present the business case for why the project should go forward. "Because we can't talk about these things, we accidentally solve for the wrong variable," Nunno says.

The only way out of this impasse, experts agree, is to try and find out what the true problem is. "Use verbal diplomacy," Nunno advises. "Say something like, 'You're obviously really uncom-

fortable with this. Can you tell me what's really going on?' When you switch from thinking questions to feeling questions, you are likelier to get to the truth of what's really bothering someone—the political answer rather than the politically correct answer."

When that happens, she says, you can acknowledge what the real problem is. "You can say, 'I get that this messes with your control, and that's really unpleasant.' By being empathetic, you can de-escalate the situation. You may not get what you want but it won't spiral out of control." You may also be able to negotiate a resolution, perhaps by offering the other executive something in return or by working with that executive to

Land mines tend to occur **when someone feels threatened** in one or more of these areas: **control, status, resources or beliefs**.

manage the messaging so he or she can save face, she adds.

Having those conversations can be tough, but not having them can be very costly. "A CIO I knew at a very large company put out a bid to modernize some of their technology, but it had to be a like-for-like functional replacement," Sporer says. "They basically spent $20 million to replace an old technology and make the new technology look and work like the old one. That happened because the CIO didn't say, 'If we're going to do this, we should change to a new system, otherwise why do it?' He didn't have the energy or the courage to have that conversation, and he probably would have won it."

The light and dark sides of office politics

Verbal diplomacy is part of what Nunno and others call the "light" or "positive" side of office politics. "The light side of office politics is being open, honest and transpar-

ent to resolve problems," Nunno says. "I'm a fan of the light side, but when that doesn't work, I advocate going to the dark side. That's usually when there's a dark-side player, or a dark-side situation."

Sometimes, she says, you can tell that someone has "gone to the dark side" because he or she begins behaving differently than usual. Once again, data and logic won't do you much good. "Stress is one of the dominant reasons people we're in a conflict with go to the dark side," Nunno says. "When someone is under stress, they become incapable of dealing with new data." And, of course, she notes, these are very stressful times. "People are dealing with COVID-19. Revenues got destroyed. All of that is stress and it's making it hard for people to incorporate new information."

In a dark-side attack, people will often try to use their status or position as intimidation, Nunno says. It's a bad idea to give in,

> "The light side of office politics is being **open**, **honest** and **transparent** to resolve problems."
>
> **– TINA NUNNO**
> AUTHOR & VICE PRESIDENT
> GARTNER

because if it works, they're likely to do it again in the future. "Someone might say, 'It's my budget money,' even if their business case makes no sense," she says. "Now, everyone knows that these are enterprise funds which all executives have a duty to protect. So a response might be, 'Yes, you're in charge of that budget and I'm in charge of IT. Let's work together.'"

You also need to think ahead,

she says. "Is this person likely to escalate this or will they keep it between us? If they're going to the boss, the CIO should ideally go to the boss first. Say, 'I'm going to say no to John. Will you back me up?' Because the worst case is you both go to the boss at the same time and you don't get backed up. Then John learns he can do it again."

The changing role of IT

One reason IT often gets caught up in office politics is that the role of technology is changing in most organizations.

"As integral as it has become, IT still has the standing of infrastructure, like the light bill, in many organizations," says Denise Rousseau, professor of organizational behavior and public policy at Carnegie Mellon University. She recalls one large hospital that decided to alter how physicians were compensated in response to a regulatory change. Management assumed that IT could imple-

ment that new protocol and simply assigned it to IT as a task. But nobody knew how to measure the desired activities, and in any case, the hospital's data analysis capabilities were at capacity so there was no way to add a new job. The whole initiative quickly fell apart, largely because IT wasn't included in early discussions about the change.

But as IT comes into its own as an essential function that should be present at high-level conversations, other business leaders may feel their territory is threatened. To make matters worse, some IT people feel vindicated by their new status and aren't shy about saying so. "So many IT leaders grew up in an environment where they could not speak until spoken to and they had to toe the line," says David Johnson, CTO of Mulytic Labs, a data and software solutions company headquartered in Munich with offices in New York. "Now businesses are seeing the

> "You're being **disrupted**, they're being **disrupted**– everyone's being **disrupted** at the same time."
>
> –**DAVID JOHNSON**
> CTO, MULYTIC LABS

advantages of IT getting involved, and IT's response is, 'Now you want my opinion? I've known this all along, and I'm going to rub your nose in it.'"

That's particularly unhelpful in a world of shadow IT, when business leaders can easily turn to outside vendors for whatever they need, he notes. "IT people have to listen

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CSO
FROM IDG

instead, and that's the weird paradox. You're being disrupted, they're being disrupted—everyone's being disrupted at the same time. The more people are being disrupted, the more they have to be human."

Caught in the middle

Because every function across an organization needs technological help, IT can also get stuck dealing with competing priorities. "Often, IT finds itself in the middle because there are two parts of the business trying not to talk to each other," says Frank Trainer, vice president of process and delivery at IT consulting firm Saggezza. "An example would be finance and sales. Sales has the goal to drum up a lot of business, and finance has the goal of getting good reporting and keeping track of the money being spent. In many organizations, Sales takes priority over other functions, which means finance could have a hard time getting the information it needs." In an ideal world, IT

might build an interface to allow finance to run numbers on its own, but again, other projects are likely to take priority. So finance solves its problem by what Trainer calls "going through the back door." That is, calling up a receptive IT employee and asking him or her to run a report.

Unfortunately, this caught-in-the-middle dynamic can create an unfair burden on IT people who are trying to keep everyone happy. Trainer recalls losing a highly valued employee because of it. "People in the company were asking him to do things on the side, and he was doing them. He wasn't talking to me about it; he was just taking care of things," he says.

Eventually, that overworked employee burned out and took a job elsewhere. "That was a conversation breakdown," Trainer says now. If they'd talked, Trainer says, he would have told the employee to stop being a hero and start letting the rest of the team know about

> "CIOs and technical leaders need to have the **courage** to **harness** their **knowledge** of the business to become equal partners."
>
> –**AL SPORER**
> EVP & GENERAL MANAGER
> ANEXINET

these work requests coming in on the side. "Then the question is, Who has the right to prioritize that work? Is it the person who called? Usually not."

Experts say that many office politics problems should be addressed with an honest conversation, what Nunno calls the light side of office politics. That's how Anexinet's

Sporer and his team ended the war between the general manager who refused to provide requirements and the CIO who couldn't proceed without them.

"We used this obstacle as an opportunity to create real change in the company—all the way up to the CEO," he says. They resolved that business leaders needed to "own" the business features for their projects, and that IT leaders needed to speak up when that failed to happen. "The technology team became a trusted partner across every major business line, not just a servant with a big budget and crappy service."

There's a lesson here, Sporer says, for every IT leader who wants to avoid stepping on political land mines: "CIOs and technical leaders need to have the courage to harness their knowledge of the business to become equal partners." ♦

Minda Zetlin is a frequent contributor to CIO.com.

The pandemic has put the need for digital advancement in the spotlight—and CIOs have responded by fast-tracking technical and cultural transformations.

accelerating

digital transformation

in the wake of **COVID-19**

BY ESTHER SHEIN

THERE HAS LONG BEEN AN UNDERSTANDING that the pace of technology keeps speeding up, but no one was quite prepared for just how quickly it would need to happen when the pandemic hit.

Given requirements born out of the sudden shift to remote work, CIOs are accelerating and, in many cases, exceeding their plans to automate existing workflows and processes. Many are also accelerating digital transformation efforts to deal with new types of customer interactions and to identify new market opportunities.

In other words, the need for speed has never been greater.

DURING THE PAST SEVERAL MONTHS, "our customers have really been stepping up their desire and their plans to invest heavily in digitization and modernization and experience design and product thinking," says Chris Murphy, CEO of North America at global software consultancy ThoughtWorks. "In six months, the world has jumped forward 10 years in how it views digital as the primary channel."

"There is significant urgency to drive forward digital initiatives," agrees Kim Henderson, a founding member of global management consultancy Egon Zehnder's Washington, D.C., office. "So decision-making has been streamlined and it has been easier to get decisions through an approval process."

Nearly all tech leaders (97%) are making changes, and 34 percent are planning to make major or radical changes, according to the 2020 Harvey Nash/KPMG CIO Survey. This includes "an explosion in new front-office applications, analytics solutions and cloud platforms," the survey says.

There are also longer term goals. Top-performing enterprises are not only accelerating digital transformation but are also utilizing emerging technologies to come out stronger on the other side of the pandemic, according to Gartner's annual global survey of CIOs. "2021 will be a race to digital, with the spoils going to those organi-

zations that can maintain the momentum built up during their response to the pandemic," the firm says.

The momentum is there. The relatively smooth transition to remote work has earned CIOs the CEO's attention. CIOs have leveraged this spotlight to convince senior business leaders of the need to modernize technology and to prompt boards to accelerate digital business initiatives, according to Andy Rowsell-Jones, distinguished research vice president at Gartner.

"The conditions for a digital arms race have emerged, making it imperative for CIOs to accelerate their digital

initiatives now," Rowsell-Jones says.

Many CIOs say they have been responding to customers' growing expectations for digital interactions. Seventy-six percent of respondents to

"In **6** MONTHS, the world has jumped forward **10** YEARS in how it views DIGITAL as the primary channel."

—**CHRIS MURPHY**,
CEO OF NORTH AMERICA, THOUGHTWORKS

"The conditions for a digital arms race have emerged, making it imperative for CIOs to accelerate their digital initiatives now." —**ANDY ROWSELL-JONES**, DISTINGUISHED VICE PRESIDENT, GARTNER

> "We're trying to tear down data silos and have a 360-degree view of the customer in one place and capture information about them."
>
> –**PHILLIP LANGEBERG**
>
> CORPORATE IT DIRECTOR, MASSANUTTEN RESORT AND WILDERNESS PRESIDENTIAL RESORT

the Gartner survey said that demand for new digital products and services increased in 2020, with 83percent reporting that it will increase in 2021.

New ways to interact with and serve customers

tHE HARD-HIT TRAVEL and hospitality industry is responding with a vengeance. A lot of ThoughtWorks' travel clients are using the downtime to think about how to accelerate the move to digital processes, Murphy says. "They're using the opportunity to fundamentally devise their customers' end-to-end experience," he says.

At the Massanutten Resort and Wilderness Presidential Resort, corporate IT director Phillip Langeberg has embarked on two big initiatives in recent months: deploying a CRM system to capture guest metrics in their interactions with the properties and digitizing the process of ski rentals to promote social distancing.

Previously, there were separate systems for the company's five restaurants, three resorts, indoor/outdoor water park, ski shop and two 18-hole golf courses.

"We're trying to get people here and get them to enjoy the resort," says Langeberg. "We're also trying to tear down data silos and have a 360-degree view of the customer in one place and capture information about them."

While the CRM implementation was planned pre-pandemic, the project was fast-tracked when the properties were shut down for four months during the height of the pandemic. As Langeberg saw it, "We have this huge maintenance window in front of us so let's capitalize on that."

The resort's rental shop was using a paper-based system to capture information from guests who rent skis, which slowed down the process, Langeberg says. Now, if a guest opts to hear about specials the resort is running, that information will be captured in the new rental shop system, which will eventually be pulled into the CRM, he says.

"It's all about elevating the customer service experience," he adds.

Opportunities to speed up innovation

eNSEO, A PROVIDER of in-room entertainment and control systems for the hospitality industry, accelerated the rollout of a web app to help hotel property clients enable touchless points in rooms from a guest's mobile device.

97%
of TECH LEADERS
are making changes, and
34%
are planning to make
MAJOR or RADICAL changes.

When CIO Kris Singleton started last July, the company was working to provide new contactless products in the age of COVID. "Transformation is not just about technology but the transition of very laborious … processes into automation using technology," she says.

The Enseo Connect app was a new initiative that IT fast-forwarded during the pandemic so hotel properties would be able to check in more guests with fewer staff and in a secure and safe manner, Singleton says.

The app is now used in more than 30,000 hotel rooms, including at the Marriott brand, she says.

A guest's mobile device "turns into a remote control in a hotel room so they no longer have to touch anything," Singleton says. "We had the connectivity and had been talking about customer satisfaction and the icky factor people have touching all these remotes."

Singleton had to juggle development of the app while keeping the business stable during the transition to remote work. At the same time, Enseo was making a move to a new office space. She says it all went off virtually without a hitch.

"Because of the way we had strategized around our hybrid cloud environment, we were able to quickly shift to our current location very quickly and seamlessly, without any downtime of back-office systems," she says. "It's amazing: If you give clear directions, objectives and goals, people will rise to the occasion and accelerate their ability to get the job done."

Learning to accelerate when you're not ready

tHE CLOUD HAS undoubtedly been a godsend during the pandemic, especially for organizations that began using it for the first time.

When the pandemic sent government employees packing in the state of Kansas, "there was no concept of remote workers," says Stacy Mill, the state's CTO. "Talk about acceleration overnight—there were very few laptops because of an innate fear of anything outside our four walls."

Mill still remembers getting the call on Friday, March 13, to pull her team together to start the process of rolling out 2,500 laptops and deploying VPNs and multi factor authentication. "All of this was done in less than a month across upwards of 4,000 people," she says.

Then IT had to teach people how to use those tools. She credits her external partners for their help. Along the way, the state has changed its tune about keeping everything on premises.

About 30 percent of the state's agencies are gradually coming back to offices, Mill says. Her agency, the office of information and technology services, is staying remote and continues to work toward a model of delivering services digitally.

"The big thing for our state is a push to digital government capabilities that we've never had before so the constituency can do their business online, not only via the web but via mobile," she says.

that happen. "We've had to really grow those capabilities to support hundreds of thousands of people we've never had to support before," Mill says.

The state went from filing 8,000 unemployment claims per day to

> "It's amazing: If you give clear directions, objectives and goals, people will rise to the occasion and accelerate their ability to get the job done."
>
> —**CHRIS SINGLETON**, CIO, ENSEO

IT has also started deploying chatbots in the cloud to better answer constituents' questions. In addition, the state started using the cloud for analytics, identity and access management and security measures. "We're talking months, weeks sometimes," to spin up those services, Mill says.

Again, she credits various third parties with providing a "cloud-first type of expertise" for helping make

hundreds of thousands per day. IT also had to quickly deploy a contact tracing system for the health and education departments that could scale to tens of thousands of people. At the same time, there was the matter of keeping the lights on.

"Work-life balance is at a minimum," Mill says.

But today, the state of Kansas looks at technology very differently, she says. "We're talking about how we

get better" with technologies such as software-defined WANs. "We've been a legacy environment and we're moving to new architecture with cheaper, better, faster service."

Virtualizing desktops is also on tap, and IT has started rolling out softphones that simulate a traditional landline.

The key issue since the pandemic began has been, "How do we simulate being in the office when we're remote and get our phone calls and do our job? Some of that was talking to people face to face if I'm a caseworker in the Department of Children and Families," Mill says. "You couldn't drive to someone's home.

These are all technology advancements we had to think about really quickly and put some in place."

From a tech perspective, "we're keeping up and moving. It's the non-tech pieces we have to focus on now."

Keeping people motivated by innovating

tHE UNIVERSITY OF Texas at San Antonio is also keeping up and moving forward with digital initiatives. Since the pandemic began, IT has accelerated three initiatives: updating infrastructure while incorporating high-performance and hyperconverged capabilities; deploying enterprise service management; and developing a cybersecurity program, says Kendra Ketchum, vice president for information management and technology.

This was achieved in part due to Ketchum homing in on the operational support teams and ensuring "everyone knows their roles so we don't have to cobble things together.

"When you have a high-performance team of technologists, you have to keep innovation cycles churning to keep them inspired," she says. "That's where they feed their desire to innovate."

One issue Ketchum discovered during this process, however, was a lack of communication among various groups, such as engineers in the systems space not talking to security or networking teams. So she says she "knocked down walls and created more communications" with more remote tools and meetings.

"We flipped the table on culture," Ketchum says. "If the network engineers failed, everyone failed."

Accelerating culture with care

aCCELERATING INITIATIVES has been important, but they only work if you build relationships and trust across the organization, says Ketchum. "We shifted the culture to do that, but the biggest lesson is you're not doing that alone. It relies on the leadership you put forward."

Enseo's Singleton says while education and awareness are critical for internal and external customers, such initiatives must be implemented "with care and compassion." IT let people know, "We understand

> "We flipped the table on culture. If the network engineers failed, everyone failed."
>
> –**KENDRA KETCHUM**, VICE PRESIDENT FOR INFORMATION MANAGEMENT AND TECHNOLOGY, UNIVERSITY OF TEXAS AT SAN ANTONIO

you're stressed and there are a lot of challenges in thinking about doing things differently," she says.

Langeberg is more philosophical, noting that while accelerating digital initiatives is challenging, "it comes with the territory of IT. There's lots of times a tech disruptor will come along and you have to say, 'This will change the course of our business

> ## "Everybody's out of their silos now and we're all working together. It's a beautiful thing."
>
> —**STACY MILL**, CTO, STATE OF KANSAS

and how do we capitalize'" on this.

There also has to be a willingness to pause other projects to focus on the direction the company is going in, he adds. It's important that people understand that pressing pause doesn't mean a project is failing–just that it's not a priority at this time, Langeberg says.

As Mill takes Kansas further

into the cloud in 2021, the state will move forward with a new strategy of cohesiveness. Prior to the pandemic, all state agencies were running as single entities with their own app development and IT strategies, she says.

In the past year, the culture has also been accelerated, Mill says. Now, all of IT reports to a central CTO. "We're

a very cohesive group … whereas before, it was every man for himself."

That has been an even bigger change than the shift to the cloud, Mill adds. "Everybody's out of their silos now and we're all working together. It's a beautiful thing." ♦

Esther Shein is a frequent contributor to CIO.com.

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Equifax goes all in on the public cloud

The consumer reporting agency's migration to public cloud continues unabated, says CTO Bryson Koehler, who has spent the past two years overhauling IT after a massive data breach rattled the company.

BY CLINT BOULTON

Ask almost any CIO whether they would re-platform their business in the cloud, given the budget, time and technical resources, and the answer would unequivocally be yes. But standardizing on a cloud platform during a global pandemic adds an unexpected wrinkle to the culture change required for building a new technical foundation for the business.

That was one of the many hurdles confronting Equifax CTO Bryson Koehler in March when the consumer reporting agency ordered its employees to work remotely amid the coronavirus outbreak. Even so, employees exhibited excellent productivity in facilitating the company's digital transformation while working from home, Koehler recalls.

For instance, Equifax engineers have delivered more story points—a metric used in agile software development to estimate the difficulty of implementing a digital experience for users—while working around family disruptions that often bog down deliverables.

"We're seeing a higher software capitalization rate," Koehler says. "The COVID-19 outbreak has helped us maintain, if not improve, our focus and productivity."

Equifax product teams are now **much more closely aligned** with engineering, consistent with the current trend toward scaled agile and DevOps practices.

In hindsight, it's fair to say that Koehler's challenges have been a cut above those of his peers since he joined Equifax in 2018, less than a year after a devastating data breach. Equifax spent hundreds of millions of dollars bolstering cybersecurity after the breach and lured CISO Jamil Farshchi from Home Depot. In accepting a daunting job many would shy away from, Koehler was gifted a $1.2 billion budget to modernize aging technology and restore the public's trust.

The greenfield advantage

Koehler elected to take a novel approach to rearchitecting Equifax's technical stack, which ingests and churns through massive amounts of data from disparate sources to determine credit scores for mortgage and other loans.

Like most IT leaders, Koehler bet big on agile processes, building applications with microservices and shipping software via orchestrated containers running in the cloud. But unlike many of his peers who prefer a hybrid approach, Koehler is rebuilding Equifax's tech stack entirely on public cloud services.

Koehler is moving Equifax's apps, analytics, decisioning, machine learning engines and other tools that comprise a data fabric into Google Cloud Platform (GCP), where software is provisioned as infrastructure as code and applications are deployed in continuous integration/continuous delivery (CI/CD) pipelines. Software updates, including application upgrades, tuning and patches, are fully automated. In a nod to the current multi-cloud trend, Equifax runs some workloads in Amazon Web Services and Microsoft Azure. For instance, the data layer integrates with a network fabric hosted by GCP and AWS to facilitate better uptime and resiliency.

Equifax product teams are now much more closely aligned with engineering, consistent with the current trend toward scaled agile and DevOps practices. "The beauty of agile is that you can adopt and adapt according to mission; we've just made it a total approach—everyone has to do it," Koehler says.

Koehler says the cloud-native approach enables Equifax to eschew many of the scenarios with which practitioners of hybrid cloud models are now familiar. Rather than migrate legacy apps, a practice known colloquially as "lift and shift," or refactor them to run in the cloud, which courts its own unique risks, Koehler is foregoing most of the "legacy baggage" associated with on-premises operations—albeit with select exceptions that will be retrofitted as cloud-native apps later.

Koehler says that migrating legacy systems over time, which often results in incomplete hybrid implementations, thus adding more complexity and boosting operating costs, puts enterprises in a "worse place" than where they were running on premises. In fact, any Equifax engineer who insists on running apps locally must make a compelling argument to do so. But Koehler says he makes it difficult for engineers to deviate

> ## "The **cloud** sets you up for **more secure services** than anything **on-prem** can offer."
> — **BRYSON KOEHLER**, CTO, EQUIFAX

from the cloud strategy.

Security plays a big role in the public cloud's value proposition, Koehler says. "The cloud sets you up for more secure services than anything on-prem can offer," he adds.

Cybersecurity, business agility and a quicker path to innovation are among the reasons why confidence in the cloud is so high. This has proved particularly true during the pandemic, as many organizations are bound by social distance constraints. Forty-two percent of IT leaders said their investment in cloud would increase during the pandemic, according to a survey of 373 CIOs polled for IDG's CIO.com COVID-19 B2B study released earlier this month.

Yet Equifax's cloud-native posture makes it an outlier, according to experts. Many enterprises would love to stand up cloud-native environments to modernize their applications, but "few have the time and money to do so, or the effort doesn't outweigh the cost," says Gartner analyst Raj Bala. Rather, many organizations package legacy software in containers or wrap Java and other apps in platform-as-a-service offerings from AWS or Microsoft to give them a "little bit of modernization."

Shifting business dynamics

Koehler is confident that Equifax's public cloud environment will better position the agency to serve customers who have come to expect seamless digital environments as they seek approval to make purchases. A proliferation of financial activity is driving a massive load on Equifax systems.

The pandemic has throttled many sectors in the economy, particularly travel and hospitality, which are undergoing seismic shifts in employment. This has forced Equifax to adjust its risk scoring to account for the explosion in transactions, including people buying new homes, asking for forbearances on mortgages and refinancing existing mortgage agreements.

Equifax must also address the challenge associated with creating "highly confident risk models to operate and improve in a radically different world," Koehler says. The company is leveraging machine learning-based analytics to help make sound, equitable decisions.

As Equifax refines its scoring models, Koehler continues to unwind the company's legacy environments, which he continued to operate as his teams raced to rearchitect on GCP and AWS. The company will decommission about a dozen data centers of various sizes—a significant chunk of its overall footprint—around the world by year's end. "Significant validation needs to occur to migrate complex data sets in a secure and compliant way," Koehler says. "Our mantra has been, 'Run what you have well while you build the new.'"

Meanwhile, Koehler looks forward to the day when most of his teams can return to the Equifax headquarters in Atlanta, which like most enterprises is admitting employees at a reduced capacity in accordance with most corporate coronavirus practices. "There's an energy that comes from seeing each other in person," Koehler says. ♦

Clint Boulton is a senior writer for CIO.com.

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