Cognizanti

Part III

Navigating the digital age

What senior leaders worldwide have learned from pushing the boundaries of change.

Vol 12 • 2019

Cognizanti is an annual journal published by Cognizant. Our mission is to provide unique insights, emerging strategies and proven best practices that globally-minded companies can use in their quest for business and IT performance excellence.

All articles published in *Cognizanti* represent the ideas and perspectives of individual Cognizant associates and contributors who have documented expertise in business-technology strategy and implementation. The content of the articles published in *Cognizanti* represents the views of the individual contributors and not necessarily those of Cognizant. They are put forward to illuminate new ways of conceptualizing and delivering global services for competitive gain. They are not intended to be, and are not a substitute for, professional advice and should not be relied upon as such.

For more insights, and to continue the conversation online, please visit our e-community at http://connections.cognizant.com or download our Perspectives app from the Apple App Store or Google Play at http://cogniz.at/itunescognizantperspectives or http://cogniz.at/googleplaycognizantperspectives, respectively.

Looking for the future of magazine publishing?

1. Download our Cognizant AR app @ the Apple App Store or Google Play to view videos contained in this issue.
2. Once the app is installed, train your mobile phone's lens on the thumbnail image of our app on pages 5, 17 and 38.

We welcome your input on this feature and would love to hear what you think!

Cognizanti

An annual journal produced by Cognizant
VOLUME 12 • 2019

The *Cognizanti* Team

Editorial Advisory Board

Table of contents

With Digital, the More We Live ...

the More We Learn

When it comes to digital technology, business or thinking, established organizations have a different set of challenges from those of digitally native pioneers. They have hardwired business conventions, and are often constrained by regulatory mandates, customer/industry requirements and inflexible legacy systems and processes that just can't turn on a dime – despite all the talk about human-centered design, Agile development methodologies and DevOps automation.

Compared with those that grew up in the "all things digital" era, it isn't as simple for these organizations to be digital across key business functions and tasks or in most interactions and transactions with employees, partners and customers. So, what's a 20th century or older company in need of a modern digital overhaul to do? Pilot, perfect and, over time, provide business results that demonstrate the art of the possible.

This issue of *Cognizanti* is dedicated to heritage companies experimenting with artificial intelligence (AI), blockchain and tailored platforms to more effectively serve their employees, customers and partners. Their efforts illustrate how companies must master the fundamentals that surround new technology adoption and business process change before dramatically over-reaching.

Take insurance giant MetLife, which is piloting blockchain and smart contract technology to enable women in Singapore with gestational diabetes to be compensated for the cost of treatment over their cellphones – without having to file a claim. Or The Hartford, which is employing innovative AI-powered tools to reveal surprising truths about employee turnover to enhance its workplace culture. Then there's Discover and Nacha, which are exploring how distributed ledger technology can make online business purchases safer. Or Geisinger, which is improving patient and population health and wellness while streamlining physician workflows via a platform-centric approach.

We open with a fact-based look at AI and how to ensure its effective and ethical deployment. Veteran IT industry commentator Gary Beach then explores novel ways organizations can restock the digital talent pool. Bruce Rogow concludes the issue with practical advice, gleaned from interactions with top senior business and IT leaders, on proven ways to cut through digital headwinds.

We hope you enjoy and benefit from the views shared by your colleagues and our commentators. If you'd like your own digital journey featured in an upcoming issue of *Cognizanti*, or in our Digital Perspectives app (available both at the Apple App Store and Google Play on smartphones and tablets), contact me at Alan.Alper@cognizant.com. You can also share your point of view on our Cognizant Connections e-community (ask your client partner for an invite).

Scan the below image for a welcome from Editor-In-Chief Alan Alper.

See inside cover for instructions to download the Cognizant AR app.

Get Ready: AI Is Grown Up and Ready for Business

By Rajeshwer Chigullapalli

Despite great enthusiasm for AI, full-blown deployments remain the exception rather than the rule across businesses in the U.S. and Europe, according to our recent research. Businesses can turn the tide by honing their AI strategies, maintaining a human-centric approach, developing governance structures and ensuring AI applications are built on an ethical foundation.

Germinating in R&D labs since the 1940s, artificial intelligence (AI) is slowly but surely moving into the mainstream across the consumer world. But in the enterprise space, AI remains bound by concerns about balancing its responsible development, deployment and usage with its ability to deliver business value. And while there's widespread recognition of AI's immense potential, many organizations are still working to determine how AI can move the needle where it makes the most sense: controlling costs, unleashing new customer experiences and offering an intelligent foundation for creating products and services that drive topline growth.

Given the hype, it's no wonder that the AI market is expected to grow at a strong 36% CAGR to reach $191 billion by 2025.[1] And according to Gartner, global business value created from AI is projected to total $3.9 trillion in 2022.[2]

To gauge executive perceptions of and achievement with AI, we recently surveyed 975 business leaders from organizations in the U.S. and Europe. While our study uncovered widespread

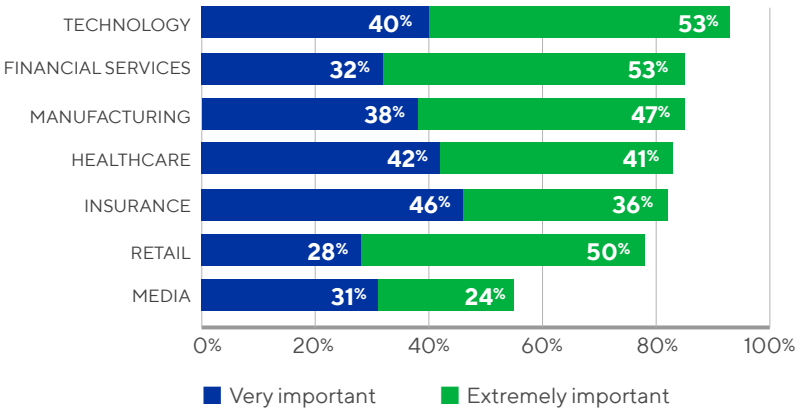
enthusiasm and optimism about AI, it also revealed AI's nascent stage of adoption. For instance, the vast majority of AI projects (78%) remain in experimental stages (i.e., proofs of concept and prototypes).

The state of the state of AI in business

The following are the key takeaways gleaned from our study:

- **Most respondents consider AI to be vital to business success.** The vast majority of respondents across industries view AI as extremely or very important to their business. Not surprisingly, respondents were also optimistic about AI's ability to generate benefits, including cost efficiency, revenues and new products and services. Moreover, most respondents expect major or significant benefits in terms of revenue growth from their use of AI. In fact, almost all expect value to increase significantly within three years, with financial services and technology industry companies leading the pack (see Figures 1 and 2).
- **AI is infiltrating multiple business functions.** Among all business functions, customer service appears to be a prime target for AI use across industries. This is understandable, since customer satisfaction, engagement and buy-in is critical to ensuring business success and justification of an AI-led transformation agenda (see Figure 3, next page).

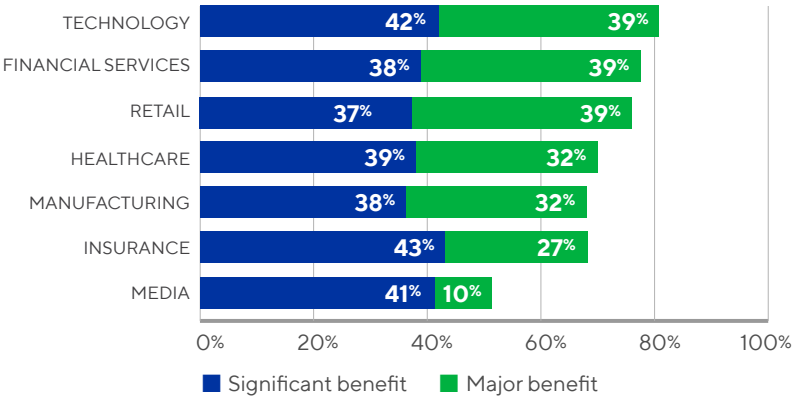
Importance of AI to company success



Base: 975 senior leaders in the U.S. & Europe
Source: Cognizant

Figure 1

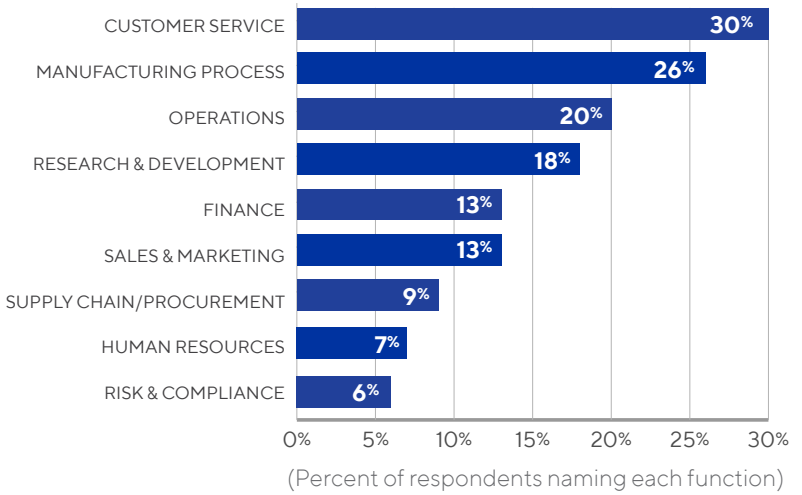
Expected revenue boost from AI



Base: 975 senior leaders in the U.S. & Europe
Source: Cognizant

Figure 2

Top business functions for AI use



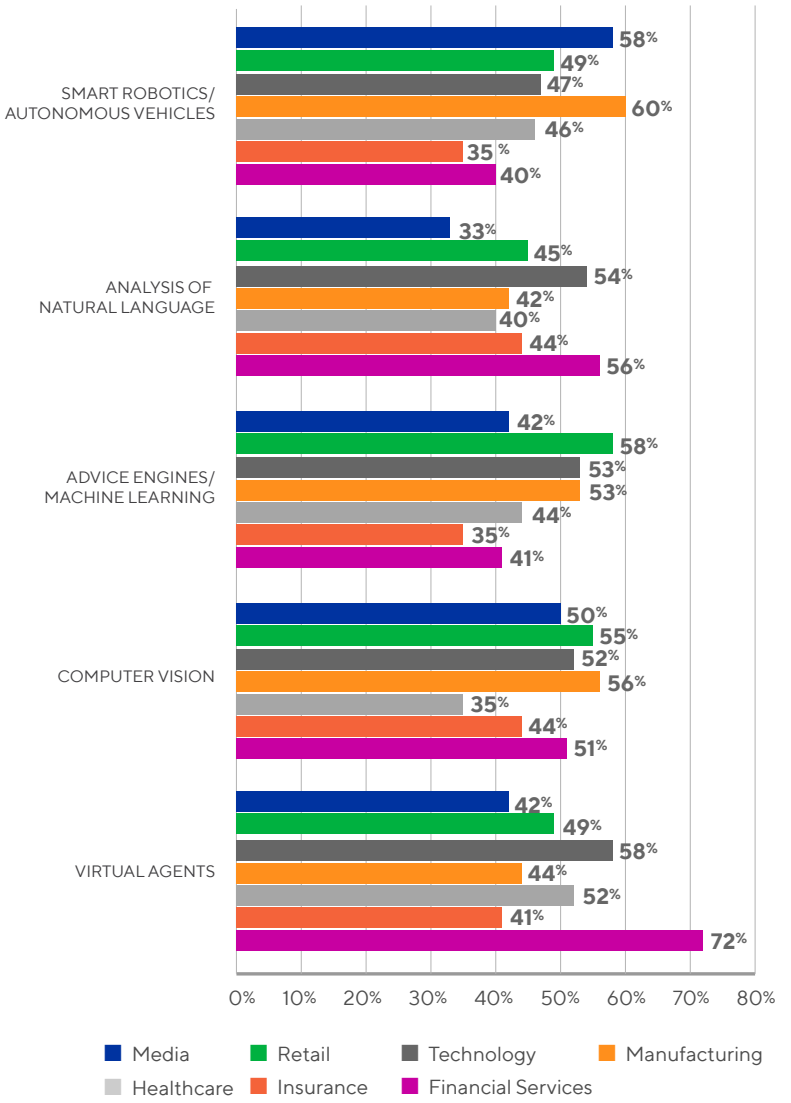
Base: 975 senior leaders in the U.S. & Europe
Source: Cognizant

Figure 3

Organizations are also focusing their AI efforts on areas that are core to the business, such as operations in the healthcare industry, production in manufacturing and R&D in technology.

- **Choice of AI technology is influenced by functional area and associated processes.** Respondents reported using all five of the AI technologies included in our study at a fairly similar rate (see Figure 4).

Many AI technologies currently in use



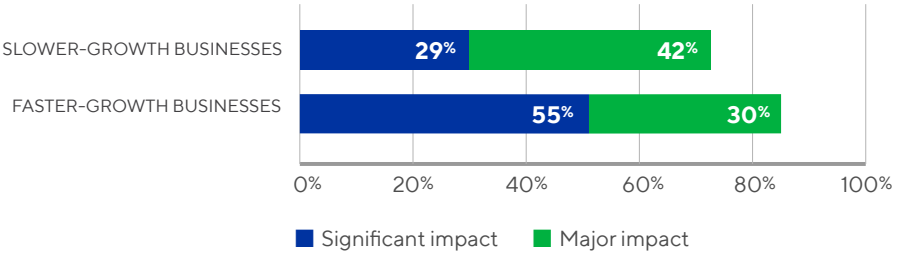
Base: 975 senior leaders in the U.S. & Europe
Note: Multiple responses allowed
Source: Cognizant

Figure 4

Organizations seem to attach equal importance to the various technologies that can power an AI strategy. However, virtual agents (conversational AI) and computer vision (machine intelligence algorithms that recognize patterns, among other things) led other AI technologies by a small margin. Respondents said their companies are selectively deploying technologies tailored to specific functional areas, such as virtual agents for customer service and bots in production.

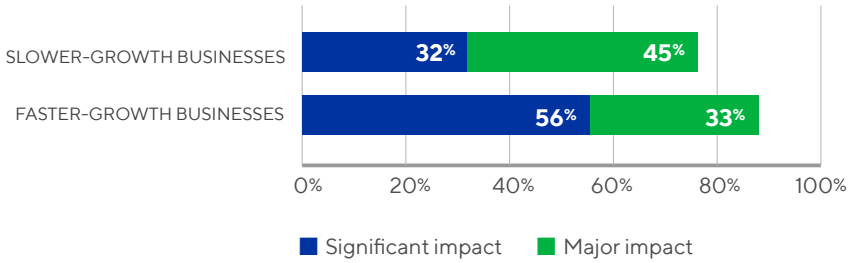
- **Faster-growing organizations appear to be more optimistic about AI and more aggressive in their AI adoption.** Roughly 85% of respondents at faster-growing organizations expect AI to provide a major or significant impact on revenues, compared with 71% of slower-growing businesses (see Figure 5). A higher percentage of faster-growth organization respondents (89%) also expect AI to provide a major or significant benefit in terms of efficiencies that translate into

Expected revenue increase



Base: 975 senior leaders in the U.S. & Europe
Source: Cognizant
Figure 5

Expected cost reduction



Base: 975 senior leaders in the U.S. & Europe
Source: Cognizant
Figure 6

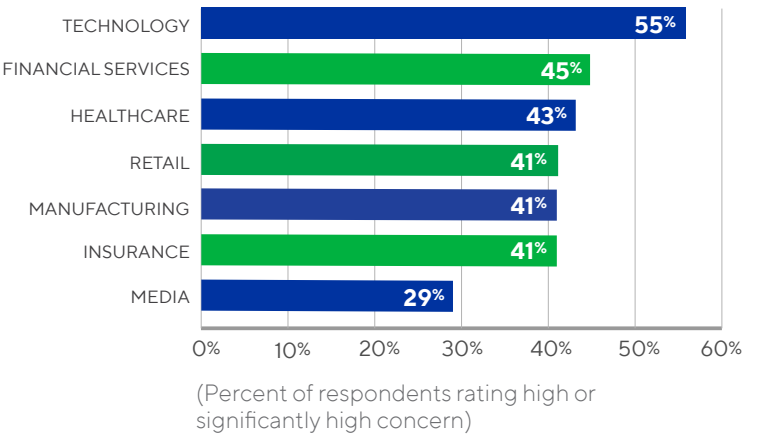
cost reduction vs. slower growth businesses (77%) (see Figure 6). While a significant majority of faster-growth companies (66%) said AI will increase jobs, only 38% of respondents at businesses with slower growth rates said they believed this to be true.

- **AI adoption challenges span talent acquisition, business cases and ethics.** Respondents expressed a similar level of concern regarding challenges on the path to AI, with 40% of executives considering each of the 13 challenges listed to be extremely or very challenging. When that data is combined with the finding that only 15% of respondents were aware of a fully implemented AI project at their organization, it becomes clear that most organizations have yet to hone a clear-cut AI strategy.

  Further, given that top challenges related to senior management commitment, business buy-in, adequate budget and lack of preparedness, it's apparent that many companies are still struggling to define AI's central role in advancing business objectives.

Interestingly, technology industry respondents were more apt than respondents in other industries to be aware of ethical considerations playing a role in AI deployments (see Figure 7). This could be the result of increased scrutiny of the FAANG (Facebook, Apple, Amazon, Netflix and Google)

Concerns over ethical AI vary across industries



Base: 975 senior leaders in the U.S. & Europe
Source: Cognizant

Figure 7

companies relative to their use of data- and algorithmic-enabled analytical decision making, as well as the issues they've had to contend with regarding user privacy. Sustainable and successful AI deployments will need to be built on a foundation that ensures ethical and responsible outcomes.

The road ahead: strategy, governance and ethics imperatives

To successfully move from the nascent stages of AI into full business value realization, we believe organizations should focus on three key areas: AI strategy, governance and ethics. Addressing gaps in these areas can place AI on a sustainable path to delivering desired results. We recommend businesses take the following actions when planning their path to AI:

- **Embrace a human-centric strategy:** In addition to focusing on measurable business value, an effective AI strategy should be geared around solving a human problem and factor in the right combination of machines and human talent – from development and deployment, through usage.
- **Enact an effective governance structure:** Businesses need to engage teams in defining standards, best practices and investment strategies to get the most value from AI. The governance model should ensure that AI-led decisions are reached in a transparent and auditable way while obviating the influence of biases (unintended or otherwise) that may creep into the fabric of AI designs.
- **Build an ethical foundation – and continually maintain it:** For AI to take hold, businesses need to embed processes that ensure integration of ethical considerations into the development, deployment and ongoing usage of AI, both inside the organization's four walls and with customers and partners.

This article was adapted from our primary research-based report "Making AI Responsible – and Effective." To learn more, visit https://www.cognizant.com/artificial-intelligence-adoption-for-business.

Endnotes

1 "Artificial Intelligence Market," Markets and Markets, February 2018, https://www.marketsandmarkets.com/Market-Reports/artificial-intelligence-market-74851580.html.

2 Alex Knapp, "Gartner Estimates AI Business Value to Reach Nearly $4 Trillion by 2022," *Forbes*, April 25, 2018, https://www.forbes.com/sites/alexknapp/2018/04/25/gartner-estimates-ai-business-value-to-reach-nearly-4-trillion-by-2022/#47bf0f433f9b.

Author

Rajeshwer Chigullapalli is an Associate Director within Cognizant's thought leadership program. He has over 25 years of experience in the areas of business research and publishing. Previously, he was the Head of ICFAI University Press and Chief Editor, SPG Media, India. He can be reached at Rajeshwer.Chigullapalli@cognizant.com.

Acknowledgments

The author would like to thank Cognizant Digital Business's AI and Analytics Practice for their contributions to this article, including Poornima Ramaswamy, Vice President, James Jeude, Vice President and Practice Leader, and Bret Greenstein, Global Vice President and Head of the AI Practice.

Scan the above image to hear about MetLife's use of blockchain as told by Zia Zaman.

See inside cover for instructions to download the Cognizant AR app.

From Vision to Reality

How MetLife Applied Blockchain to Solve a Difficult Health Insurance Challenge

By Zia Zaman

Working with well-placed partners, the global insurer launched the world's first automated insurance solution for gestational diabetes in Singapore, taking enterprise blockchain technology from the highly aspirational to the incredibly practical and meaningful. Along the way, it uncovered the potential, and limitations, of distributed ledger technology's uplifting impact on both underserved communities and society as a whole.

In September 2016, a colleague in our innovation center LumenLab walked into my office with a bold idea. At LumenLab, we're accustomed to this; based in Singapore, we were established to build disruptive businesses for MetLife. "Lumen," a measure of light, symbolizes our commitment to illuminating new paths for solving problems faced by people in Asia today.

Still, I underestimated just how pivotal this moment would be. He enthusiastically pitched a new insurance idea based on a smart contract (contracts that verify and carry out credible transactions without third parties), to which I responded, "Wouldn't it be great if we could make an insurance payout as effortless as getting a soft drink from a vending machine?"

This ambitious idea took advantage of the technology underlying Bitcoin: blockchain, or more precisely, distributed ledger technology (DLT).

Validating opportunities

Back then, Bitcoin had yet to reach its peak valuation, and while there was a lot of talk about use cases in the enterprise, nobody, in any industry, had gone and done it. LumenLab thrives on challenges like this.

Over the course of our four-year existence, we've developed and refined our own "test & learn" process for building new ventures (see Figure 1). We measure success in terms of knowledge gained through small experiments, which can subsequently turn into commercial impact. Test & learn is an exceptionally fast and inexpensive way to challenge assumptions, eliminate risk and transform uncertainty into valuable insights – be it consumer pain points (what we call "jobs-to-be-done"), product-market fit or technology readiness.

The process runs in two stages: exploration and experimentation. During the exploration stage, we frame the problem and define what success looks like. We then refine the true job-to-be-done for the customer and generate ideas for how to build solutions. At the end of this stage, we have "fallen in love with the problem" and may have found new ways of solving it.

The test & learn framework

	PHASES		TOOLS	BEHAVIORS
EXPLORATION	1 FRAME	Define and align on scope and success	▮ Goals and bounds ▮ Context capturer	INNOVATION
	2 EXPLORE	Understand our consumers and unlock great insights	▮ Into-the-wild interviews ▮ Persona builder ▮ Jobs-to-be-done finder	CURIOSITY
	3 CREATE	Generate a range of ideas, and align on the best	▮ Solution developer ▮ Ideation sprint ▮ Rule breaker	EXPANSIVITY
EXPERIMENTATION	4 BLUEPRINT	Develop and refine our solution to setup for success	▮ Value proposition ▮ Competitor mapper ▮ What-if financials	EXPERIMENTALITY
	5 EXPERIMENT	Set-up and run "pretotypes" to test and learn efficiently	▮ Assumption mapper ▮ Adaptive planning ▮ Experiment designer	VELOCITY
	6 PILOT	Launch our pilot to build and move toward scale	▮ Minimum viable product ▮ Elevator pitch	BRAVERY

Figure 1

During the experimentation stage, we formulate a value proposition, run small-scale experiments to test our assumptions, and iterate until we're confident with building a pilot. The result is real-world validation that can be used to build commercial products – without the risk and uncertainty that typically accompanies new ventures.

Using blockchain to serve the underserved

When we set out to build the world's first blockchain-powered health insurance application, we needed to make sure it offered real benefits. Do the benefits of blockchain line up with real customer needs? Is the technology ready for actual insurance customers? Can we align the right group of partners to build a system on blockchain? These are just some of the questions we had when we started, and we would methodically answer every one of them as we moved forward.

Our first challenge was to find a proper product scope. We needed to cover a risk that was relatively low in cost but still represented a latent coverage gap for customers. It needed to be a niche market so we could keep it small enough to experiment. And we needed a short claim period, with a high enough incidence rate to ensure we could learn enough about the end-to-end customer experience in a short time span. After much deliberation, a team member's pregnant wife suggested a solution: gestational diabetes mellitus, or simply GDM.

GDM is a form of diabetes that develops during pregnancy, occurring either when an expectant mother can't produce enough insulin, or the insulin is not working well enough to act on the sugars in her body. This leads to excess glucose in the bloodstream, which can be passed on to the baby. Associated complications during pregnancy and labor include excess birth weight, premature birth and, in some serious cases, stillbirth. GDM affects one in five pregnant women in Singapore[1] and, crucially, is typically not fully covered by general health insurance. In other

GDM affects one in five pregnant women in Singapore and is typically not fully covered by general health insurance. In other words, we'd found a real, addressable need that cut across the population.

words, we'd found a real, addressable need that cut across the population.

Hence, Vitana was born. But we couldn't do it alone.

Assembling the right partners

A key benefit of blockchain is that it eliminates many of the processes that add to the cost of insurance for customers – including underwriting, onboarding and claims processing. Our vision for Vitana was to shortcut the process to provide a frictionless experience for customers. We wanted customers to sign up in just a few minutes and our policies to be issued completely hassle-free. To top it off, we wanted to completely eliminate the claims process for customers afflicted with GDM. This meant payouts would automatically appear in patients' bank accounts upon diagnosis – zero paperwork.

To realize this vision, we had to connect disparate data from many different systems. We needed clinics to help us distribute Vitana, electronic medical records (EMR) providers to record customer data, and a technology provider with deep expertise with DLT to help us implement our ambitious plans.

Because MetLife doesn't have a traditional insurance business in Singapore, we also partnered with Swiss Re to reinsure the risk and offer valuable insight on product design and delivery in the Singapore market. Additionally, the Monetary Authority of Singapore (MAS) provided the regulatory sandbox that made the whole experiment possible.

Our team of collaborators also consisted of Singapore's largest clinic group, Singapore Medical Group (SMG), EMR start-up Vault Dragon, and business services provider Cognizant. Together – over the course of six months – we developed a customer journey, reengineered clinical processes and built the technology that turned Vitana into reality.

Our vision for Vitana was to shortcut the process to provide a frictionless experience for customers. We wanted customers to sign up in just a few minutes and our policies to be issued completely hassle-free. To top it off, we wanted to completely eliminate the claims process for customers afflicted with GDM.

The truly transformational moment happens at the "claim" stage. From a customer's perspective, it's all invisible and completely frictionless.

Vitana in practice

Vitana has two elements: a mobile app for customers and a blockchain back-end to act as the source of truth for all involved parties. But for all the technology involved in Vitana, our focus was on the customer journey.

Early in her pregnancy, after being informed about the risks of GDM and being told about the innovative new coverage, the expectant mother is encouraged to sign up by simply downloading the app and entering her government-issued ID number. The app automatically connects to the customer's electronic medical records and populates personal information. All that remains is for the customer to answer three simple underwriting questions and enter payment information. This takes about two minutes – and she is instantly covered.

A smart contract is automatically created, encrypted and deployed to an Ethereum blockchain. This creates a policy document, which is emailed to the customer virtually simultaneously. All parties – clinics, insurers, reinsurers and regulators – now have visibility of new policies in real time. It doesn't just strengthen communications; it eliminates much of the transaction costs for the parties interacting with one another.

The truly transformational moment happens at the "claim" stage. From a customer's perspective, it's all invisible and completely frictionless. Around Week 25, the expectant mother is tested for GDM by her clinic, which updates her EMR with the results. Should the customer test positive for GDM, the EMR automatically writes the result onto the blockchain. The smart contract then executes, and a payout is automatically triggered to the customer's bank account.

Again, all parties are instantly notified, and the insurers – in this case, us – can process the "claim" and make the payment, without the customer ever contacting MetLife.

Triggering the smart contract

When downloaded, the Vitana app automatically connects to the patient's electronic medical record and deploys a smart contract to the blockchain. All parties now have visibility into new policies in real time. If the patient tests positive for GDM, the EMR automatically writes the result onto the blockchain, which executes the smart contract and triggers the payout to her bank account.

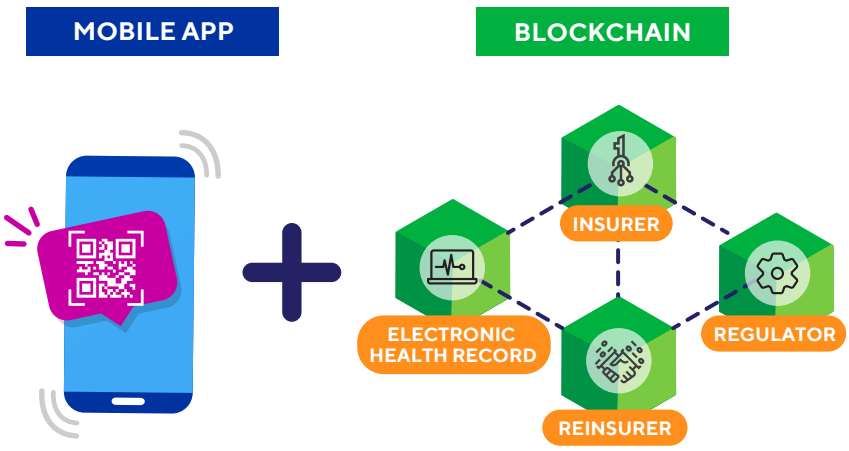


Figure 2

Takeaways to date

Vitana was designed as a time-bound experiment in the sandbox of MAS. As a progressive regulator, MAS delivered on the spirit of a public-private partnership and was pivotal in the cocreation of this initiative. At the time of writing, many conclusions are still to be drawn; however, some lessons stand out already:

1

We found a real customer need in GDM, and blockchain helped us put together a seamless, frictionless experience for customers afflicted by the condition.

Offering real value to expectant mothers in a time of need has been a rewarding and gratifying experience. We are serving the underserved; the potential for us to insure future risk pools will increase access to and inclusion with insurance. This is arguably Vitana's greatest potential legacy.

2

Real-time shared data across all parties using blockchain is invaluable.

It is our firm belief that as the technology matures and new platforms emerge, the future of data will be decentralized. One added benefit is increased data protection for customers, whose data can be shared in encrypted fashion only.

Using blockchain, we can imagine a world where we can offer new services and products more simply and at a fraction of the cost of traditional systems, meaning we will be better equipped to serve customers' micro-protection needs.

3

Getting data prepared to go onto blockchain might be more difficult than setting up and executing the distributed ledger technology.

When we designed the process flow in partnership with the clinic, we needed to rewire existing processes, which was an incredible change management effort, and even then we weren't able to eliminate all manual steps.

A word of caution: Operating on blockchain increases the required trust in the integrity of the data and the reliability of the processes that other parties use to feed to the ledger. You can't just go back and change a record when it is immutable. This is not what you typically hear at Consensus conferences,[2] but it is a lesson we will remember for our future solutions.

When we designed the process flow in partnership with the clinic, we needed to rewire existing processes, which was an incredible change management effort.

The beauty of blockchain is that it makes it clear to first-time insurance buyers that if "this" happens, then "this" is what you get, automatically. Effectively, it increases trust between insurer and customer, which is the basis for fulfilling relationships going forward.

The future of blockchain in insurance

As we continue to gather insights from the early success of Vitana, many insights and lessons emerge for potential future blockchain-based experiments. These key insights stand out:

- **Parametric insurance:** This is a type of insurance that does not indemnify the pure loss, but *ex ante* agrees to make a payment upon the occurrence of a triggered event.[3] Its key benefit is around simplicity and targeted accessibility to create low-cost, niche products.
- **Frictionless experience:** We expect sign-up for the product to be simple (minimal underwriting) and claim payments to be automatically triggered based on an objective, quantitative result for the customer. This reduces risk of fraud and eliminates the need for the traditional claims process.
- **Fully automated back-end:** Our back-end processes will eliminate all manual steps to ensure the smooth servicing of future products. This will enable faster, cheaper and more efficient processing.

At a meta level, this is a peek into the future of our industry and possibly a way to include the next two billion people in the world of insurance, driving greater financial inclusion of our four identified underrepresented segments: women, middle-class farmers, octogenarians and people of faith.[4]

It works because of two factors: simplicity and trust. The beauty of blockchain is that it makes it clear to first-time insurance buyers that if "this" happens, then "this" is what you get, automatically. Effectively, it increases trust between insurer and customer, which is the basis for fulfilling relationships going forward.

Endnotes

1 Salma Khalik, "Diabetes Fight Focuses on Pregnant Women," *The Straits Times*, March 29, 2016, https://www.str aitstimes.com/singapore/health/diabetes-fight-focuses-on-pregnant-women.

2 Consensus is the annual gathering of the cryptocurrency and blockchain technology world. For more information, see https://www.coindesk.com/events/consensus-2019.

3 This means the agreement takes place before the event occurs.

4 LumenLab Annual Report 2018: http://lumenlab.sg/2018/12/20/annual-report-2018/.

Author

Zia Zaman joined MetLife in July 2014 as the Chief Innovation Officer for the company's Asia region and Chief Executive Officer of LumenLab, an industry-first innovation center. As a member of MetLife's Asia Leadership Group, he is responsible for steering the company's innovation agenda across the region and around the world, with a passion for finding new ways to help the underserved.

Much of Zia's inspiration for new thinking sprouted on the two campuses where he studied. Zia holds an MBA from Stanford's GSB. His most formative early years were spent at MIT, where he wrote about probability, traveling salesmen and hockey goalies while pursuing his undergraduate and master's degrees in electrical engineering and operations research. Zia can be reached at Zzaman@metlife.com | linkedin.com/in/zia-zaman-4ba46.


emergency
Geisinger

Digital Helps Geisinger

Redesign Primary Care Services

By Jaewon Ryu, M.D., Karena Weikel, Juliann Molecavage, Rebecca A. Stametz & David Riviello

How can healthcare be made easier for both patients and physicians? This regional U.S. healthcare organization is answering that question by closing care gaps and streamlining workflows with a data-informed, platform-centric approach.

At Geisinger, we work to keep people healthy, and a key component is developing innovative ways to identify and manage clinical conditions, ideally outside of the hospital setting. While this may seem unusual for a health organization with more than a dozen hospital and trauma campuses, this notion of making health easier is front and center in our approach to patient care.

Geisinger is a non-profit, integrated health system that dates to the 1915 founding of its flagship hospital, Geisinger Medical Center in Danville, PA. The physician-led system now comprises nearly 1,800 physicians, 13 hospital campuses, two research centers, an innovation institute, a medical school and a health plan with more than 550,000 members. In addition to fulfilling its mission to bring better health to its patients and members, Geisinger has a long-standing commitment to quality, medical education, research, innovation and community service.

For many years, the practices of the U.S. healthcare industry have made hospital admissions and emergency departments central to care delivery. Not only are these sites more expensive for

providing care, but they haven't always delivered the best health outcomes or experiences either.

Our focus instead spans the care continuum, where we're increasingly building programs to manage populations outside the hospital walls, with a particular emphasis on expanding primary care access. This orientation makes healthcare easier by meeting people where they are. It's easier to get to a clinic than a hospital, and the home is even more convenient still. We are uniquely positioned to do this because of the breadth of our organization, which is designed to improve care for more than 1.5 million patients in Pennsylvania and New Jersey.

To meet patients in these locations instead of in hospital facilities, patients need to stay as healthy as possible. We can help them do this by getting a complete picture of each patient's health status, enabling them to manage existing conditions and even proactively determining whether they're at risk for developing a disease that could be prevented. That's where our Anticipatory Management Program (AMP) app comes in.

Assessing risk to improve care

At Geisinger, we're no strangers to innovation. We're well recognized as one of the earliest adopters of electronic health records (EHR) and for our development of transformative approaches to care delivery (see Quick Take, page 30), such as ProvenCare® or, more recently, the Fresh Food Farmacy or Geisinger at Home. Continuing this tradition of innovation, the Steele Institute for Health Innovation was formed in 2018. This institute forges a new generation of leading-edge solutions that aim to drive greater affordability, improve quality and increase access.

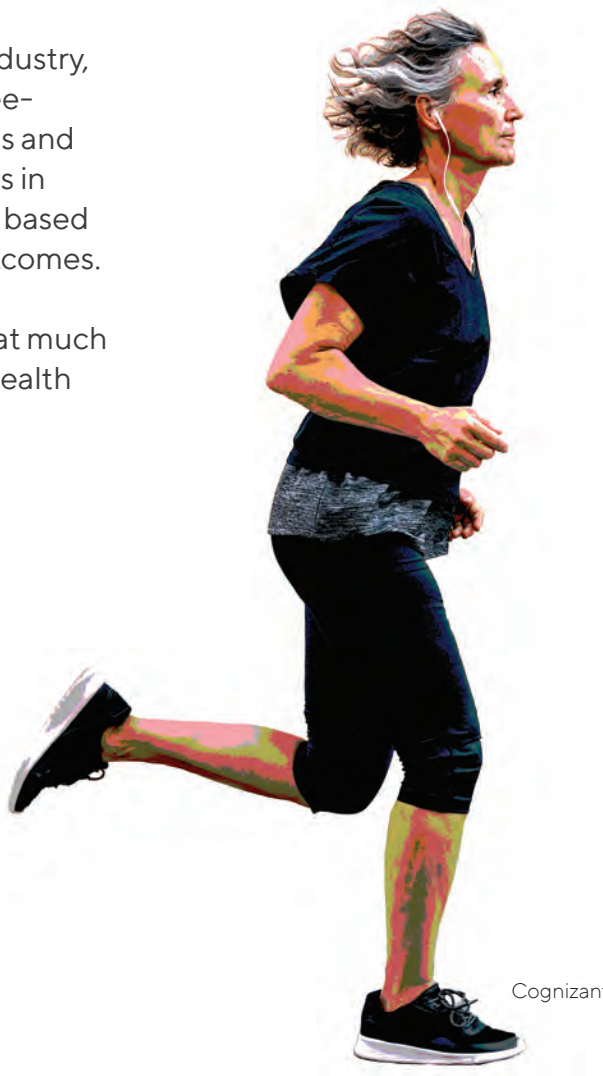
To meet patients in these locations instead of in hospital facilities, patients need to stay as healthy as possible. We can help them do this by getting a complete picture of each patient's health status, enabling them to manage existing conditions and even proactively determining whether they're at risk for developing a disease that could be prevented.

With AMP, we recognize that improving care quality, identifying gaps in care and the patient's risk for developing an illness are all tightly intertwined. The industry often defines care gaps as missed health screenings based on patient gender, health status, socio-economic factors and age. These screenings include mammograms, colonoscopies, prostate and nephropathy screenings, regular hemoglobin A1c (HgbA1c) tests and dozens more.

By filling these gaps, Geisinger can take better care of individuals, understand our communities' disease burden more deeply and coordinate interventions appropriately. Each of these capabilities is important to Geisinger as we, and the industry, move steadily away from fee-for-service business models and toward value-based models in which reimbursements are based on the quality of health outcomes. Without complete health information, it becomes that much more difficult to optimize health outcomes.

Closing gaps with digital

Previously, identifying and closing gaps had been a largely manual process. The ambulatory and primary care practices used paper forms to list patients' care gaps, making it difficult to capture discrete data such as errors or omissions caught by physicians. Our teams needed a more effective way to create a complete and accurate view of patients and care gaps, ideally embedded in the physicians' workflows. We also needed to be more proactive about identifying potential conditions, not just current documented health.



The Doctor Ordered Food

Geisinger prescribes healthy food combined with clinical intervention and education to take on Type 2 diabetes

By Allison Hess

At Geisinger, our Fresh Food Farmacy™ program is showing us that grocery carts filled with lean meats, whole grains and fresh fruits and veggies are as effective as some medications.

Type 2 diabetes is a major issue in the central Pennsylvania communities we serve. To meet our patients with uncontrolled Type 2 diabetes where they are, we had to address a key obstacle: food insecurity. Type 2 diabetes responds to a better diet, but many of our patients with the condition regularly experience hunger and/or don't have money for or access to healthy foods.

Our Fresh Food Farmacy program addresses those problems. We opened our first Food Farmacy in 2016 and launched two more this summer. The Farmacy provides food for patients and their households to make 10 meals per week using fresh fruits, vegetables, whole grains, lean meats and other staple items. Patients work with care teams to set and meet goals to control their diabetes and may receive food prep and meal planning advice, nutritional guidance, health education classes and healthy recipes.

We rely on data analytics to show our Food Farmacies are improving population health, closing care gaps and reducing the cost of care. Data from our initial patients enrolled in our first Fresh Food Farmacy in Shamokin, PA, shows those patients experienced an average two-point drop in HbA1c levels, along with lower weight, blood pressure, triglycerides and cholesterol. In comparison, common diabetes medications, on average, help to lower a patient's HbA1c by a half point.

Published data shows there is an $8,000 to $12,000 cost savings for every one point in HbA1c reduction. Applied to our results, we could

potentially see medical savings of $16,000 to $24,000 per patient per year.

These patients also had 27% lower emergency room usage and 70% lower hospital readmission rates, as well as higher participation in primary care and specialty care services, compared with a similar unenrolled population. Patients receiving eye exams increased more than 16%, and more patients participate in other preventive care services, including foot exams, mammograms and colonoscopies.

While frequent check-ups, as well as devotion to prescribed therapies and physical-fitness regimens, can contribute to better outcomes, our Fresh Food Farmacy demonstrates that a proper diet can go a long way toward enabling those with chronic illnesses to live healthier lives.

Author

Allison Hess is the Vice President of Health Innovations at Geisinger. A 12-year Geisinger veteran, she focuses on building transformative, scalable, measurable and sustainable solutions that improve health, care delivery and the patient experience while lowering cost. Allison earned her bachelor of science in health education with a concentration in psychology from Bloomsburg University. In addition to several certifications, she is currently pursuing her MBA and has been recognized for her leadership and employee engagement efforts within the organization. Allison can be reached at mediateam@geisinger.edu.

Being both a provider and payer enabled us to combine data captured in Geisinger Health Plan medical claims with clinical data in the EPIC™ EHR and, in doing so, migrate from an analog process to a digital one. This enables us to capture diagnosis information from the health claims. All the claims data funnels into a data warehouse, which stores data from a legacy health plan system, as well as claims data from the recently implemented Cognizant TriZetto® Facets® core administrative platform.

Using custom algorithms, we were able to generate insights from these combined data sets and deliver them to our physicians using AMP, which was developed and deployed in partnership with our innovation and care teams. When a physician pulls up a patient record, she accesses this application and information as part of her workflow right at the point of care. This makes it easier to keep an accurate and relevant record of a patient's clinical conditions, thereby triggering the right interventions and care plan.

With these data sets and algorithms, we can find clinical markers in a patient's EHR – such as an elevated blood glucose reading or high body mass index – that enable us to say with confidence that he or she may be suffering from an as-yet undiagnosed disease. Armed with this data during an exam, a physician can decide which screenings or interventions are appropriate, and our care teams and health coaches can help ensure these happen.

When we introduced the EHR-embedded application in 2017, we targeted our patients 65 years of age and older, many of whom have multiple chronic and complex conditions and visit their primary care physicians several times a year. We recently extended the feature to cover patients with disabilities, as well.

While the app and its underlying analytics, algorithms and data warehouse help streamline patient management for teams, a key ingredient in the primary care redesign was to make it easier for care teams to communicate regularly about the patient's care.

Keeping it simple

To address physicians' time pressure, we introduced several program components that have added to AMP's success. For example, the app's user experience is optimized into the current workflow to decrease duplicate effort; physicians tell us the interface is intuitive. We partnered with our end-users to ensure the product's ease of use, including the use of color cues, like red to mark an item as incorrect. Ongoing one-to-one and group training sessions emphasize the correlation between closing care gaps and more effective care teams. This helps keep the focus on the clinical problem, not the technology solution.

We've had to overcome several challenges along the way. For example, the health plan's claims processing system captures data coded according to the ICD-9 or ICD-10 healthcare industry coding standards. However, the EHR system allows physicians more freedom in their note-taking verbiage. In the ICD-10 code set, Type 2 diabetes without complications is coded E11.9. But in a clinical record, physicians might write "Type 2" or "Type II" or "Type Two." Given this, we had to map the data carefully so that claims data could interact meaningfully with the EHR.

Daily, weekly and monthly application use reports, analytics and dashboards suggest that physicians have widely accepted the app. The reports also help target individual teams or physicians who exhibit sub-optimal app use.

Redesigning primary care with data

The app is one aspect of our broader primary care redesign, where we've implemented a team-based care model for a defined patient panel. Instead of being a single practitioner, each physician is teamed with additional staff such as nurses, case managers, health managers, community health assistants and pharmacists, all supporting comprehensive care for patients.

While the app and its underlying analytics, algorithms and data

warehouse help streamline patient management for teams, a key ingredient in the primary care redesign was to make it easier for care teams to communicate regularly about the patient's care. For example, teams conduct daily 10- to 15-minute huddle meetings, run by trained moderators, to plan their days as efficiently as possible by being more proactive rather than being reactive. Items covered may include appointment cancellations and schedule openings, newly discharged patients who need follow-up visits, patient calls for advice that indicate a need for a visit, or patients with multiple care gaps to address.

Data drives the care teams. Whiteboards, aka "huddle boards," display aggregate data, results and targets. Physicians use their personal dashboards to identify individual patients. Care gaps that aren't addressed during a visit are investigated promptly as "missed opportunities."

Patients have benefited from the app in many ways. For example, physicians say their typical 15- to 20-minute appointment blocks don't provide ample time to cover all their patients' health issues, especially those with multiple chronic conditions. Appointments would run long, making physicians late for other patients, or subsequent follow-up appointments would be needed to cover missed topics, which increased inconvenience and cost. Physicians were bearing the brunt of the stress of trying to manage this situation.

Now, whenever a patient 65 years or older schedules a visit, the system automatically blocks double the appointment length, or 40 minutes instead of 15 or 20. While not every patient may need that additional time, simply adding a time cushion has taken some of the pressure off providers, who generally report a greater sense of fulfillment. We have rolled out that capability to all of our ambulatory care sites.

Whenever a patient 65 years or older schedules a visit, the system automatically blocks double the appointment length, or 40 minutes instead of 15 or 20. While not every patient may need that additional time, simply adding a time cushion has taken some of the pressure off providers, who generally report a greater sense of fulfillment.

Anchoring new attitudes

The AMP app is an anchor for an extended program in which we track every variable possible related to primary care. The goal has been to fully inform the primary care teams with all of the information inputs available. To that end, the EHR needs to be as comprehensive as possible so the care teams can adapt the care plans accordingly. In turn, great care management helps patients avoid chronic conditions, worsened symptoms, hospital admission or emergency room visits, all of which add to healthcare costs.

Understanding the disease burden is also important for deploying care programs and resources appropriately. The data helps us better understand the patient load, or panel, each physician is carrying. Two physicians may each have a 2,000-patient panel, but if one group largely comprises younger, healthy patients vs. older patients with multiple chronic conditions, the workload will not be balanced.

Previous procedures to monitor panel size and track patients didn't ensure accurate, up-to-date primary care physician data in EHRs. Now, provider groups review records, and the physician who sees a patient the most frequently will have that patient attributed to him. The system also tracks provider productivity. Whether a provider's panel seems overly light or heavy, it can be balanced, sometimes by shifting patients to other providers or recruiting new providers.

This effort and others implemented at Geisinger are all part of the value-based care model and outcomes-driven business model. These models require much more than simply getting away from using current procedural technology coding widgets for billing. They require changing the physician culture and mindset, as well as addressing all the factors that affect a patient's health.

Whether we are providing fresh produce to diabetic patients or developing a precision medicine therapy, it's our physicians and primary care teams that connect our patients with these services. The app helps these teams, and our associates, successfully care for communities and individuals.

Authors

Jaewon Ryu, M.D., J.D., is the President and CEO at Geisinger. Before coming to Geisinger, he served as president of integrated care delivery at Humana and previously held leadership roles at the University of Illinois Hospital & Health Sciences Systems and at Kaiser Permanente. Dr. Ryu received his undergraduate education at Yale University and his medical and law degrees from the University of Chicago, after which he completed his residency training in emergency medicine at Harbor-UCLA Medical Center.

Karena Weikel, A.S.A., M.A.A.A., F.A.H.M., C.S.F.S., is Vice President, Risk and Revenue Management at Geisinger. She is a risk professional with 17 years of healthcare experience and is responsible for managing Geisinger's overall cost of care, trend mitigation, data management, vendor relations, underwriting, provider economics, risk adjustment, operational and regulatory reporting, rate filing support, and organization-wide financial analytics for all lines of business.

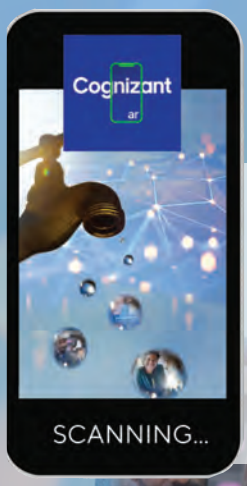
Juliann Molecavage, D.H.A., M.S.H.A., B.S.H.M., is Associate Vice President, Quality and Primary Care Services at Geisinger Health. Her focus is on quality, primary care practice redesign and information technology solutions and operations, and she has led many organization-wide strategic initiatives. Juliann graduated from Walden University with a doctorate in healthcare administration. She is responsible for overseeing quality initiatives for the Geisinger Medicine Institute as well as the implementation of new models of care for Geisinger.

Rebecca A. Stametz, D.Ed., M.P.H., is the Associate Vice President, Product Innovation in the Steele Institute for Health Innovation at Geisinger. She directs a cross-functional, design-led department that deploys software engineering and advanced analytics to create and deliver enhanced value through health information technology throughout the care continuum. As a principal, her research focuses on program implementation, medical transparency, family-patient engagement and learning healthcare system models. Rebecca holds a master's of public health from East Stroudsburg University and a doctorate of education in adult education from Pennsylvania State University.

David Riviello is Senior Clinical Informatics Analyst in the Steele Institute for Health Innovation at Geisinger. His primary role in this initiative has been to advance the analytics and algorithms feeding AMP and measuring key performance indicators. David earned a B.S. in mathematics at Bloomsburg University.

The authors may be reached at mediateam@geisinger.edu.


emergency
Geisinger



Scan the above image to hear Gary Beach's thoughts on the future of learning.

See inside cover for instructions to download the Cognizant AR app.

A Radical Rethink to **Replenishing the Talent Pool**

By Gary Beach

Four-year degrees are so old-school. To flood the workforce with the emerging skills needed today, businesses and employees alike need to relearn how to learn, with faster and less costly approaches to upskilling.

All is not well in the global talent arena. The digital "skills gap" that emerged earlier this decade is widening into a chasm. According to International Data Corp's Futurescape 2019 report, two million jobs in artificial intelligence (AI), the Internet of Things, cybersecurity and blockchain will remain unfilled by 2023 due to a lack of human talent.[1] Some experts claim the only solution is a structural reset focused on how individuals learn. Most agree that the transition won't be easy.

That's because the skills gap has deepened over time. It started in 1964, when the International Association for the Evaluation of Educational Achievement fielded the First International Math Study (FIMS), which ranked student math proficiency of students in 13 developed countries.[2] The U.S., which finished last, was already experiencing a skills imbalance. The first signs emerged in 1942, when the U.S. War Department's Army General Classification Test indicated that 40% of Americans aged 17 to 24 had the cognitive ability of an 8-year-old.[3]

By 1983, officials in the Reagan Administration were so concerned that they commissioned a report entitled "A Nation at Risk," whose ominous conclusion warned: "Our once unchallenged preeminence in commerce, industry, science and technological innovation is being overtaken by competitors throughout the world. ... If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war."[4]

Alarmed by this finding, education administrators and politicians used the report to usher in the era of standardized testing, seeking accountability for the nation's investment in public education.

But times have changed. Rick Miller, president of Olin College of Engineering, proclaimed back in November 2014 that "we live in an age of just-in-time learning facilitated by powerful online search engines, and in the workplace of the future, what one knows will be less important than what one can do with what one knows."[5]

Who will fill the gap?

And yet, in a recent study by Cognizant's Center for the Future of Work (CFoW), only 27% of business executives claim their employees have the skills to work or interact with top emerging technologies, such as AI, big data/analytics, IoT, mobile technology, open APIs and cybersecurity.[6]

That is a huge skills gap. And corporations aren't necessarily looking to higher education institutions for help. In the CFoW study, 67% of business leaders said they're concerned about the effectiveness of higher education institutions to prepare the workforce of the future.

Although AI skills are needed right now in the workplace, it could be 2025 before many college students will find an AI course in their school's content syllabus. Higher education institutions, after all, only refresh their curriculum every two to six years, according to the CFoW study.

No wonder, then, that roughly six in 10 companies are beginning to bear the burden of learning for their employees, according to the study, whether by overhauling their corporate learning and training development programs (65%), increasing their investment in reskilling (62%) or offering specialized training on emerging technology (60%).

That's encouraging. But many chief information officers (CIOs) with whom I speak are reluctant to fully embrace these kinds of programs.

Although AI skills are needed right now in the workplace, it could be 2025 before many college students will find an AI course in their school's content syllabus.

Approaches to upskilling are often grounded in 20th century learning methods such as instructor-led classes rather than on-the-job-training, e-learning and video learning.

They remain convinced that once they reskill employees in an emerging technology area, they'll add this skill to their resume and head off to a different employer.

I disagree with this contention, and thankfully, so do many forward-looking business executives who, according to the CFoW study, are prioritizing skill enhancement programs for workers in robotics/AI (82%), human-centric skills like communication, collaboration and problem-solving (80%), tech skills/web design/UI design (73%), project planning (67%) and discrete tech skills in STEM disciplines (63%).

Overcoming a last-century reskilling mindset

But here's the rub. These approaches to upskilling are often grounded in 20th century learning methods such as instructor-led classes rather than on-the-job-training, e-learning and video learning. If there's a looming shortage of two million workers for jobs in emerging technology areas, where are companies going to find the competent instructors to teach them? I was also surprised to see learning approaches based on AI (28%) and augmented reality (19%) far down the list. That's another skills gap to reckon with.

A study by global recruitment firm Harvey Nash offers further insight into how CIOs are strategically dealing with the skills gap. Respondents were first asked about which tech areas are most impacted by a skills gap. Responses included big data (46%), enterprise architecture (36%) and security (35%).[7]

For me, the key question in the study is this: "Which method do you use to find the right skills?" Rather than innovative reskilling,

If corporations aren't interested in reskilling workers for emerging technologies, and higher education institutions are reluctant to change their insular business models, what options remain for people looking to learn emerging technology skills?

responses ranged from "using contractors/consultants to fill the gap" (85%), "using outsourcing/ offshoring to supplement internal teams" (71%) and "using automation to remove the need for headcount" (67%).

If corporations aren't interested in reskilling workers for emerging technologies, and higher education institutions are reluctant to change their insular business models, what options remain for workers looking to learn emerging technology skills?

The answer? Look in the mirror.

A digital badge of courage

A new approach to learning has emerged in the past five years called "digital badges." They work like this: Imagine a 25-year-old is interested in learning more about digital engineering or AI. With the digital badge model, this person signs up for a course and completes the curriculum, mostly online. Rather than be awarded a certificate suitable for framing in the office, the person is given a hyperlink to a digital badge administered by the organization offering the course.

The digital badgeholder can embed the link in his or her profile on social media sites like LinkedIn, or when responding to open roles on job sites like Indeed. Prospective employers can simply click on the digital badge link to verify the applicant's skills and course accomplishments. Verification of skills and competency is the hallmark feature of digital badges; this separates them from traditional e-learning initiatives.

Scott Bittle, director of communications at Burning Glass Technologies, says digital badges address two skilling challenges: Employers need a more precise way of determining whether potential hires have the required skills, and workers need to earn these credentials in short training sessions that are both quicker and cheaper than a traditional degree."[8]

Kathleen deLaski, founder of Education Design Lab, says digital badges have gained a lot of traction

quickly, but "we need corporate hiring managers to give clearer signals to validate these as credentials."[9]

A recent study from iCIMS[10] of 1,000 technology hiring executives offers three findings that suggest these "clearer signals" are emerging:

- Eighty percent of respondents said they would offer tech job candidates the same salary regardless of whether they had a relevant tech degree.
- Sixty-one percent said a four-year college degree alone does not prepare job seekers to be successful in today's workforce.
- Forty-five percent said they believe that in the next two years a coding bootcamp certificate will be as meaningful a qualification for a skilled technology position as a college degree.

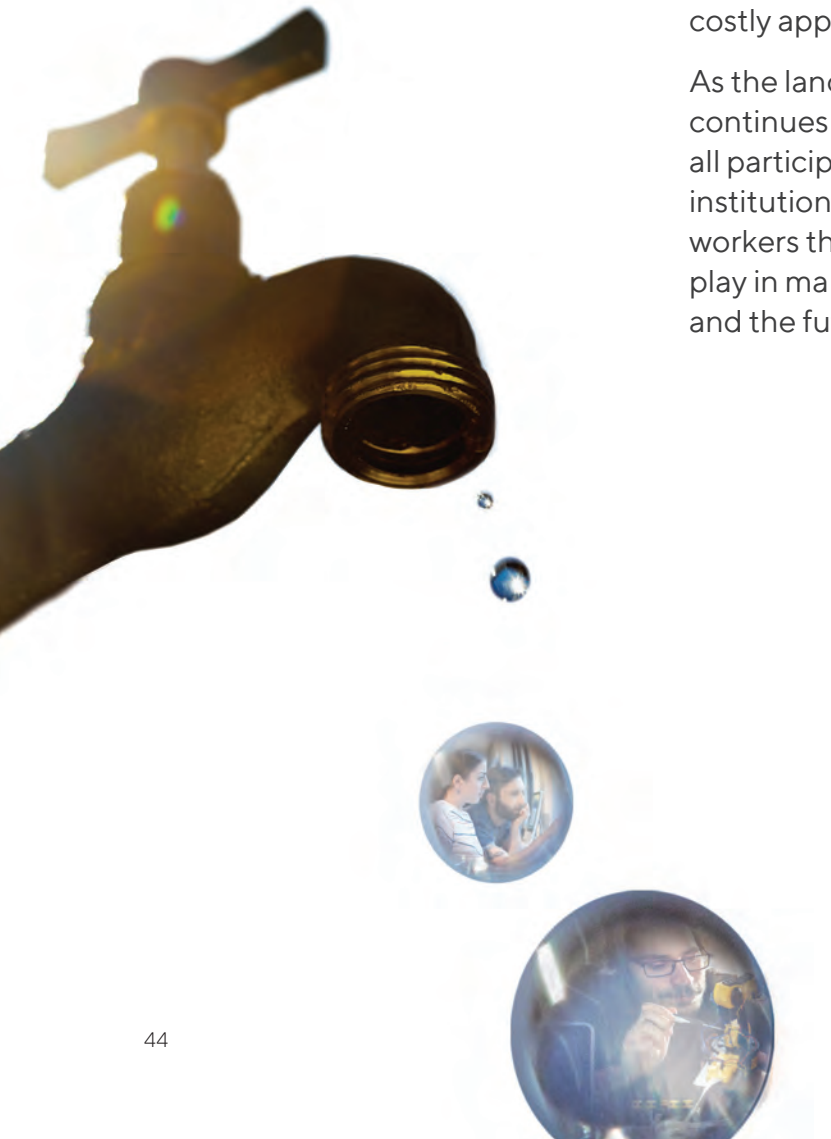
Digital badges have shortcomings. Most notable are the lack of industry standards for course quality or the amount of personal commitment required to earn one. But from what Roger Schank, founder of Experiential Teaching Online and former chief education officer at Carnegie Mellon University, tells me, "In the end, credentials mean what we think they mean. 'I'm a high school graduate' used to mean something; now if you bragged about that,

you would be laughed at. The real issue is what one has actually done and being supported by any credential that means something to corporations. The future belongs to digital credentials."

A different kind of bridge to the future

What's clear is that companies and higher education institutions are not doing enough to bridge the widening technology talent gap. Frank Gens, senior vice president and chief analyst at IDC, offers this ominous prediction: By 2023, the global economy will create 500 million new native applications – the same number created in the past 40 years. To compete in that environment, Gens says, C-suite executives "must consider everyone a developer."[11]

Francois Voltaire, a 17th century French philosopher, wrote, "One day everything will be well, that is our hope. Everything is fine today, that is our illusion."[12] With a shortage of 900,000 emerging-technology workers looming in a global digital economy seeking to roll out 500 million native apps, all is not well. This is especially so in an ecosystem in which "talentism is the new capitalism," as Klaus Schwab, co-founder of the World Economic Forum, says."[13] Business and technology leaders know this firsthand.



It's foolish to continue believing that higher education institutions and corporate training programs grounded in traditional 20th century approaches will offer meaningful solutions to this talent gap.

In the Fourth Industrial Revolution,[14] individuals can no longer primarily rely on higher education institutions or corporations to learn new skills. While it's incumbent on these entities to restructure how they train and teach, that isn't happening quickly enough. In the interim, it will be up to workers themselves to relearn how to learn, or rely on organizations that offer more agile and less costly approaches to upskilling.

As the landscape of work continues to shift in the digital era, all participants – higher-education institutions, corporations and workers themselves – have a role to play in making the future of work and the future of learning a reality.

Endnotes

1 "IDC FutureScape: Worldwide IT Industry 2019 Predictions," IDC, October 2018, https://www.idc.com/getdoc.jsp?containerId=US44403818.

2 "International Mathematics and Science Assessments: What Have We Learned?" National Center for Education Statistics, January 1992, https://nces.ed.gov/pubs92/web/92011.asp.

3 Gary Beach, *The U.S. Technology Skills Gap*, John Wiley and Sons, August 2013, https://www.amazon.com/U-S-Technology-Skills-Gap-Website/dp/1118477995.

4 "A Nation at Risk: The Imperative for Educational Reform," U.S. National Commission on Excellence in Education, April 1983, https://www2.ed.gov/pubs/NatAtRisk/risk.html.

5 Stated during a November 2014 speech at Olin College.

6 "Relearning How We Learn from the Campus to the Workplace," Cognizant, November 2018, https://www.cognizant.com/whitepapers/relearning-how-we-learn-from-the-campus-to-the-workplace-codex3921.pdf.

7 "The 2018 CIO Transformational Study," Harvey Nash, October 2018, https://home.kpmg/xx/en/home/insights/2018/06/harvey-nash-kpmg-cio-survey-2018.html.

8 Scott Bittle, "Show Us Your Badges: Digital Credentials and the Job Market," Burning Glass Technologies, June 17, 2015, https://www.burning-glass.com/blog/show-us-your-badges-digital-credentials-and-the-job-market/.

9 Lindsay McKenzie, "Closing the Skills Gap With Digital Badges," Inside Higher Ed, Sept. 26, 2018, https://www.insidehighered.com/quicktakes/2018/09/26/closing-skills-gap-digital-badges.

10 "iCIMS Study Finds Increased Acceptance of Tech Candidates with Non-traditional Educations," iCIMS, Sept. 17, 2018, https://globenewswire.com/news-release/2018/09/17/1571757/0/en/iCIMS-Survey-Finds-Increased-Acceptance-of-Tech-Candidates-with-Non-Traditional-Educations.html.

11 "IDC FutureScape: Worldwide IT Industry 2019 Predictions," IDC, October 2018, https://www.idc.com/getdoc.jsp?containerId=US44403818.

12 Goodreads website on Voltaire quote: https://www.goodreads.com/quotes/335536-one-day-everything-will-be-well-that-is-our-hope.

13 Klaus Schwab, "The End of Capitalism – So What's Next?" World Economic Forum, April 18, 2012, https://management.co.nz/article/talentism-new-capitalism.

14 Klaus Schwab, "The Fourth Industrial Revolution," World Economic Forum, https://www.weforum.org/about/the-fourth-industrial-revolution-by-klaus-schwab.

Author

Gary Beach is the Publisher Emeritus of CIO *magazine. He is also a guest columnist for* The Wall Street Journal *and author of the best-selling book* The U.S. Technology Skills Gap. *He can be reached at Garybeachcio@gmail.com | Twitter @gbeachcio.*

Attrition Expedition:
Using AI to Chart a Course to Retain Call Center Employees

By Michelle Deitchman

When The Hartford needed answers about reducing employee turnover, innovative AI-powered tools turned up surprising truths. Now the insurer is seeing results from using new strategies to enhance its culture.

The problem had been bubbling for a few years at our company: First-year turnover among a dozen or so customer-facing roles in our call centers was high. The irony wasn't lost on us. If we want to deliver a stellar experience for customers, we also need to deliver a stellar experience for our employees who interact with our customers every day.

We thought we knew the answer.

We didn't. This is the story of how we found it.

A problem that wasn't getting better

Call center turnover is high everywhere,[1] and it was no different for us. However, that's not where our story ends, as we weren't willing to accept that as inevitable. As we reviewed several years of artifacts that had accumulated in our efforts to tackle the turnover problem, we realized our hypothesis had been the same each time: It was a talent acquisition problem. Each time, we'd set out to fix what we thought was wrong with recruiting.

The familiar pattern repeated itself numerous times: When turnover spiked, we'd make a tweak somewhere in the recruiting process and then walk away. But that approach wasn't working - the high turnover in our call centers kept reappearing. To make real, sustainable change, we knew we'd need to take a new approach.

I made a suggestion that, while logical, was contrary to everything I'd been taught as a researcher and statistician: Let's go in without a hypothesis. It was a record-stopping moment. Most of us grew up learning and teaching the scientific method, where you develop a hypothesis and leverage data to prove or disprove it.

While we're a data science environment, we weren't using data science to its full extent to get to the root cause of our problem, often relying instead on assumptions.

We decided to toss out the conventional playbook and pursue a largely untested, AI-driven path. It was unpopular, but fortunately, we found a partner who said, "No hypothesis? That's OK."

Working without a net – or a hypothesis

Our teams got to work. We developed a problem statement and then performed an extensive qualitative analysis that included talking to our employees across the country, reaching more than 700 employees and managers in customer-facing roles.

We pored through project archives from the past decade to find out where earlier efforts had gone wrong. To uncover best practices, we benchmarked companies with lower call-center turnover through phone interviews and site visits.

We partnered with Cognizant to conduct the quantitative analysis. The team deployed innovative machine learning models to analyze over 250 data elements, drawing from our own data as well as third-party sources. Sifting through the information, we identified retention and turnover indicators for customer-facing roles.

The models we created predict retention and turnover with 94% accuracy. To find key themes and employee sentiment, the team leveraged text analytics from multiple employee listening posts and job search sites, including Glassdoor and Indeed, as well as over 100,000 comments from our annual employee survey.

The team deployed innovative machine learning models to analyze over 250 data elements, drawing from our own data as well as third-party sources. Sifting through the information, we identified retention and turnover indicators for customer-facing roles.

Working from a blank slate, we could let data guide our decisions – not intuition or gut feelings.

It was the first time The Hartford utilized employee-related information as input into AI algorithms. Our examination of retention data from a data science perspective was eye-opening: We created new variables, including looking at why people stay. When we started looking at the results, the data that popped the most – regarding career development, remote work, rewards and recognition, and digital badging – was information we weren't always looking at on an ongoing basis. We'd been missing critical indicators for retention and turnover that, individually, generate a 30% to 50% lift in employee retention.

By working from a blank slate, we could let data guide our decisions – not intuition or gut feelings. And as it turned out, it wasn't about recruiting; it was about the experience once the employee arrives.

Taking steps toward a culture shift

Following this discovery, 2018 was a year of analysis and understanding at the local level. In 2019, we've been focusing on retention, recruitment and taking action.

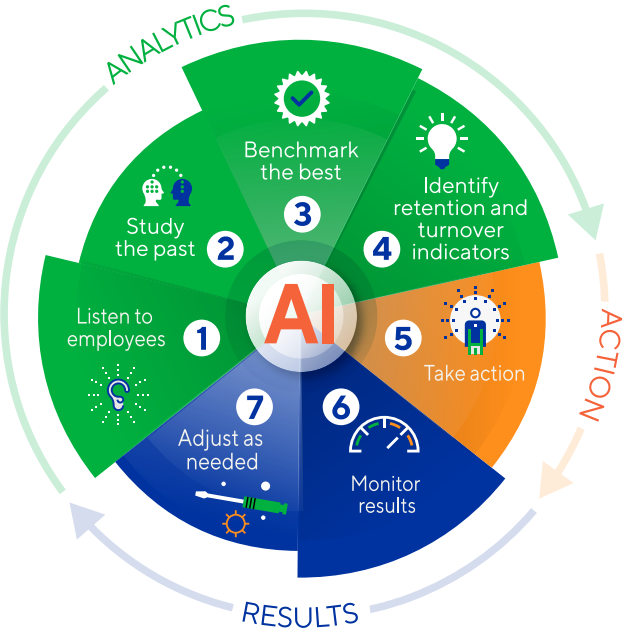
One of the first changes was to our dress code. In place of a list of do's and don'ts, we adopted a simple statement: *Dress appropriately for your day*. It sounds minor, but what we'd heard from employees is that while they believe in The Hartford, our brand and their co-workers, the work is complex, and the policies are sometimes rigid, like our former dress-code policy.

As a result, we're shifting our culture. We're becoming more contemporary, and the dress code change is an important visual indicator that everyone can see. We're incorporating the changes not only into our employee experience, but we're also making them part of our training classes, onboarding teams, first-day experiences and internal communications.

We're also moving toward empowering managers to make

How AI helped The Hartford address retention

By feeding data into predictive algorithms, the insurer arrived at the root cause of its employee retention opportunity. It now uses AI-infused analytics to help sustain improvements.



local decisions. For example, managers can now use their own discretion to reward employees as part of our "on-the-spot" recognition program rather than requiring approval. It sends a message of trust to our employees and managers, and it speeds up the recognition process.

We also created retention risk models – a framework that, as an insurer, is very familiar to us. These models provide a helpful lens through which to view potential turnover issues and help us pinpoint the variables that indicate an employee may be looking to leave.

Operationalizing the models

We decided to operationalize the models we developed, taking the insights and data gained through the analysis and creating an interactive dashboard for leaders to use. The dashboards display attrition and retention indicators at both department and team levels. The data, which is refreshed every month, is sourced from predictive models in our analytics computing environment.

The dashboard is an important part of sustaining progress; we're

taking action on root causes and will continue to monitor and assess attrition risk and retention.

We're taking a rolling adoption approach for the dashboard and deploying in small pilots that will give us an opportunity to refine the training and tackle some of the more complex cultural changes, such as how to ensure managers with higher-risk employees are taking the right actions and not giving up on their employees.

The results have exceeded our expectations. Taking action on indicators such as career development, digital badges, on-the-spot recognition and remote work has already improved retention over 20 points. We've also seen improvements in our Glassdoor and Indeed comments and scores.

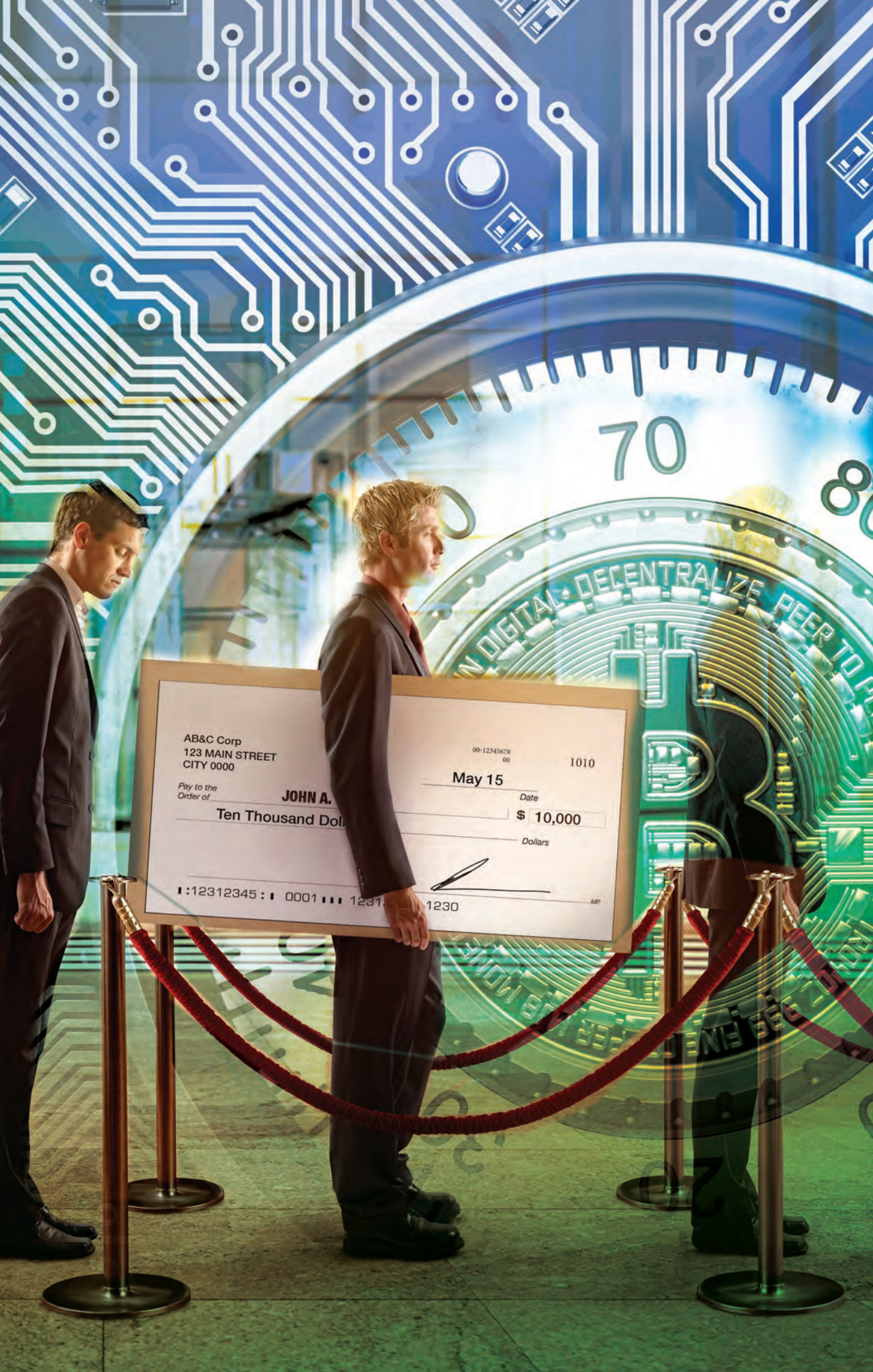
Letting go of our long-held hypotheses has given us new opportunities. Using innovative, AI-driven tools, we can now identify ways to improve employee retention and, perhaps more importantly, model for our employees the experiences we envision for our customers: people-focused, engaging and positive.

Endnotes

1 Penny Reynolds, "Exploring Call Center Turnover Numbers," Quality Assurance & Training Connection, 2015, https://qatc.org/winter-2015-connection/exploring-call-center-turnover-numbers/.

Author

Michelle Deitchman is the Head of Employee Experience & Insights at The Hartford. She has over 20 years of experience in the areas of process improvement, data & analytics and program leadership. Prior to joining The Hartford, Michelle held leadership roles across multiple industries and functions including manufacturing, engineering, technology, operations and financial services. Michelle earned her BA in international business & management and psychology from Dickinson College, her MS in industrial & organizational psychology from Springfield College and her MBA in operations management & marketing from Rensselaer Polytechnic Institute. She can be reached at https://www.linkedin.com/in/michelle-deitchman/.


AB&C Corp
123 MAIN STREET
CITY 0000
00-12345678
00
1010
May 15
Date
Pay to the
Order of
JOHN A.
Ten Thousand Dol
$ 10,000
Dollars
:12312345:
0001
1230
MP
70
DIGITAL · DECENTRALIZE · PEER TO

Tapping Blockchain to Slash Costs, Enhance Trust and Speed B2B Transactions

By Micah Kerr & George Throckmorton

Nacha and Discover Financial Services are exploring how distributed ledger technology and smart contracts can make online purchasing safer, faster and less costly for business partners.

In the business-to-consumer space (B2C), most of us have enthusiastically embraced the speed and convenience of digital payments vs. writing a check. The same can't be said for the business-to-business (B2B) world.

In fact, just over half of B2B payments in the U.S. are still made by paper checks.[1] These are a tempting target for crooks, with 75% of companies surveyed by the Association of Financial Professionals reporting actual or attempted check fraud.[2] Checks also slow down the payment process, especially for smaller companies with cumbersome accounting systems that make it difficult to issue invoices on-time and track outstanding payments.

Using electronic payments, such companies can more easily define payment terms with customers, provide incentives for early payments, send automatic payment reminders and pass on transaction fees to customers.

Many businesses still rely on checks because of the difficulty they experience when seeking complete, validated electronic payment information about suppliers. Add to this the fact that remittance details aren't physically linked to payment details, as they can be with a check, and the reluctance to embrace digital payments grows.

B2B payers and payees have discussed this problem for more than a decade. The drive to solve

it with a new, interoperable B2B directory moved into high gear in fall 2018 when electronic payments association Nacha acquired the Business Payments Directory Association. The latter had already defined the requirements for a solution, which included more open and interoperable directories that would make it far easier for payers and payees to find reliable information about each other. At the same time, awareness was growing that distributed ledger technology (DLT), the critical infrastructure that powers blockchain networks, was a strong contender to meet these needs.

With Discover Financial Services and Cognizant, Nacha is now deeply involved in examining how DLT and smart contracts can enhance trust and reduce the cost and delays of online B2B payments. This work was done under the auspices of the Nacha Corporate Experience, a program that demonstrates how bringing advanced technologies and financial industry standards together to create an evolving suite of products and services can improve every aspect of the B2B payment process.

How we settled on blockchain as the foundation for Nacha's Business Payments Federated Directory (BPFD), and how we plan to implement it, hold valuable lessons for any enterprise investigating the ability for blockchain/DLT to meet modern digital business requirements.

Business needs first, technology second

One of our biggest takeaways was the importance of starting with a business challenge or opportunity and then seeking technology that can support it rather than the opposite – starting with an intriguing new technology and finding a use case for it. Through this approach, we ascertained that a permissioned, private blockchain network would be the best foundation for creating a B2B directory that would help partners work in a safe and trusted way. This includes providing secure registration of their confidential payment information, such as account numbers, preferred payment methods, and credit card and wire payment information.

One of our biggest takeaways was the importance of starting with a business challenge or opportunity and then seeking technology that can support it rather than the opposite.

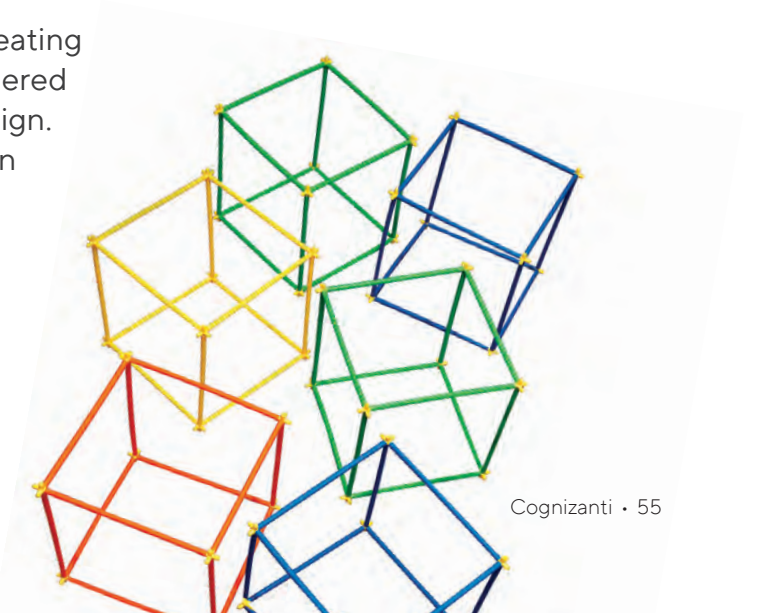
While there's been much speculation about using blockchain for funds transfer, we believe it's equally applicable to the prepayment phase.

A B2B directory could improve the supplier experience by eliminating the need to register with multiple directories while also allowing for more closely controlled access to payment information. Such interoperability would enable multiple credentialed service providers (CSP) to link their own directories and share information with each other. The environment would also enable all parties to:

- **Specify their preferred payment method**.
- **List multiple payment types** and the information required to allow companies to utilize them.
- **Provide secure access** to confidential information about payers and payees.
- **Rely on a trusted source** for routing and remittance information to reduce risk and ensure compliance.

When we first looked at creating such a directory, we considered a centralized database design. But the need for encryption and privacy, as well as for decentralizing sensitive data to avoid creating a "honey pot" for hackers, made blockchain the obvious choice. The directory's use of hashes stored on blockchain to validate the integrity of buyer and seller data helps assure that payers and payees receive accurate and up-to-date information. By adding smart contracts executed on blockchain, we can control access and update rights, and automatically inform all authorized users of changes to the data.

While there's been much speculation about using blockchain for funds transfer, we believe it's equally applicable to the prepayment phase because of the technology's innate ability to verify and share partner credentials through a highly protected directory.



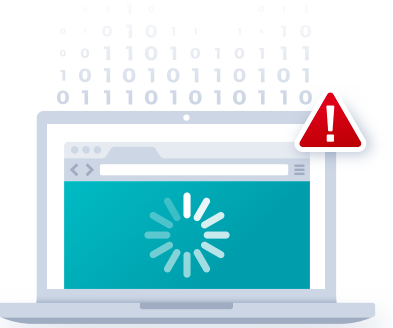
B2B payments processing: before and after

Today **SLOW. COMPLEX. INEFFICIENT.**

Buyers and suppliers agree that significant gaps exist today in supplier onboarding, obtaining payment information and connecting to proprietary technologies. Businesses address these gaps today with costly, time-consuming, paper-dependent, manual processes that lack standardization.

1 New supplier onboarding is slow

Obtaining and maintaining supplier payment and compliance information is time-consuming. Performing additional functions to ensure the safety and reliability of the data adds additional complexity, risk and cost.



2 Remittance complexity lowers cash-application hit rate

Many suppliers have specific remittance specification requirements for cash-application processes to realize the benefits of electronic payments. Often, buyers are not aware of the supplier's specific remittance format requirements and send non-compliant remittance with the payment or may just continue the use of costly check payments.

3 Proprietary bank connections create inefficiencies

Technologies such as APIs continue to increase the speed of the payment origination process for businesses; however, without standardization, businesses are required to support unique financial institution implementations, resulting in high resource costs.

Tomorrow

FAST. SIMPLE. STANDARD.

By bringing together advanced technologies like DLT and smart contracts, Nacha and Discover are exploring ways to enhance trust and reduce the cost and delays of online B2B payments.

1 Real-time new supplier onboarding

The interoperability of Nacha's BPFD, which utilizes blockchain technology, allows all businesses to seamlessly connect and securely exchange payment information. Credentialed service providers (CSP) ensure that the connected business information is valid and accurate, which provides confidence for buyers and improved cash application for suppliers. In addition, information is only shared when businesses give permission. Maintaining valid payment and remittance data is automated via real-time change alerts.

2 100% cash-application hit rate with Nacha remittance validator

The pre-payment option allows buyers to validate the accuracy of B2B payment remittance formatting specific for each supplier. Suppliers upload specifications to the cloud service that notifies them when buyers have tested and are compliant. This greatly improves the supplier's cash-application process and rate of straight-through processing.

3 Standardized API connections to bank with

One standard API, regardless of financial institution or network, reduces technology development costs and ensures acceptance and consistent response for all participants to communicate with their banks to initiate payments, check payment status, and conduct related payment communications.

Source: Nacha

Moving forward with a tailored implementation

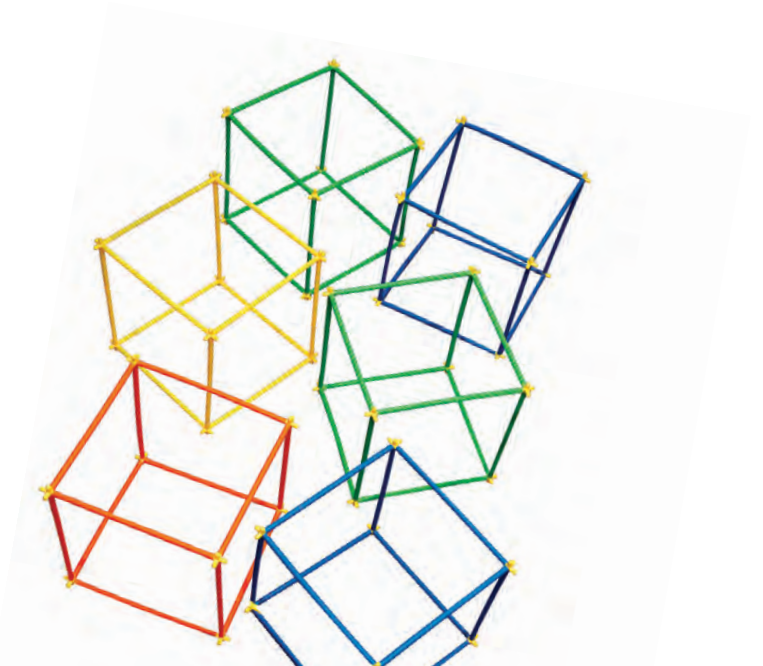
It's also essential to adapt the use of blockchain to its actual strengths and weaknesses, not its most hyped features. For example, when people refer to "decentralization" in the blockchain world, they usually mean "open" and "public." That wouldn't work for our B2B directory. Instead, we consider it to be a controlled access network, where the end points (CSPs such as banks that hold critical payer and payee data) are decentralized and maintain their own records of the businesses they support. Blockchain technologies sit in the middle, maintaining access rights and ensuring data integrity.

The service also builds on Nacha's experience with creating security and compliance rules for the 11,000 financial institutions linked to the Automated Clearing House (ACH) network, and the fact that most of the CSPs are trusted players, such as financial services firms that are accustomed to meeting rigorous data security and integrity rules.

Finally, we're not trying to force the CSPs, payers or payees to build and support blockchain solutions. Using our blockchain-based service only requires them to understand the required API calls, which is a widely understood technology.

Payment flows on blockchain

A payer or payee initially finds basic information, such as address and contact number, about the counterparty with which they want to trade through a public, unencrypted source. If the payer or payee lacks permission to access the full information needed to complete payments, a



request is sent to the counterparty through blockchain to share that information.

If permission is granted, blockchain provides the payer or payee's CSP with the necessary token and URL to request the payment and remittance information from the counterparty's CSP via a standard API developed by Afinis Interoperability Standards.[3] That CSP confirms the token and grants permission to access the blockchain network, which then sends the required payment information to the CSP, again using a standard API response.

The payer or payee's CSP then confirms the hash value with the blockchain network to assure the information's validity and provides the payment and remittance information to the requesting business.

We've completed a successful proof of concept and are moving to a pilot later this year, with planning underway for a subsequent production service. In addition, we've developed a robust governance model defining the roles and responsibilities for the payees, payers and CSPs, as well as basic rules and liabilities for all participants. We also provide guidelines specifying the level of security needed for the initial authentication of payers and payees, such as the use of multiple authentication factors.

The benefits of a B2B directory on blockchain

This directory will provide:

- **A single registry** with all the information required to complete B2B payments – including remittance payments – using multiple payment methods for any payee.
- **A trusted "single source of truth"** for confidential payment information.
- **Reduced costs** for payers seeking to acquire data about payees.
- **Real-time onboarding** of suppliers vs. current delays of up to two weeks.
- **The ability to more quickly** and easily find the information required to pay new suppliers to meet sudden surges in demand or the need for specialized products and services.
- **Instant and automatic notification** of all parties about changes in the confidential data of thousands of payers and payees.
- **A business model** designed to ensure affordable pricing, interoperability and services that complement rather than compete with those of other B2B directories.

Most importantly, we believe this service will unlock the power of blockchain to reduce transaction costs and speed payment processing through the secure sharing of decentralized business data. It's also shown us the power of looking at technology through a business-first lens, and of working with experienced domain partners to tailor an emerging technology to real business needs.

Endnotes

1 "Why Checks Still Exist and the State of B2B Payments," Wharton FinTech, Jan. 29, 2018, https://medium.com/wharton-fintech/why-checks-still-exist-and-the-state-of-b2b-payments-b41f3cddea9c.

2 "AFP Survey: Payments Fraud Hits Record High of 78%," Association for Financial Professionals, April 10, 2018, https://www.afponline.org/ideas-inspiration/topics/articles/Details/afp-survey-payments-fraud-hits-record-high-of-78.

3 Afinis Interoperability Standards is a membership-based standards governance organization under the Nacha umbrella that brings together diverse collaborators – through innovative and agile processes – to develop implementable, interoperable and portable financial services standards across operating environments and platforms.

Authors

Micah Kerr is Head Architect, Commercial Payments, and blockchain guru at Discover Financial Services' IT Innovation and Partnerships Group. As a central member of Discover's Innovation Office, Micah leads the organization's technical strategy efforts for blockchain. With over 20 years of experience in leading technology initiatives, he is Discover's most senior IT professional related to its commercial payments efforts. Micah managed the architectural design of the award-winning Ariba® Pay™ product in partnership with SAP. Micah is recognized as an expert in the field of payments and related technologies. He can be reached at MicahKerr@discover.com.

George Throckmorton is the managing director for Strategic Initiatives and Network Development at Nacha, where he leads innovations in mobile payments, distributed ledger technologies, cloud-based financial services, API standards development, payments consulting and evolution of the ACH network. He also serves as Executive Director for Afinis Interoperability Standards and the Business Payments Directory Association. Prior to joining Nacha, he spent his career in banking operations and product management working for firms such as SunTrust Bank, Fiserv, and ACI Worldwide. George can be reached at GThrockmorton@Nacha.org.


AB&C Corp
123 MAIN STREET
CITY 0000
00-12345678
00
1010
May 15
Date
Pay to the
Order of
JOHN A.
Ten Thousand Dol
$ 10,000
Dollars
:12312345: 0001
1230
MP

On the Road to Digital: **Practical Encounters**

By Bruce J. Rogow

Even with digital initiatives entering the mainstream, many business and IT leaders are still encountering headwinds. Here are the five most common challenges organizations face and potential workarounds that can help captains of industry more quickly and effectively digitally enhance their businesses.

In virtually every enterprise I visit, major plans and efforts are underway to digitally enhance the business. Frankly, most execs are tired of hearing how they'll be disrupted by digital natives. They resent being told – again – about how Uber and/or Airbnb, which are wholely based on new digital technologies and data-driven business strategies, have remade markets and industries.

The latest McKinsey Global Survey suggests companies are making little progress in their efforts to digitize the business.[1] Most likely, they're stymied by trying to overcome the practical issues that are slowing their progress, narrowing the digital scope/scale and limiting their success.

My previous *Cognizanti* commentary[2] presented six challenges that were hamstringing five enterprises early to the digital bandwagon. But in recent visits with C-suite execs, it appears that digital efforts have become mainstream for many organizations.

Identifying and then managing the pace of digital change is now cited as the most critical practical challenge. In a recent blog post on Digitally Cognizant,[3] I identified the key elements of a pace-based approach and highlighted the approaches companies have taken to stay in sync. I'm now seeing five practical issues that businesses large and small are encountering in their push to become digitally

enhanced.[4] Based on these scenarios, I see potential remedial approaches that span the gamut from the pragmatic to the potentially game-changing.

Don't fall for the reengineering trap again – deal with legacy renewal

Heading into the 1990s, most enterprises had formal processes for application renewal and maintenance, as well as adequate IT management. Then, with their promises of a bold new world around the immediate corner, the reengineering pundits told them to stop application renewal and cease wasting money on keeping the lights on. Within 12 to 36 months, pundits promised, they would be totally reengineered and have new systems to support the new utopian enterprise.

Unfortunately, reengineering proved daunting, and while good steps were taken, most companies awoke to aging, under-maintained legacy application portfolios and no-longer-effective IT management processes. Twenty-plus years later, the majority of companies I visit are hitting a brick wall that's limiting digital progress: the age, quality, fragmentation, inconsistency and dysfunction of their run-the-business application portfolios and databases.

"We were promised a digital-first elixir by our vendor partners to ignore our 'keep the lights on' legacy foundation and directly embrace digital," noted a newly installed CEO of an oil field service company. So the company pursued Internet of Things (IoT), big data business analytics, robotic process automation (RPA), cloud infrastructure and software-as-a-service (SaaS) application suites. But after three frustrating years, it found it had dug a deep hole for its legacy parts inventory and work assignments data, applications and technology. "Almost every digital initiative collapsed without a healthy legacy foundation," the CEO lamented.

The majority of companies are hitting a brick wall that's limiting digital progress: the age, quality, fragmentation, inconsistency and dysfunction of their run-the-business application portfolios and databases.

Almost every digital effort cited by C-suite execs is either rooted in or must eventually tie back to legacy systems, technologies or, most critically, data.

Almost every digital effort cited by C-suite execs in my travels is either rooted in or must eventually tie back to legacy systems, technologies or, most critically, data. Rather than shifting resources to digital, the cold, hard need is to dedicate additional resources, plans, funding and formal programs to remediate the applications, technologies and data that can be associated with the overall digital effort. The usual suspects include inconsistent customer, inventory, parts and sales data; incompatible ERP systems; obsolete technologies; security risks; and the cornucopia of Excel spreadsheets used to run the business and provide reporting.

"We had to stop deceiving ourselves," the CEO of a global medical device company told me. "We had shifted resources to Agile and digital efforts, and constantly found they were built or relied upon a legacy base that was quicksand."

As an example, the CEO said his company had used AI and speech recognition to support web-based support of regional reps and customers. The ensuing mess impacted the company's product database and resulted in total inconsistency of support practice systems, which drove users crazy.

"As other users joined on, we found our underlying ERP did not support many key languages," the CEO noted. "What should have been a wonderful differentiator turned into a nightmare. Once we launched formal programs to rejuvenate our targeted legacy first, digital progress and success dramatically increased."

Tackle the holistic coordination challenges

"We can't seem to get beyond initial, limited forays with digital," reported the chief digital officer of a medium-size U.S. commercial finance business. "The functionality and use of our customer loan underwriting and support has been limited solely to our high-tech unit and customers. No other markets and units are adopting it."

This is still the most common response I get when the question of digital progress comes up. While many of the C-suite execs I speak with say they view digital progress as a key goal, few organize, staff or establish ongoing processes for the holistic transformation needed to go beyond initial digital forays.

According to the CEO of an industrial supplier, a formal, four-pronged endeavor was required to accelerate digital progress:

- **Take a holistic view:** While this CEO wants to see in advance how a specific problem will be resolved by a digital effort, she feels it's more critical to understand how the effort fits into the business and what else must be changed – not just impacted. She then wants detailed plans and resourcing for all the changes to sales, front office, manufacturing, distribution, customer acceptance, culture, business model funding, resources, skills, supporting applications, technologies, data, etc.
- **Move from bimodal to trimodal IT:** Several years ago, this company adopted Agile and moved to the Gartner model of bimodal IT,[5] in which IT efforts are divided by quick, minimal viable products and Agile vs. a core industrial backbone. Both seemed to work well independently. However, little grew or benefited from one mode to the other. The company learned that a third mode of very unique skills, temperaments and processes was required to bridge the gap in both directions.
  - **Mode 1** typically has heads-down, highly consistent, procedural, risk-averse, very formal, and highly siloed and focused staff, management and processes.
  - **Mode 2** requires more experimental, risk-tolerant, flexible staff and loose processes. Mode 2 folks are more about invention than the long road of adaptation and institutionalization. They wish to move on to the next innovation.
  - **Mode 3** staff, skills, temperament and processes are excellent at identifying which Mode 2 innovations can be of institutional value, adapting them, promoting

them and introducing them to the Mode 1 world. Mode 3 also has the skills and interpersonal temperament to identify where Mode 1 could use innovation and then work with the Mode 2 group to create those innovations.

Since adding Mode 3 skilled staff, the industrial supplier has realized great progress and increased sharing among its groups.

- **Stop admiring cultural resistance and start dealing with it:** Initially, almost every digital effort slipped, failed or had limited impact because, as the CEO says, "culturally, the dogs weren't eating the dog food." To offset this trend, the company established a very activist culture and behavior function under the chief operating officer. Rather than just a touchy-feely, rah-rah approach, formal programs were dispatched, such as targeted Hersey-Blanchard Situational Leadership structures,[6] objection clinics, competitive workshops, incentive and compensation adjustments, reward programs and gaming mechanisms.

  Very clever marketing, promotion and mentoring programs were put in place for staff, management, channel partners and customers. These programs quadrupled the number of digital functions used, and tripled the community of active users within the first year.

- **Identify the digital "hyper-coordinators":** As I've suggested in previous *Cognizanti* articles,[7] the CEO acted upon the need for two levels of digital coordinators. At the highest level, she appointed a digital strategist whose role was to determine the potential for digital, continually educate/update the management team, establish and reinforce what needed to be changed or done, set priorities, fight for resources and be accountable for progress/outcomes. A candidate for future CEO was selected for the role.

  The current CEO also realized that with literally hundreds if not thousands of moving parts on the journey to being more digital, there was greater need for month-to-month, week-to-week and day-to-day coordination. High-performing managers with operating experience were placed in these roles. Generally, they were organized by value streams such as business opportunity, engineer and manufacture to market, distribution and support.

3

Mold the digital circus to the proper clowns

As I've suggested in previous *Cognizanti* articles,[8] digital is just a different circus with different clowns. I'm now hearing that each digital circus requires and involves different types of clowns. The most common digital circuses and corresponding clowns cited are:

- **Enhancing the customer or end-user experience:** This requires resources with the patience to discover and deliver what engages and thrills end users. Design skills, creativity, a familiarity with the end-user perspective and a sensitivity to different classes of users are all key.
- **Increasing the business's operational efficiency or a smarter enterprise:** This requires human resources with a desire to dive deeply into how enterprise functions and processes work, interact and are structured around silos. Working knowledge of business swim lanes, capability maps and value streams, as well as RPA, IoT, analytics, learning engines and narrow AI,[9] is hypercritical. And if the project requires IoT, registered engineers are likely needed.
- **Building the smart or "informated" product or service:** This requires resources that understand and can deliver products or services to the market that solve a customer need, are marketable, can be profitable, are sustainable and are clearly differentiated. Avoid the clever toy builders. Ask whether this is a feature, product or business for which customers will pay real money.
- **Establishing new markets or channels:** The resources needed here can envision and then execute on how an existing product or service may be sold, promoted, marketed, delivered and supported through new channels or to new markets. What's also required is a way to establish how the product must be changed to be successful in a new digital channel or market.
- **Becoming an ecosystem or industry platform:** Resources are needed that can see the big picture related to establishing a platform, populating it, supporting it and ensuring it can be a profitable venture – and who can then deliver that platform. It helps if these resources have broad industry connections and knowledge.

Too many enterprises approach digital as though the skills, experiences and pathways are fungible or nearly the same. Each of these circuses needs dramatically different, highly skilled clowns.

- **Establishing a new business model:** These resources need to not just conjure up a new business model enabled or built on digital; they also need to know how to identify all the enabling effort and can make that happen. These people need to tackle the financial, competitive and legal aspects, as well.

Too many enterprises approach digital as though the skills, experiences and pathways are fungible or nearly the same. Each of these circuses needs dramatically different, highly skilled clowns. This practical reality argues for taking focused forays into digital rather than broad efforts. Increasingly, digital efforts become more complex and nuanced, involve more than one digital circus and demand the clowns play together.

4

Complete the massive transformation from project to product

I keep hearing bumper sticker phrases such as, "With digital, we're moving from projects to products." "Our success with MVP has been great." "We're moving toward a subscription-based rather than a product purchase revenue model." These all sound promising, but when I probe whether the organization has made the business model changes needed, the responses aren't encouraging.

Enterprises and their IT functions are wed to a project-like, one-and-done model. Thriving beyond an MVP or subscription model demands a broad-based, holistic set of changes and enhancements to the business operating model. This requires ongoing, year-after-year funding, and continual refresh and support of that product/service. Competent brand, marketing, support, refresh and service managers must, of course, be *dedicated*. Overall, product/service portfolio management must be commissioned, and proper processes deployed. A formal go-to-market and product evolution plan is mandatory.

When I mention this to the executives I visit, they say, "Oh, we *sort of* have that." I then ask to meet the brand or service managers and see the multi-year financial plan/funding for the service. You'd think I'd asked to meet the company unicorn based on their body language response. The digitally enhanced businesses with the most success have made great strides in underlying business operating model changes.

5

Plan on perpetual distractions

My lead question is always, "You've been working on digital efforts for several years now. Why the slow progress?" After they hem and haw, I hear what should have been anticipated distractions. "We've had the merger, the divestiture, the management change, the activist investor demands, a business downturn or side turn, the reorganization, the regulators' responses, the key staff departure, supply chain disruptions, normal day-to-day operating issues." Geez, you'd think these things had never happened before.
Who knew?

To progress despite the distractions, the more successful businesses often:

- **Plan on an estimated amount of diversion** and inject a good deal of contingency in their plans.
- **While it may impact the P&L, provide dedicated and protected resources** for critical digital efforts and build a protective wall around them.
- **Use the distraction response as an enabler for a digital initiative.** Rather than a conventional response, one company has a "digital-first to distraction" approach.

Making progress with digital enablement

If digital progress is as critical as companies tell me, they should be evaluating how well they're addressing these five challenges by launching, supporting, adjusting and measuring the success of their programs. This will enable them to:

- **Refresh** the most critical parts of the legacy base.
- **Coordinate** digital efforts as part of a holistic, ongoing view of the business.
- **Ensure** the proper, qualified and appropriate resources are assigned, developed and dedicated to each form of digital effort.
- **Add** to and change the business model to support products vs. projects, going beyond MVP and subscription revenue models.
- **Plan** so that business distractions don't impede digital progress.

As I've repeatedly suggested, if you're going to the future, bring money. Too many enterprises I visit are willing to spend on *digital thingies*, but not on the underlying transformational enablements required.

I realize the day-to-day business must be run and be profitable. Not all of these practical challenges and changes can be made at once. However, they should be assessed, priorities established and programs put in place. Otherwise, when I visit next year I'll hear, "Gee, guess we haven't made the progress we would have liked."

Endnotes

1 "A Winning Operating Model for Digital Strategy," McKinsey, January 2019, https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/a-winning-operating-model-for-digital-strategy. The online survey was in the field from May 15 to May 25, 2018, and garnered responses from 1,542 C-level executives and senior managers representing the full range of regions, industries, company sizes, and functional specialties.

2 Bruce J. Rogow, "Lessons From the Digital Frontier," *Cognizanti*, Vol. 11, 2018, https://www.cognizant.com/whitepapers/last-word-lessons-from-the-digital-frontier-codex3479.pdf.

3 Bruce J. Rogow, "When It Comes to Digital, Pace Matters," Digitally Cognizant, Feb. 7, 2019, https://digitally.cognizant.com/when-it-comes-to-digital-pace-matters-codex4335/.

4 Bruce J. Rogow, "What Does It Take to Enable a Digitally Enhanced Business?" *Cognzanti*, Vol. 8, 2015, https://www.cognizant.com/whitepapers/the-last-word-enabling-the-digitally-enhanced-business-cognizanti11.pdf.

5 Bimodal definition from Gartner Group: https://www.gartner.com/it-glossary/bimodal.

6 Wikipedia definition of Hersey-Blanchard Model: https://en.wikipedia.org/wiki/Situational_leadership_theory.

7 Bruce J. Rogow, "And Now for the Hard Work," *Cognizanti*, Vol. 10, 2017, https://www.cognizant.com/whitepapers/the-last-word-and-now-for-the-hard-work-codex2676.pdf.

8 Bruce J. Rogow, "Lessons From the Digital Frontier," *Cognizanti*, Vol. 11, 2018, https://www.cognizant.com/whitepapers/last-word-lessons-from-the-digital-frontier-codex3479.pdf.

9 Wikipedia definition of narrow or weak AI: https://en.wikipedia.org/wiki/Weak_AI.

Author

Bruce J. Rogow is a Principal at IT Odyssey and Advisory in Marblehead, Mass. Known as a counselor to CIOs and CEOs on IT strategy, Bruce has for the last 25 years conducted independent, face-to-face interviews with thousands of C-level executives. Previously, he spent five years as Executive Vice President and Head of Research at Gartner Inc. Prior to that, he was Senior Managing Principal at Nolan, Norton & Co. Bruce can be reached at Bruce@ITOdyssey.com.

About Cognizant

Cognizant (Nasdaq-100: CTSH) is one of the world's leading professional services companies, transforming clients' business, operating and technology models for the digital era. Our unique industry-based, consultative approach helps clients envision, build and run more innovative and efficient businesses. Headquartered in the U.S., Cognizant is ranked 193 on the Fortune 500 and is consistently listed among the most admired companies in the world.

Learn how Cognizant helps clients lead with digital at www.cognizant.com or follow us @Cognizant.

U.S. Headquarters:
211 Quality Circle
College Station, TX 77845
Tel: +1 979 691 7700
Fax: +1 979 691 7750
Toll Free: +1 855 789 4268
Email: inquiry@cognizant.com

World Headquarters:
500 Frank W. Burr Blvd.
Teaneck, NJ 07666 USA
Phone: +1 201 801 0233
Fax: +1 201 801 0243
Toll free: +1 888 937 3277
Email: inquiry@cognizant.com

India Operations Headquarters:
#5/535, Old Mahabalipuram Road
Okkiyam Pettai, Thoraipakkam
Chennai 600 096 India
Phone: +91 (0) 44 4209 6000
Fax: +91 (0) 44 4209 6060
Email: inquiryindia@cognizant.com

European Headquarters:
1 Kingdom Street
Paddington Central
London W2 6BD
Phone: +44 (0) 20 7297 7600
Fax: +44 (0) 20 7121 0102
Email: infouk@cognizant.com

China Operations Headquarters:
Cognizant Technology Solutiions
(Shanghai) Co.
CN Shanghai You Do Space
ChuanQiao Road
Pu Dong New District
Phone: +86 21 6100 6466
Fax: +86 21 6100 6457
Email: inquirychina@cognizant.com

APAC Headquarters:
1 Changi Business Park Crescent,
Plaza 8@CBP # 07-04/05/06,
Tower A, Singapore 486025
Phone: + 65 6812 4051
Fax: + 65 6324 4051
Email: inquiry@cognizant.com

Primary Global Delivery Centers:

Budapest (Hungary), Buenos Aires (Argentina), Guadalajara (Mexico), London (UK), Manila (Philippines), Shanghai (China), Toronto (Canada); Chennai, Coimbatore, Kolkata, Bangalore, Hyderabad, Pune, Mumbai, New Delhi, Cochin (India); Bentonville, AR; Bridgewater, NJ; Des Moines, IA; Phoenix, AZ; Tampa, FL (U.S.).

Primary Regional Offices:

Atlanta, Chicago, Dallas, Los Angeles, Norwalk, Phoenix, San Ramon, Teaneck (U.S.); London (Canada); London (UK); Frankfurt (Germany); Paris (France); Madrid (Spain); Helsinki (Finland); Copenhagen (Denmark); Zurich, Geneva (Switzerland); Amsterdam (The Netherlands); Hong Kong, Shanghai (China); Tokyo (Japan); Melbourne, Sydney (Australia); Bangkok (Thailand); Kuala Lumpur (Malaysia); Buenos Aires (Argentina); Dubai (UAE); Manila (Philippines).

Cognizant®