HOW TO MOVE A CONTINENT

SHARPEN YOUR SOFT SKILLS

WORKPLACE INCLUSIVITY

VOLUME 1
2022

GO!

Think
Lead
Succeed

THE FUTURE OF IT

VOLUME
1
2022

GO!

A magazine by PEGA

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Illustration: Paddy Mills

THINK. LEAD. SUCCEED.

Kicking off 2022, I can't help but think about how much change we've all endured over the past couple of years. The pandemic upended our personal and professional lives. Political and social reckonings have reshaped the world around us. And of course, the environment is at the top of everyone's mind.

Yet, amidst change, there's hope and optimism. When the pandemic hit, people and businesses didn't duck for cover. They adapted. They reimagined the possibilities. They doubled down on their social responsibilities and said, "Let's go!"

It's in that spirit that we've created GO! magazine. I am beyond excited to deliver this forward-looking quarterly publication. We see GO! becoming a bridge between the way things were and how they will be.

At Pega, our software experience gives us a unique front row seat on digital transformation. We partner with some of the world's most innovative organizations. Don't believe me? Check out the data visualization on how Pfizer manages its drug-delivery pipeline. By tapping into these relationships and bringing you insights from our customers and partners (see the column by EY's Liz Fealy and Dan Higgins on building resilient workforces), we believe each issue of GO! will be something special.

Inside these pages, you'll meet amazing transformational leaders – people like Lila Benhammou, founder of Humans4Help, who teaches enterprises how to use robotic process automation. There's Adriana Gascoigne, founder of Girls in Tech, who shares steps companies can take to maximize the effectiveness of their own diversity, equity, and inclusion (DEI) programs – because no business today can exist without a firm commitment to DEI. Clay Richardson, co-founder of Digital FastForward – which runs design thinking bootcamps, sprints, and consulting programs for digitally transforming companies – also joins us to explain three misunderstood soft skills technology leaders need to polish in order to prosper.

I hope you'll be equally as blown away as I was by the rich, fun, visual mix of informative and inspirational stories and charts in this issue. Our cover story, "The new IT unicorn," details a nascent type of technology leader and offers interesting findings from our Future of IT survey about how digital transformation is changing the world of work. I hope you also enjoy the not-so-serious charts, the workplace guide, and the horoscope we threw in – because life has been heavy the past 18 months and we all need moments to relax and step away. Our company culture celebrates having fun while delivering transformational tech.

With every issue of GO!, we will walk that talk. We will live on that knife edge between what we know and what we may not yet see coming. We'll speak to the topics that all tech leaders are thinking about as they help digitally transform their enterprise. And we'll do it with a shared sense of purpose and fun.

So go – think, lead, succeed.

Tom Libretto
Chief Marketing Officer

Tom

PEGA

CONTRIBUTORS

Francis Carden

"IT's secret weapon to win the future," Page 14

Think of Legos, an easily configurable system that any kid can use to create skyscrapers, castles, and fighter jets. That's how Francis Carden sees coding and today's wave of non-IT pros – aka "citizen developers" – who are building their own apps and automating workflows. He knows about building: Francis was a founder of the RPA technology acquired by Pega in 2016. Now Pega's VP of Intelligent Automation and Robotics, he is also a speaker, thought leader, and automation evangelist.

Clay Richardson

"Do it better," Page 24

Remember business lunches? And meetings – in person? Clay Richardson reminds us that executive roles are shifting, and that tomorrow's change agents are honing their "soft skills" today. Now Chief Excelerator and Co-founder at Digital FastForward, Clay has spent most of his career helping leaders build and execute strategies around new disruptive technologies, including intelligent automation. Clay is an innovation leadership coach and frequent keynote speaker at innovation leadership events and conferences.

David Rand

"The new IT unicorn," Page 10

Digging into Pega's Future of IT survey, David Rand explores how business culture is shifting toward a collaborative mindset, and how IT leaders today must be masters of empathy as much as ever-changing tech. David is a veteran business and technology reporter, based in Southern California, whose work has appeared in major publications around the world. He specializes in spotting and digging into what's coming next – and helping executives in organizations of all sizes know what to do about it.

Dan Higgins

"Workforce blueprinting," Page 23

Knowing tech is one thing – and Dan Higgins certainly does – but knowing (and supporting) the workers who use that tech is the key to business resilience. As the EY Global Technology Consulting Leader, Dan helps EY clients achieve their technology-enabled business transformation objectives, supporting them with complex technology and regulatory and operations transformation programs. He has deep industry experience and client relationships in financial services, insurance, and consumer products and retail.

Liz Fealy

"Workforce blueprinting," Page 23

Don't call Liz Fealy a mere "people person," though she is, of the highest order. As the EY Global People Advisory Services Deputy Leader and Workforce Advisory Leader, Liz proves she's a people expert – partnering with teams to solve clients' pressing organization and workforce issues. A labor attorney and strategic advisor, Liz has collaborated with more than 25 of the Fortune 100 companies on their corporate transactions and transformations.

The future of sustainable work

By Joseph V. Amodio

FROM BAMBOO STANDING DESKS TO UV PHONE SANITIZERS, THESE ARE THE ESSENTIALS YOU NEED.

Nearly two years after we all relocated our workstations from cubicles to kitchen tables, businesses are working hard to give workers a choice of where and how they do their jobs.

While nothing is certain these days (has it ever been?), you may already be comfortably toggling between your couch and a newly reopened and reimagined office space.

That's what the future will look like for most of us. Companies like Google, which has been at the forefront of remote work, are now betting on it. The tech giant recently spent a record $2.21 billion on a brick-and-mortar Manhattan office space, signaling a commitment to old-timey, face-to-face getting things done. No matter where you work – in a converted attic that once housed your mother-in-law, an artsy co-working loft, or a little here and a little there when the mood strikes – you'll want to do it in the most sane and sustainable way possible.

HOME OFFICE

A **Lolly's energy-efficient LED task light with USB.** Working from home has driven up your energy bills. This light cuts energy usage, takes up a super small footprint, and saves on your utility bills; **$275 at store.hermanmiller.com**

B **Label 180 customizable, sustainably sourced office chairs** can be upholstered in 70-plus fabrics and leathers, including high-end textile designer Cat Judice and Liberty of London prints. And as a 1% for the Planet member, 1% of all sales benefit environmental nonprofits; $850 and up at label180.com (if you dare); **$569 and up at fully.com**

C **Fully Jarvis bamboo standing desk.** Sitting is the new smoking. Studies show that doing it for long periods can lead to heart disease, diabetes, and some cancers. This desk boasts a lifting capacity of 350 pounds, and adjusts from 50 inches to so low you can sit on the floor (if you dare); **$569 and up at fully.com**

D **Outdoor Fellow candles.** Techies will go for the Coastal Forest scent, inspired by the Pacific Northwest, made from coconut/apricot wax and a renewable cotton-fiber wick – best of all, the candle holder is a cocktail glass, so when you're done you're ready for happy hour; **$36 at outdoorfellow.com**

E **Manduka eKO Lite yoga mat.** If you do choose a sitting desk, for god's sake get up (or rather down) and stretch for your own mental survival. This mat is sourced from biodegradable non-Amazon harvested tree rubber (go for the groovy hang-ten "surf marbled" print); **$80 at rei.com**

F **Twisted X ECO Loafer Moccasins** are made from recycled plastic bottles (13 in every pair). Designed to be worn inside and out, for when you need to hop out to grab the mail or the kids at the bus stop; **$87.95 and up in December/January. TwistedX.com**

WORK OFFICE

A **House of Marley Liberate Air true wireless earbuds.** Made of bamboo, recycled silicone, and fabric, for when your office gets too loud and you need your own soundtrack; **$99.99 at thehouseofmarley.com**

B **Gocycle G4i+ e-bike** is foldable and super light (just 36 pounds), with bespoke MotoGP-inspired treaded tires with silica compound for superior grip, integrated USB port for charging on the go, and low-energy Bluetooth, created by a designer of Maclaren sports cars; **$5,999 at gocycle.com**

C **Canon's Pixma TR150.** This wireless printer is small enough to fit on any desk. The portability is key for the hybrid home-office model. Plus, you don't want to touch the printer that everyone else has been touching dozens of times a day; **$305.49 at usa.canon.com**

D **Molekule Air Mini air purifier** is super quiet, ozone-emission free, with 360-degree air intake and snappy vegan leather strap; **$399 at molekule.com**

E **Samsung Qi UV sanitizer** is sleek but large enough to sanitize your phone, glasses, watch, ear buds, and keys (and it's also a wireless charger); **$29.95 at amazon.com**

F **MamaP compostable bamboo toothbrush** and quick-dry toothbrush stand look good enough to leave out on your desk. 5% of sales go toward ocean conservation, women's rights, mental health, and more; **$8 and up at mamap.life**

Illustration: Nick Matej

HOW TO MOVE A CONTINENT

DEUTSCHE BAHN IS DIGITIZING WORKFLOWS TO HELP PEOPLE AND GOODS GET AROUND.

By Paul Gary

For many enterprise IT leaders, "making the trains run on time" is just an adage, meant to convey a pledge toward greater efficiency. For Dirk Böning-Corterier, the trains are real.

While he may not oversee timetables – or wear a watch on a chain – Böning-Corterier helps create digital workflows that allow Deutsche Bahn AG (DB), one of Europe's largest rail carriers, to move some 7.8 million daily passengers and one million tons of cargo through Europe, according to the company's most recent figures.

"You can imagine the thousands of workflows that exist among the company's roughly 320,000 employees that must run smoothly every day," says Böning-Corterier.

To assist, Böning-Corterier – who is head of workflow and case management for the transport company's digital partner DB Systel – has set up a community of citizen developers inside DB and among several of its hundreds of subsidiaries. These include passenger and cargo service as well as railway infrastructure. By using intelligent automation and low-code tools to build and iterate on software projects, the citizen developers – technology-savvy DB employees – have created their own workflow solutions for everything from purchasing to contract management.

As a result, Böning-Corterier's community, aided by his teams, have achieved higher automation speeds, cut process lead times in half, doubled the satisfaction among process stakeholders, and improved transparency. So, when a business leader asks for a workflow to be automated, DB Systel keeps them in the loop of a highly iterative and agile process.

For instance, after a DB business user requests a workflow digitization and submits data to support their needs, DB Systel's teams build an early prototype and share it. "By getting a prototype early, a business user can see if it mirrors their specifications or if maybe their specifications were imprecise or incomplete," says Böning-Corterier. That, in turn, makes it easier to fix misunderstandings early on. It also makes it easier for DB Systel's team to deliver the right workflow solution and the exact experience that the business user wants and needs.

To achieve this, Böning-Corterier encourages the business users to "think in processes," not in terms of data fields and software applications, which can display lots of information but do not lead to process change in an intuitive way. "We must build solutions around the process, not the database," he says. "This sounds simple, but it's a real challenge" for users to grasp.

To help them, Böning-Corterier's teams use the ease and speed of low-code tools to present weekly and biweekly hands-on iterations that business users can then experience. That then gives the users a quick understanding of what they can expect. It also helps them improve their own "thinking in processes" skills.

That, in turn, makes them better partners and drivers of solutions. "In many cases, the original requirements get redesigned," says Böning-Corterier.

Underlying these processes are the 12 principles of the agile manifesto. Among them is the idea that business units and developers must work in lockstep toward a shared goal and should self-organize. "Business success is a key driver for every team member," says Böning-Corterier. "Self-organization is our foundation. We provide trust and freedom to every team member."

With some 5,400 employees across Germany, DB Systel creates bespoke applications and processes based on cloud migration, data analytics, and artificial intelligence. In addition to digitizing DB's contract and procurement workflows, DB Systel has already helped digitize the recording and processing of complaints with external suppliers, engineering inspections, and the onboarding and offboarding of bus drivers (DB provides bus services for about 1.4 billion passengers every year). And several more case management projects are currently underway.

"The core elements of dynamic development are modern, flexible IT and a new, active working environment with agile, independent teams," says Böning-Corterier. "We are creating a major shift from traditional working and organizational structures to self-organization and enterprise-wide networks. Our goal is to support DB partners and their increasingly variable requirements in the best possible way with flexible ways of working and agile methods."

In other words, DB helps make the trains run on time. And makes everyone a partner in that journey.

Illustration: Rachel Maves

Q

We asked three leading tech influencers to describe the consumer technology they would create for the future. Here's what they say tomorrow could – or should – look like.

Apps that converse like humans

I got my first Amazon Echo device in 2014, and I immediately started thinking, *wouldn't it be great to actually talk to our applications like we talk to humans?* I think we're getting closer to that.

These voice assistants are good for certain kinds of easy requests, like "Order me a pizza" or "Turn the lights down." But what I would love to see are full-blown conversations with applications, so you don't have to type or swipe or click. Wouldn't it be great to just talk and get everything you need done from your applications? That's the kind of technology I'm looking for.

Now, natural language processing has come a tremendously long way. But I also know some folks are afraid of using it because of privacy concerns. Talking to computers also doesn't really have a natural feel to it. But if we're able to feel like we're talking to our laptop like we're talking in person, we're going to see some tremendous efficiencies and productivity gains. You'll see a better employee experience too.

Brent Leary
partner, CRM Essentials

Immersive experiences

With the advent of 5G, we're at a huge turning point, and I think we're going to see things explode in the next three to five years. In the future, you won't just go to a stadium and sit in your seat and watch the action on the field. You'll also be able to wear 5G-powered glasses that put you into a mixed-reality universe where you're actually on the field and catching a ball or doing things like that. It's kind of invisible. You won't know how cool it is until you go to a stadium and you're like, "Holy cow, I had no idea this was even possible."

The same is true with artificial intelligence, especially its ability to give systems the capacity to learn about our preferences and be able to take in massive amounts of data and give us insights from that data in a way that humans couldn't possibly do. Automation like that plays a huge role in our lives in terms of experiences that we have and what we expect from those experiences. It's an immersive thing. We won't even notice when it's happening – except when it doesn't work like it should.

Shelly DeMotte Kramer
founding partner and lead analyst, Futurum Research

Sustainable tech

We need to get more conscious about how we use technology, how we design it, and how we power it. The energy use for cryptocurrencies right now is off the charts, for example. I think cryptocurrency markets are consuming more energy than, say, the whole of Austria.

I'd like to see how we can use blockchain in an energy-efficient, environmentally conscious way. That applies to all technologies. Every email, tweet, or message you send has an energy cost to it. It's hidden, and it doesn't look like waste. It's not plastic bottles and cardboard boxes: none of the stuff that you put in a bag and try to recycle. It's just there, and it just consumes energy.

Technologists who are way smarter than me have to get in front of this, because we've got this technologically powered present and future coming. And we need to get a handle on the energy consumption side of things, or it's just going to get all out of whack.

Adrian Swinscoe
customer experience advisor and author of "Punk CX" and "How to Wow"

Illustration: Brian Edward Miller

6 podcasts to make your brain tingle

Plug in, space out, and actually feel yourself get smarter.

By Diana Rodón

1 HIDDEN BRAIN

Why do you have that odd habit of touching your hair? How does laughing make you feel better? This NPR podcast employs brain science to deep-dive on these thoroughly human issues. Plus, empathetic host Shankar Vedantam is a delight to listen to.
Recommended episode: You 2.0: Deep Work

2 YOUR UNDIVIDED ATTENTION

Why and how does social media influence (aka manipulate) us? How does it sabotage our IRL relationships? Hosts Tristan Harris and Aza Raskin, along with a parade of scientists and activists, break it down.
Recommended episode: Two Million Years in Two Hours

3 REPLY ALL

Hosts Alex Goldman and Emmanuel Dzotsi dive into internet culture (how it impacts us and vice versa). They also manage to tell strange and often inspiring human tales you won't hear elsewhere.
Recommended episode: The Case of the Missing Hit

4 TALKING MACHINES

Machine learning is key to training the artificial intelligence moving to the edge of everything – phones, refrigerators, factory robots. Hosts Katherine Gorman and Neil Lawrence talk about these issues in a way that's anything but robotic.
Recommended episode: The Pace of Change and The Public View of ML

5 ME, MYSELF, AND AI

Produced by the MIT Sloan Management Review and Boston Consulting Group, this show delves into AI through a lens of how companies can best succeed with it. With interviews from experts at Walmart, Google, and PepsiCo, there is plenty of practical know-how. ***Recommended episode: AI and the COVID-19 Vaccine: Moderna's Dave Johnson***

6 DAILY TECH NEWS SHOW

Get your news in a bite-sized format – in video or audio. Hosts Tom Merritt and Sarah Lane dish up and analyze the latest technology news and trends. This is stuff you need to know to thrive in a digital world.
Recommended episode: Dish Brain

THE FUTURE OF IT

Digital transformation is creating a critical need for one-of-a-kind IT leaders, citizen developers, flexible and inclusive workforces, visionary thinkers, and enterprise leaders who can harness it all.

NEXT UP

THE NEW UNICORN

Digital transformation is creating a critical need for one-of-a-kind IT leaders who can master business strategy, technical innovation, and empathy.

By David Rand

DUNCAN MACDONALD DOESN'T VIEW HIMSELF AS JUST A TECH GUY.

As chief information officer at Swiss telecommunications giant Sunrise UPC, he sees his role at the $12 billion company not solely as an agent of digital innovation but as a force for unifying business and IT leaders around a shared vision for change.

"Shifting business culture toward a collaborative mindset is the key to starting a successful digital transformation journey," says Macdonald, who joined Sunrise UPC's parent Liberty Global in 2016 after nine years in technical positions at Virgin Media, the final three spent as CIO. "While the right technology and methodologies are important, changing hearts and minds in your organization is the biggest struggle. As a digital leader, your vision [must] set an agenda for pervasive business change."

Macdonald is not alone in his thinking. He is part of a new breed of technology leaders who recognize the value of understanding business needs and aligning everything they do and say around them.

According to the newly released Future of IT survey from Pega, digital technology continues to come on so fast and furiously that it is forcing a fundamental shift in how organizations staff and utilize their technical teams. Indeed, today's CIO is expected to build teams that will help businesses understand which way the technology winds are blowing and ride them to competitive advantage.

This fast-emerging trend is already bringing profound change to the world of information technology. For example, the Future of IT survey asked 750 global IT leaders how they see their jobs changing as a result of digital transformation and how it's accelerated since the onset of COVID-19. Not surprisingly, one-third (38%) say they are working more closely with other functions of their organizations, including the C-suite, than they were two years ago. Meantime, over two-thirds (68%) say digital transformation has moderately or significantly affected departmental structures.

It's also influencing which competencies are most valued. Survey respondents expect hands-on skills like coding and data entry to become less important because cloud solutions, artificial intelligence (AI), and low-code applications are simplifying processes. More than 70% of senior managers say that future IT careers will require ongoing reskilling and training for emerging technologies. At the same time, it will also be vital to possess basic people or "soft" skills, such as leadership (38%), problem solving (37%), and emotional intelligence (35%).

Finding these new IT unicorns with the right skills, says Khalid Kark, managing director of the Deloitte CIO Program, is not easy. Even as organizations engage in a heated and ongoing war for talent, they typically discover these individuals are in woefully short supply. "It's a lot easier to get a person with these enduring human skill sets and train them on technology," he says, "than it is to have a deep technologist that you have to reframe and rewire to think about these things."

Illustration: Paul Blow

But IT professionals shouldn't expect employers to proactively provide all the training they need to stay current with shifting work requirements, Kark warns. It's incumbent on workers to do their part as well. "If technology talent understands where the puck is moving and starts to shift skill sets to things that are going to matter to businesses, a lot of their jobs are going to be preserved, even enhanced," he says.

One retail insurance company president and CTO interviewed as part of the Future of IT survey says his company prefers finding junior talent with solid people skills and then putting them through a coding "boot camp" to learn about technologies they'll use on the job. A CIO at another company says he doesn't believe all IT executives have to be technologists, since so much of what they do relates to the business.

"The ability to write code or manage infrastructure is becoming commoditized," adds Pega CTO Don Schuerman. "What you can never commoditize is the ability to listen, empathize, and be able to communicate connections between business and the innovative use of technology."

Work itself is likely to become both easier and more challenging because of digital transformation, according to the survey. First, with so many aspects of technical work and decision-making becoming more automated, many menial, repetitive, and unnecessarily time-consuming jobs will disappear. This will free IT leaders and workers to concentrate on more critical matters and add more value for their organizations, survey findings suggest. In fact, 66% of respondents think digital transformation will make their jobs easier, and 57% say it will lead to more creative work and better decisions.

At the same time, all this progress is a double-edged sword, the survey indicates. As everyone knows, when high tech makes more work possible, more work invariably comes about. Indeed, about 70% of IT leaders and 67% of respondents overall say digital transformation has increased workloads in the last two years.

The speed of product innovation – and the pressure to keep up with it – has sped up as well, with more than half of senior respondents saying they expect to release products more frequently. "If I release every three months, I've got to build really big things and I've got to cross my fingers and hope," says the retail insurance industry CTO. "If I can release multiple times a day, I can build really small things and see what happens."

Most senior leaders do not seem to mind the fast pace and added workload because they feel the upside of contributing more to their organization is worth the added effort, the survey suggests. Most (70%), for instance, say their executive role is more enjoyable because of this. Executive leaders in particular are also more likely to feel valued after completing transformation projects, the survey finds.

While digital transformation projects have been under way for several years and have only recently picked up steam because of the global pandemic, respondents say the journey is far from complete. One government IT leader even goes so far as to say it will last forever – as will its effects.

"When you hear people talk about digital transformation, it's almost like they're pretending it's this phase we're going to go through and it's going to end. But I have difficulty seeing how that could happen," says the survey respondent. "As soon as everything gets digitized, then we'll just cycle back through updating to new versions of these technologies, products, and services as they're released. Digital technology is a continuous cycle that we have to go through. It will never end."

Current IT budgets may stall business innovation.

DRIVING INNOVATION MUST BE A BUSINESS-WIDE COMMITMENT – IN TIME AND BUDGET.

The money to pay for critical digital transformation projects in organizations is likely to run out unless IT budgets are decentralized – tapping funds from other business units that benefit from technology.

That's according to Pega's Future of IT survey. Some of the IT leaders and managers polled say insufficient budgets for tackling technology challenges – like driving critical digital transformation and cybersecurity initiatives – are becoming stumbling blocks in their jobs. Of more concern, this lack of investment could stall the kind of long-term business innovation needed to keep delivering standout, competitive experiences for customers.

"As organizations digitally transform, it's important to recognize you cannot fund IT as if nothing has changed in the last several years," says Don Schuerman, CTO and vice president of product strategy for Pega. "Driving innovation must be a business-wide commitment with every function chipping in time and budget to stay ahead of the competition."

The concern over lack of funding for IT appears to be most prevalent in financial services, where 37% of respondents identified it as a problem. But it also extends to life sciences, with 33% seeing it as an issue, and to retail insurance, where 31% say it weighs on their minds, according to the survey.

This comes at a time when IT budgets are making a modest comeback, despite the continuing presence of COVID-19 and global market volatility. Gartner, in a recently released report, predicts worldwide IT spending will reach $3.8 trillion by the end of 2021, up nearly 4% from $3.6 trillion a year ago.

Gartner says shrinking IT budgets have forced many companies to prioritize spending on areas where time-to-value is lowest. In other words, they are foregoing nice-to-have projects for the time being.

Mark Settle, a seven-time CIO and two-time book author, says that doesn't have to be the case – if IT and business leaders are willing to work together toward common goals. "CIOs need to stop thinking about doing things for their business partners and start thinking of doing things with those partners," he says.

IT leaders are also looking at ways to keep pace with data privacy regulations and cybersecurity threats. In the Future of IT survey, both challenges rose as the top concerns for those in life sciences, manufacturing, and the public sector. But they were not leading worries in other sectors. For financial services, it was cloud services. In healthcare, DevOps led the way. For retail and insurance, real-time data, process automation, and DevOps tied. And in telecommunications, the Internet of Things (IoT) rose to the top.

The lesser concerns about privacy and security in other sectors may relate to those industries having a head start on defending their IT systems because of regulatory pressures, cultural risk aversion, and exposure to hacking activity over the last decade. Industries most concerned about these issues likely lacked adequate time, resources, and funding to do much about them. But now, especially with ransomware attacks hitting record highs, more organizations likely recognize the need for effective cyber defenses to protect their reputations and bottom lines.

"Business and IT leaders can no longer operate in their own silos; similarly, internal budgets cannot remain segmented, as if information technology isn't something that benefits every department in organizations," says Schuerman. "This survey shows an awareness that we have an innovation investment problem, and we need to collaborate more closely to solve it – before it's too late."

– D.R.

Illustration: Paul Blow

Illustration: Richard Parry

IT's secret weapon to win the future: **Citizen developers**

By Francis Carden

LOW-CODE PLATFORMS ARE EMPOWERING ORGANIZATIONS AS NEVER BEFORE.

IMAGINE wanting to build a Lego castle, but first you have to design, mold, and test every individual brick from scratch. For decades, that's what coding was: a painstaking slog of writing an application line by line, for weeks or months. If everybody wrote code perfectly, it would have been hard enough, but they didn't, because they were, well, human. That meant time-consuming fixes and patches, or even slouching back to square one.

In 2022, we have all the shiny Legos we could want. We can build anything and make it instantly reusable and configurable. Best of all, we can build it fast, thanks to low code. Low-code platforms, with their array of visual drag-and-drop tools, don't just mean that developers can skip hand-coding. They mean that non-IT professionals – or, as they're better known, citizen developers – can build their own apps and automate workflows, whether it's an accountant building an invoice-tracking app or an HR professional creating an onboarding workflow.

Thanks to low code, we're on the verge of a coding (or should we say no-coding) revolution. Gartner predicts that by 2024, 80% of tech products and services will be built by non-IT professionals. This is great news for overburdened IT teams, freeing them to focus on more complex and urgent tasks. But for citizen developers to take flight tomorrow, IT will have to be their copilot today, providing the governance and security needed to ensure the viability and scalability of their products. These new yet crucial IT roles are essential to the future of all applications built in this new model.

At first glance, this may seem like burdensome hand-holding, but it's really a blessing in disguise. The partnership is the best path forward for reinventing the IT job of the future, allowing technologists to become true partners in achieving key business goals and driving innovation.

Almost overnight, the COVID-19 pandemic sent digital transformation – and the demand for digital products and services – into overdrive. At the same moment that the need for software and apps skyrocketed, so did the shortage of skilled IT talent.

One in five CIOs credit the pandemic with creating a severe "developer drought," according to a survey by Internal. It has also brought the IT talent shortage to a 15-year high, with 69% of employers struggling to fill IT vacancies.

It's no wonder, then, that most IT teams are underwater, struggling to keep up with crushing demand. Two-thirds of software projects are chronically behind schedule, and 62% of companies report that their IT ticket backlog keeps increasing.

The reality is that IT professionals spend a lot of their time supporting legacy operations and putting out fires, letting technical debt pile up in the process. They're forced by the whack-a-mole reality of deadlines and competing "number-one priorities" to be largely reactive, not proactive. One Pega partner in the financial services industry recently told me that 95% of their IT budget goes toward "keeping the lights on." That leaves a meager 5% for innovation.

Despite low-code tools' ready availability and growing affordability (not to mention Gartner's great expectations), the citizen developer movement is still in its early days.

The reason? Just shy of half of all companies have adopted low code, according to a TechRepublic survey. An overwhelming majority of executives are aware of low code's potential benefits, but 60%, according to another survey, say that their organizations lack experience to implement it.

> 92%
> *of IT pros are getting comfortable with non-IT business users creating apps with proper training and oversight.*

Despite its nascency, the adoption of low code has seen significant growth in recent years, especially from within professional IT. Citizen developers may account for only 6% of the software, app, and workflow development happening today, but the rate of low-code adoption among business users is rapidly accelerating. The ease with which applications can be built outside of IT is incredibly promising, but with that promise comes peril if business-led development initiatives are not run in collaboration with IT.

IT organizations that are already mature in their use of low-code tools are well positioned to provide guidance, but they can also offer oversight to ensure that the apps and intelligent workflows created by citizen developers are built with reusability, interoperability, and scalability in mind. They can also secure a chain of ownership if the citizen developer who built the product moves on from the company, as well as a pathway to "graduate" applications to IT ownership should they increase in complexity or criticality.

Inevitably, it will take a cultural adjustment for IT teams to adapt to this shift toward democratization of the developer domain. IT organizations are eager to find ways to free up their backlog, but they are unprepared to sacrifice security, compliance, and maintainability.

But as the benefits of citizen development become clear, IT leaders' attitudes are evolving. According to one survey, 92% of IT professionals are getting comfortable with non-IT business users developing apps and software with proper training and oversight. Comfort with citizen development is achieved because the same platform that is used to empower citizen developers can also be used to enforce security and other best practices in ways that eliminate risk.

In the end, the democratization of application development through low code promises to be a win-win. Because of the rapid acceleration of digital transformation, there's more excitement than ever about automating workflows and creating powerful future-proof apps. But to notch those wins, IT and citizen developers will have to work in tandem.

And the greatest win of all for businesses may be freeing IT pros to innovate new products and services that will give their organizations a competitive edge to win the future. Let citizen developers help "keep the lights on." IT has bigger and better castles to build.

Illustration: Sofia Ayuso

A whole new BALL GAME

How to make your own stress ball for fun, creativity, and stress relief.

By Joseph V. Amodio

The simple act of squeeeeeeeezing a squishy object, then slowly releasing your grip, is a surprisingly effective way to deal with stress.

Recent studies have found stress balls can reduce anxiety in dialysis patients and those undergoing surgery. Research on sixth-graders also found that those who used stress balls reported feeling more focused in class. The squishables have even been linked to creativity – in one intriguing study, participants who squeezed a stress ball in their left hand triggered neural activity in the right hemisphere of the brain (the side responsible for creative tasks), and scored higher on a creative-thinking test than others who did not have a stress ball or squeezed one with their right hand.

While stress balls may not be as effective as other tried-and-true stress relievers, like yoga, meditation, or exercise, they certainly come in handy in the middle of a workday; it's a lot easier to squeeze a ball in the midst of an endless and meandering video call than dropping into your best downward dog.

They're also easy to make. Here's a quick step-by-step. Then squeeze. And relax.

WHAT YOU NEED:

- 1 balloon
- 1 cup (or thereabouts) flour or cornstarch or sand
- 1 funnel
- 1 plastic water bottle, empty and dry
- 1 chopstick or pencil or other pokey object

1 **PLACE** your funnel into the water bottle and pour flour through it, little by little, poking the flour through with your chopstick when necessary.

2 **INFLATE** your balloon just a little (no major lung power required) to about the size of a grapefruit; then grip the opening tight, leaving one to two inches free at the tail end.

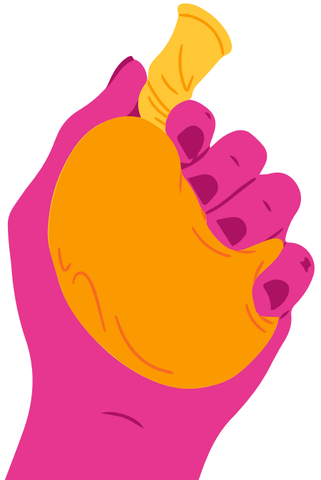
3 **STRETCH** the open end of the balloon over the neck of the water bottle, while keeping a tight grip on the balloon (the trick is to make sure no air escapes; you don't want the flour to spill).

4 **FLIP** the bottle over and jiggle the flour into the balloon, squeezing the bottle to help force the flour through.

5 **PINCH** the end of the balloon tight, so air won't escape as you release it from the bottle.

6 **RELEASE** the air slowly, so you are left with just the flour inside.

7 **TIE** the balloon and wipe off any excess flour from the outside. *Now get squeezing.*



DECODING *the* BIAS *of* AI

TO COMBAT BIAS IN TECHNOLOGY, WE NEED TO FIRST KNOW WHAT IT IS AND HOW IT WORKS.

By Christopher Null

The concept of artificial intelligence (AI) algorithms running amok is a popular dystopian fantasy – but it's one that appears to be closer to reality than ever. Why? Because bias and a lack of governance over AI initiatives continues to be problematic, with the industry beginning to strain due to a lack of standards and regulatory oversight into the way AI is developed and used.

Businesses are feeling that strain. In a recent Pega survey of 6,000 enterprise business leaders across six countries, AI governance was a top concern, with 70% expressing fears about AI. Some 65% of respondents in Pega's Tech trends 2025 survey said external governance was insufficient, while 27% said their organization had no internal leader in charge of AI governance.

"To understand how bias can be combated, we need to first know what it is and how it works," says Chris Hazard, chief technology officer at Diveplane, an AI company. Bias takes a wide array of forms, explains Hazard, from selection bias (from improperly randomized or misleading training data) to reporting bias (when a data set is too narrow to mirror reality).

Even when bias is revealed, it can be difficult to correct. For example, banks know there's a correlation between ZIP code and race, says Hazard: "As such, they're afraid to include it in machine learning models. If you remove machine learning's ability to see ZIP code, but there's another proxy that's measured, such as shopping and store preferences, the model will attach to that instead and create a similar bias."

Recently, AI developers have begun removing known problematic data points and then "hoping for the best," he adds. "But you're just shifting the problem and making it harder to diagnose."

An emerging solution is to leave problematic data in place but subject it to increased scrutiny – and then correct for these factors as results are analyzed. This can be helpful in determining factors where so-called multicollinearity is an issue. Says Hazard, "It's possible that bias is being created by factors that have relationships that might not be immediately apparent."

Technology can help with this calculus. For instance, IBM's open-source toolkit, AI Fairness 360, and Rolls Royce's Aletheia Framework help practitioners gauge whether an AI model is biased. "Bias is an addressable, largely solvable problem," says Hazard, "but it's critical that efforts to correct are done correctly, without over or under correcting."

Organizations know there is some level of bias in their algorithms, but unless it causes a scandal, dealing with it often takes a back seat.

Of course, knowing the solution is one thing. Implementing it is another.

"In general, the issue isn't whether industry has effectively developed solutions to combat bias," says Reid Blackman, founder of ethics-focused Virtue Consultants and a founding member of Ernst & Young's AI Advisory Board. "The issue is simply the lack of will to enact these solutions and properly support them from the top."

Blackman notes that the sources of bias are increasingly well known so it isn't hard to identify solutions. There just isn't much financial motivation to follow through, namely in the form of key performance indicators that have relevance to business. In short, organizations know there is some level of bias in their algorithms, but unless it causes a scandal, dealing with it often takes a back seat.

"There are a lot of things to do to combat bias: Educate staff, train staff, financially incentivize staff, create bias mitigation frameworks, create ethics committees, and so on," says Blackman. "But most companies that develop and/or procure [machine learning] solutions don't do any of these things. The problem is not lack of strategy or tactics. It's lack of will."

None of that may ultimately matter, though. Dismayed by recent, damning incidents, such as Facebook's AI algorithm labeling Black men as "primates," governments are stepping in with regulatory proposals.

The EU has proposed a formal legal framework for AI, building off its 2020 whitepaper, "On Artificial Intelligence – A European approach to excellence and trust."

In part, that framework is meant to "ensure that AI works for people and is a force for good in society," as the whitepaper notes.

It specifically addresses ethics, trust, and bias in its extensive list of recommendations. In the U.S., at least 17 states have introduced bills or resolutions regulating the use of AI.

In other words, if the industry can't figure out how to implement bias mitigation solutions on its own, it may soon have a new headache: figuring out how to comply with a patchwork of AI regulations, the same way it already has to deal with a complex web of consumer privacy laws.

Blackman is at least hopeful. "The rate of awareness and adoption of bias mitigation techniques is slow but increasing," he says, "and given the zeitgeist, there's good reason for thinking it will continue to grow."

Hazard concurs. "Dialogues with society need to be had to make this a reality," he says. "I'm not without concern, but I am definitely optimistic."

By Kristin Burnham

How INCLUSIVITY will win tech's talent battle

ORGANIZATIONS ARE STRUGGLING TO HIRE AND RETAIN TECH TALENT. A DIVERSE WORKFORCE IS KEY TO THEIR SUCCESS.

During her first week as a product marketer for a technology startup in Silicon Valley, Adriana Gascoigne received a disturbing email. It was from one of the company's lead engineers. It described in detail his infatuation with how she looked and professed his desire to be with her – content so inappropriate that Gascoigne first assumed the email was spam.

"That was the beginning of a whole series of issues," she says. In the weeks and months that followed, Gascoigne experienced more sexual harassment, profane language, and a dismissive supervisor who, when she raised these concerns, deemed her *too sensitive*.

"This wasn't a conducive work environment for diverse groups of people – specifically women," she says. "I thought it was par for the course – that I had to deal with it and suck it up. But that saddened me because I knew a lot of other people who were experiencing the same things."

That realization inspired Gascoigne to found Girls in Tech, a global nonprofit dedicated to creating and nurturing a diverse and inclusive technology workforce. Through online and in-person classes and training, Girls in Tech aims to empower, educate, and mentor women through career development and job opportunities. Since its launch in 2007, the group has grown to more than 80,000 members in 55 chapters across 38 countries.

Today, diversity, equity, and inclusion (DEI) are among the most critical issues tech companies face, according to Pega's Future of IT survey. While the tech industry is slow to make progress, Gascoigne says, the benefits for companies that get it right are invaluable.

The statistics bear that out. Companies that focus on ethnic and cultural diversity are 33% more likely to outperform on profitability, according to McKinsey, while companies with diverse management teams produce 19% more revenue, the Boston Consulting Group has found. Not only that, but organizational teams that focus on DEI tend to deliver the highest levels of engagement, according to Deloitte. Meanwhile, Harvard Business Review says diverse teams have been found to solve problems faster than teams of cognitively similar people.

Despite those undeniable benefits, many tech companies struggle to improve in DEI hiring and retention. Google, for example, has only increased the number of women in its workforce from 30% to 32% between 2014 and 2020. Facebook's percentage of women in the workforce has been slow to climb, too, rising from 31% to 37% during the same period.

It may be because driving improvements in DEI can be tricky. The necessary conversations can be difficult to have. "A lot of people don't want to talk about it, often out of fear of saying the wrong thing," says Gascoigne. Executives feel pressure because they realize how important DEI is.

Power poise *Adriana Gascoigne (right, in Newport Beach, California), founded Girls in Tech to create a diverse workforce.*

The result is less than stellar. "They're saying, 'We have to implement all these different types of tactics and ideas to make sure we're DEI-compliant,' to the point where they're pushing for certain hires even if they don't deserve the role," says Gascoigne, "which creates controversy and conflict within companies."

Improving DEI in organizations is a lengthy process. But there are steps companies can take to make progress. Gascoigne says this starts with an audit to understand a variety of factors, including gaps to fill to create a better work environment. Organizations should examine all policies across the company for opportunities to improve diversity and inclusion, commit to an agenda, and ensure that agenda cascades throughout the organization. They should also launch leadership training, mentorship and sponsorship programs, and employee resource groups.

It may be a hard journey, but it's a worthy and productive one, as Gascoigne has witnessed firsthand. "Companies are now hiring DEI executives and they're holding themselves accountable. Things are changing, even though it's slow," she says. "The women in tech pipeline is increasing – not just in the U.S. but around the world – and it's really exciting to see that."

To help things along, Gascoigne is ramping up for a busy 2022 with new programs, skill-building bootcamps, e-learning opportunities, hackathons, mentorship programs, and in-person events.

"We take pride in building a community not only for our members, but also for companies, institutions, government entities, and media networks to work together to create a better workforce culture where equity, inclusivity, and diversity gaps don't exist," she says. "It takes a village to solve these programs, and we're making progress."

Alex Tehrani

How Pfizer created a frictionless drug-development project management system

By Mickey Butts

Drug discovery and development are complex. For every product like Pfizer's breakthrough COVID-19 vaccine, the pharma giant investigates many more options that could work in clinical testing. That means it has hundreds of active projects under way at any one time. Each of those research and development projects requires a project manager to create project codes and update project status, performance metrics, and scheduling information throughout the drug development process. If there's anything amiss in the process that could delay a drug's approval, the company's leadership needs to know about it and the appropriate researchers need to address it as soon as possible.

To help manage all of this complexity, Pfizer digitally transformed its legacy Snapshot project management system into an end-to-end, AI-powered automation tool that tracks hundreds of project elements. Information now flows from project managers into a data warehouse through an intuitive user interface. The data feeds into interlinked dashboards that R&D and operational leadership teams use to track project status and manage risk.

As a result, data went from static status updates that were instantly out of date to real-time data flows that serve as the single source of truth. Project managers are freed up to do more higher-order tasks. Transparency of project risks and any issues that affect the drug delivery timeline increase substantially, enabling early intervention to prevent projects from going "off track."

"We rolled out the new Snapshot in spring 2020 right as the COVID-19 pandemic hit and forced everyone to work from home," says Erin Petty, portfolio director of global product development at Pfizer. "Pfizer's reimagined R&D tool provided a mechanism for ensuring the critical project information that our people needed was readily available online in real time."

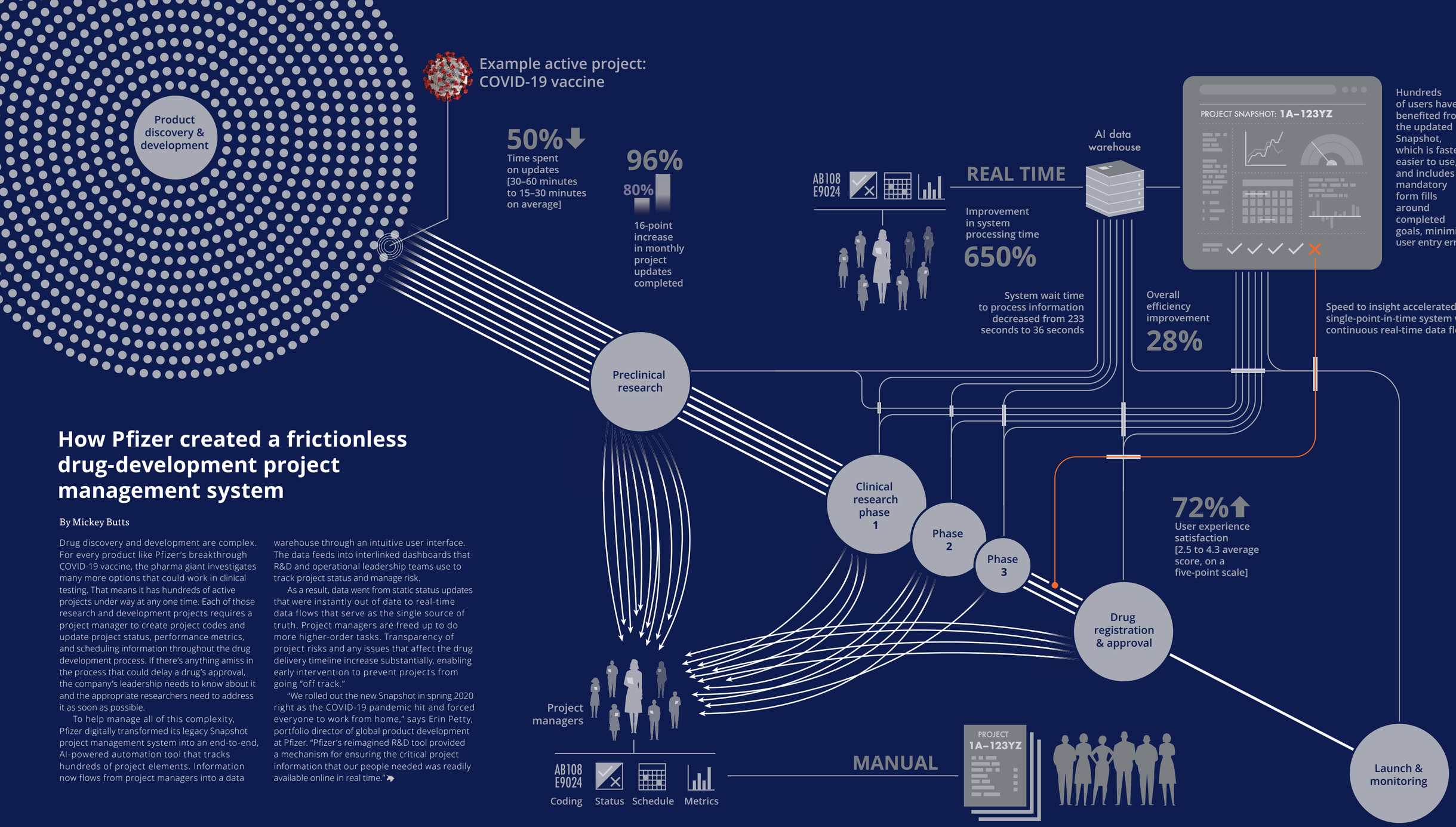


Illustration: Chris Kaeser

Lila Benhammou

By Howard Rabinowitz

Start your automation journey – but watch your step

A CONVERSATION WITH LILA BENHAMMOU, CEO of Humans4Help

ROBOTIC PROCESS AUTOMATION (RPA), a suite of digital technologies that automate manual workflows, delivers value. By eliminating repetitive tasks, it frees talent to focus on more high-value work, reduces costs, and improves quality. In the first year, a company's return on investment in RPA can be 30% to 200%, according to McKinsey.

No wonder the RPA market is exploding. In 2021, enterprise spending on RPA was $1.89 million; it's projected to hit $13.74 billion by 2028, according to Grand View Research. Today the lion's share of that spending (46%) is by financial services companies, but RPA is poised to transform every industry, from healthcare and IT to retail and manufacturing.

For organizations just beginning their RPA journey, the road has pitfalls. They'll have to figure out how to structure their unstructured data (such as video, voice, social media, PDFs, and IoT devices), which can comprise as much as 80% to 90% of a company's data. They'll need to find ways to integrate new technologies into legacy systems. Perhaps most important, they'll need to decide where and how to begin.

To help navigate these challenges and look at how RPA is evolving, we caught up with Lila Benhammou, founder and managing director of Humans4Help, a digital technology consulting firm that helps its clients leverage RPA for maximum business value.

How should companies approach RPA to get the most out of their investment?

The first step is to understand your business processes well. The selection of which processes to automate is critical to the success of an RPA journey. The bottom line is: the simpler, the better. Maybe 80% of the time, companies choose very complex processes to start with, which is absolutely wrong.

What's an example of a process that might be too complex?

It can be a matter of input-output, like trying to automate processes that rely on a lot of unstructured data, or trying to use data that is difficult to access because it's on a legacy system. Those factors add a lot of complexity, but it can be a tricky thing to explain that to a company. Often they will say, "Complex or not, this is what I need." If they forge ahead with it, it can be a pity, because their first experience with RPA will be a bad one. They might say, "We tried it, it failed, and we're done with RPA."

When you work with a company, how do you help them decide which processes might be best suited to automation?

We recommend three steps. To begin with: Think big. Often when we work with clients, we generate a heat map of their business processes – for example, finance, legal, HR, and IT processes – to chart which ones are repetitive and labor-intensive, which require the most resources in terms of employee time and expense, which are connected to one another, and so on. That helps us visualize operations, begin to explore where RPA makes the most sense, and discuss specific goals.

The next step is: Start small. We should select one or two killer use cases where we know that we're going to get the best reduction of repetition along with the best buy-in internally, because leadership needs to be convinced that the effort is worthwhile, and so do managers and workers and so forth.

The third step is: Scale fast. When we've chosen our use case or cases, we should establish a concept of excellence around measurable outcomes that reflect value internally as well as externally for customers. If our pilot case delivers on that concept of excellence, then we go big.

RPA is evolving fast, integrating with AI tools like natural language processing, speech recognition, and computer vision. How can we expect its capabilities to change in 2022?

> **Tomorrow,** with AI, bots are going to be thinking like humans.

We're going to see more and more cognitive RPA. Last year, RPA was task-centric, like a human doing a repetitive task but faster and without mistakes. Tomorrow, with AI, bots are going to be thinking like humans. They will increasingly be able to make intelligent decisions. A chatbot, for example, will interact with more intelligence, deal more with an unstructured world, and make sense of it more like a human. I like to say, "To act like a human, think like a human."

Low-code tools have put RPA within grasp of people who are not technologists. Has that enhanced companies' ability to leverage RPA?

Yes, definitely. Making the complex simple is basically what low code/no code is about. It's a very user-friendly interface, so you can very easily onboard the lines of business, the owners of these business processes, who may have no clue about the nuts and bolts of IT. Explaining how RPA will work and benefit them can be complex. With low code/no code, you can create your business rules and your workflows in the morning, and they'll see results by the end of the day. That's going to lead to high adoption of those kinds of tools.

Illustration: Nick Matej

WORKFORCE BLUEPRINTING

To design a resilient enterprise, focus on your people.

By Liz Fealy and Dan Higgins from Ernst & Young

For most enterprises, the pandemic pressure-tested their technologies, processes, and people. IT teams raced to equip remote workers with devices to do their jobs and, at the same time, expedited digital transformation projects to keep enterprises running – and in many cases grow their market share.

Of course, it wasn't all seamless. What we saw with our clients was that sometimes the tech failed, and the process failed. But the people were the safety net. They proved resilient. Because of that, enterprises that are looking to adopt new technologies and digitize manual and repetitive workflows – a key to maintaining business resilience – are now putting people at the center of their future-proofing strategies.

So, to be smart and strategic about what they automate, business leaders are asking themselves four questions in this order: What work needs to be done? What work can be automated? What work is created or remains for people? And what skills are needed for people to deliver that work? That's how you design a strategic workforce. That's how you successfully automate manual and repetitive tasks. And that's how you free up workers and give them the capacity to innovate, to skate to where the puck is moving and toward the problems that will need to be solved. We call this "future workforce blueprinting."

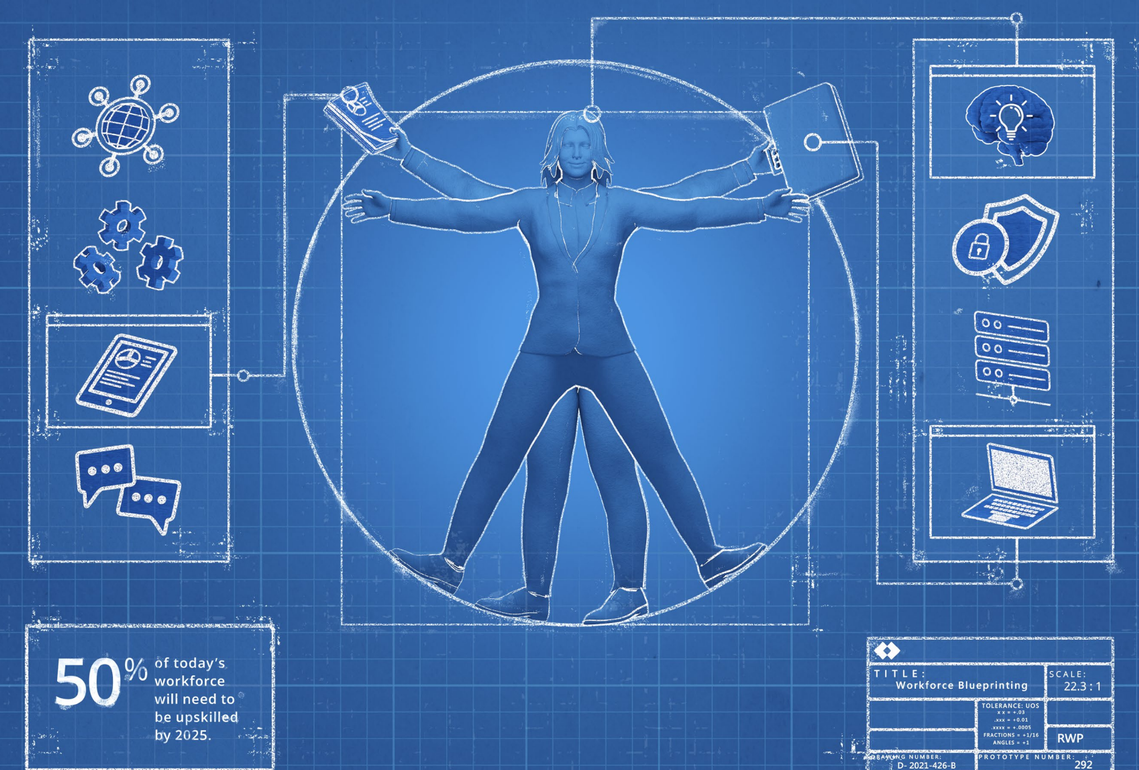
One aspect of blueprinting is making your workforce sustainable. You do this through upskilling versus getting rid of workers and hiring new ones with new skills. The World Economic Forum estimates 50% of today's workforce will need to be upskilled by 2025, primarily as a result of workplace automation.

Future skills are now top of mind. As one chief technology officer told us, "I need people to be tech proficient. But I also need 360-degree thinking, for hyper collaborating across the business." That means workforce planning needs to be done hand-in-hand when planning major technology investments.

There's this newly popular notion of a composable business, a term first popularized in 2014 to showcase the transformative power of cloud computing on enterprises. This notion has gained traction since the start of the pandemic. It means combining agile business models with digital technologies to adapt – not just to a pandemic but to market needs, customer needs, and internal enterprise needs.

It's important, but it's not people centric. It's still in many ways technology and process centric. It's good because it forces you to think about assembly rather than build. How you leverage ecosystems. How you leverage services. How you leverage assets that you bring together and combine in novel ways.

But let's not forget people. It takes all of these – automation, the assemblage model, and most of all a strategic workforce – to create resilience. Whether it's a pandemic, a cyber attack, or market challenges. That's how an organization and its people remain vibrant, healthy, and strong for whatever comes next.



RECENTLY, I had a chance to do something still rare in business today: meet face to face for lunch.

At a chain restaurant in Los Angeles (I had suggested a steakhouse, but accepted the practicality), I met with the CIO of a regional bank. We took time to catch up on the previous six months and then discussed initiatives she had on her radar for 2022. Like other IT leaders, the pandemic had changed her role and how the rest of the organization viewed her team.

Because COVID-19 had accelerated the pace and demand for digital innovation, it had transformed her in the eyes of her CEO. He now saw her as a change agent and a business partner, not just someone who chooses the technology stack. Her team was now at the center of major transformation activities.

But there was concern. Like dozens of other technology leaders whom I've met with recently, this banking CIO had become accustomed – like all of us – to the 2D world of screens. But it's the 3D world, the in-person world of lunches and strategy sessions that tomorrow's IT leaders need to excel in.

TECHNOLOGY LEADERS HAVE BECOME ACCUSTOMED – LIKE ALL OF US – TO THE 2D WORLD OF SCREENS. BUT IT'S THE 3D WORLD, THE IN-PERSON WORLD OF LUNCHES AND STRATEGY SESSIONS THAT TOMORROW'S IT LEADERS WILL NEED TO EXCEL IN.

DO IT BETTER

By Clay Richardson
CEO, Digital FastForward

HERE'S HOW LEADERS LEAD IN 2022.

This idea is substantiated by Pega's Future of IT survey, which shows executive roles shifting. Soft skills, like leadership, emotional and social intelligence, and problem solving, will become critical to driving business innovation. Senior vice presidents said leadership skills would increase in importance, from 29% now to 43%. Directors said it would increase 28% to 34%.

These skills are best honed in the real world. But even if you're remote – or, like an increasing number of us, hybrid – there are strategies you can start thinking through to build your change management capabilities. The key is crafting a playbook that includes these three soft skills:

EMPATHY. We've all heard this buzzword. But empathy without true understanding is pointless. Shane Bray, head of customer experience at Blue Cross and Blue Shield of Louisiana, pushes his team to develop a deep understanding of internal stakeholders and customers. This means getting out, talking to customers, learning about their pain points and aspirations. Shane, a former U.S. Air Force veteran who served as a combat medic and who is himself deeply empathetic, recently told me, "Curiosity is what drives empathy and deepens your understanding of a problem. Curiosity requires you to look authentically at how you're going to solve a problem."

This past summer, Shane's team led a three-day solution design sprint across a hybrid team made up of 30 technology, business, and customer experience leaders. Shane used design thinking to deepen the team's empathy and understanding around transforming the healthcare member experience to quickly resolve medical claims issues. During the sprint, Shane urged the team to interview at least one external customer as part of the customer observation stage. Several interviews completely changed their perceptions of what solutions would work best.

"Insights uncovered through customer interviews unlocked new ideas for eliminating the frustration members go through when claims are denied, and in some cases preventing claims from being denied altogether," Shane told me.

INFLUENCE. In the innovation leadership coaching program I run, technology leaders say that "building influence" is their biggest challenge. They want to get better at influencing strategic decisions and digital transformation priorities. But how?

I asked one manufacturing technology leader why he lacks influence with executives. "They don't trust my team to drive innovation because they don't believe we fully understand the business's priorities and they believe we slow down innovation," he said.

He needed to prioritize building trust before he could build influence. That's because influence is not about gamesmanship. It's about being of service to others. One technology leader told me she built influence by focusing on a personal mission statement: "To deliver new innovations that help lower the cost of home ownership for families buying their first home." If you're looking to build trust, check out David Horsager's book "The Trust Edge," which focuses on personal consistency, compassion, character, competency, and commitment.

FACILITATION. Unlike teaching, facilitation is helping guide, orchestrate, and support collaboration across different stakeholders. Shane told me, "The advice I give to other leaders is that you have to learn when to shut up in meetings, and also learn when to speak up."

Shane says that technology and business leaders must facilitate conversations in groups and one-on-one. Remote facilitation tools, while handy, are no replacement for actual facilitation skills. While software that provides virtual digital white boards are useful, remote participants often get lost in the tool instead of working together. The most important facilitation tool is you. Your energy brings life to the conversation and helps drive consensus around big decisions.

Taking the time to build relationships – through one-on-one check-ins (even if that's a quick lunch at a chain restaurant not of your choosing) helps you gain perspective that is crucial when it comes time to facilitate change or build consensus. Investing in upgrading your personal operating system is not just about taking a new course or going through a soft skills training program. Instead, you must build new innovation muscles. That is one of the greatest transformation opportunities you will face in your career as a technology leader.

Anton Downs Illustration: Richard Parry

ARIES
(March 21 – April 19)
The previous year left you feeling stifled – especially at work – and, at times, flattened you out. Peel yourself off the pavement (you've never been one to stay down). Transformation won't be easy, but this month brings a sense of purpose and a roman candle of creative energy. This will inspire you and lighten whatever load you choose to carry. But you'll want to pace yourself to make inspiration last.

TAURUS
(April 20 – May 20)
You are entering the new year in a position of power and respect. You've earned it. This is the payoff for the hard and smart work you put in over a very difficult period of your life. Some will now ask you to take the lead on some major decisions. Use your decisiveness, critical thinking, and authority to choose the best option. In the words of another super achiever: "With great power comes great responsibility."

GEMINI
(May 21 – June 20)
Work-life balance takes clever footwork and poise, but you've proven yourself a champion log roller – no one puts you in the water! Now it's time to use those skills (and your understanding of what truly matters) to further sharpen your social intelligence for the year ahead. It will be just as crucial as your technical expertise. Mentor others who will need your leadership and be an example of persistence.

CANCER
(June 21 – July 22)
There is so much you want to achieve, but you will face roadblocks. Because you don't move on easily or willingly close out chapters of your life, you will stubbornly try to surmount your troubles. That's OK. Just don't get overwhelmed or frustrated. Delays will be a blessing in disguise. Use the extra time to reevaluate your own self-imposed deadlines and solve problems creatively. Time is just what you need to focus on big ideas that move the needle vs. the day-to-day minutiae that just scratch your vinyl.

LEO
(July 23 – August 22)
You lions are a vivacious and theatrical bunch, but you're also second-guessers to the point of inertia. Time to tame that habit. Imposter syndrome (which you may feel from time to time) does you no favors. Let your inner confidence and curiosity help you seize new opportunities. The more passionate you are about them, the more successful you will be. Just make sure to vet them all, in your royal manner.

LIBRA
(September 23 – October 22)
Trusting your gut on your next move (and who to partner with) will be critical to your success. You might not think you're ready to make any radical changes – but you are. You've done things a certain way, but you'll now be open to exploring new ideas and even new ways of thinking. Trust in yourself and your process. It's time to shake things up.

THE NEW MOON in Capricorn on January 2 marks a boundary line, a time for taking stock of personal and professional achievements and setbacks – and charting a new course. However you craft your resolutions (whether on sticky notes or slide shows), choose your words carefully. And pay attention to the fine print; those tiny typefaces can seal or ruin a deal.

VIRGO
(August 23 – September 22)
The inspiring and creative opportunities you've been waiting for are on their way. Now is the time to upskill, start a new project, or change careers. Yes, change is scary but you are logical, practical, and systematic in all you do. You'll be fine. But make sure to lean on friends, family, and colleagues.

SCORPIO
(October 23 – November 22)
Thanks to your preparation and detailed planning, your work and life projects are well underway. You gave yourself a precious gift: time. Use it to expand your vision, collaborate, or even pursue a field of study that will take you to the next level. Be mindful to not burn out. All that work you did up front bought you time not only to learn, but work at a much more reasonable pace. Find the balance.

SAGITTARIUS
(November 23 – December 21)
Things are about to move fast. Don't resist this high-energy time. You might feel like you're being pulled in too many directions. Maybe you're working with many different teams and stakeholders. If you're feeling overwhelmed, take a step back and re-center around what you've been striving to achieve. Take a breath, stay grounded, and focus on your long-term vision.

CAPRICORN
(December 22 – January 19)
You are finally coming out of a frustrating and exhausting period. It's time to step into your role as a leader and visionary. A big part of that is delegating, decentralizing responsibility, and inspiring teamwork. Take the lessons you've learned along the way – picking your battles wisely and failing fast – and leave the past in the past.

AQUARIUS
(January 20 – February 18)
You're an idea person through and through, and people look to you to help them reach their goals. However, that also means you have a lot going on – always. It's important to stay focused on your goals and not get swept up in everyone else's. Leaders know how to gain more dynamic skills by collaborating with others. Choose your activities wisely to set yourself up for short-term wins and long-term success.

PISCES
(February 19 – March 20)
If things didn't work out the way you planned last year, it was all part of the process. Your struggles haven't been in vain. You are incredibly determined and persistent. If you recognize how far you've come and the skills you've acquired, others will as well. It's time to advocate for yourself and get the recognition you deserve.

By Reena Leone