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After years of casual courting, IT and business are finally forging effective ways of working together to pursue shared objectives for digital transformation.

STATE *of the* CIO

BY BETH STACKPOLE

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IT-business alignment (finally) gets real

After years of casual courting, IT and business are finally forging effective ways of working together to pursue shared objectives for digital transformation. **9**

BY BETH STACKPOLE

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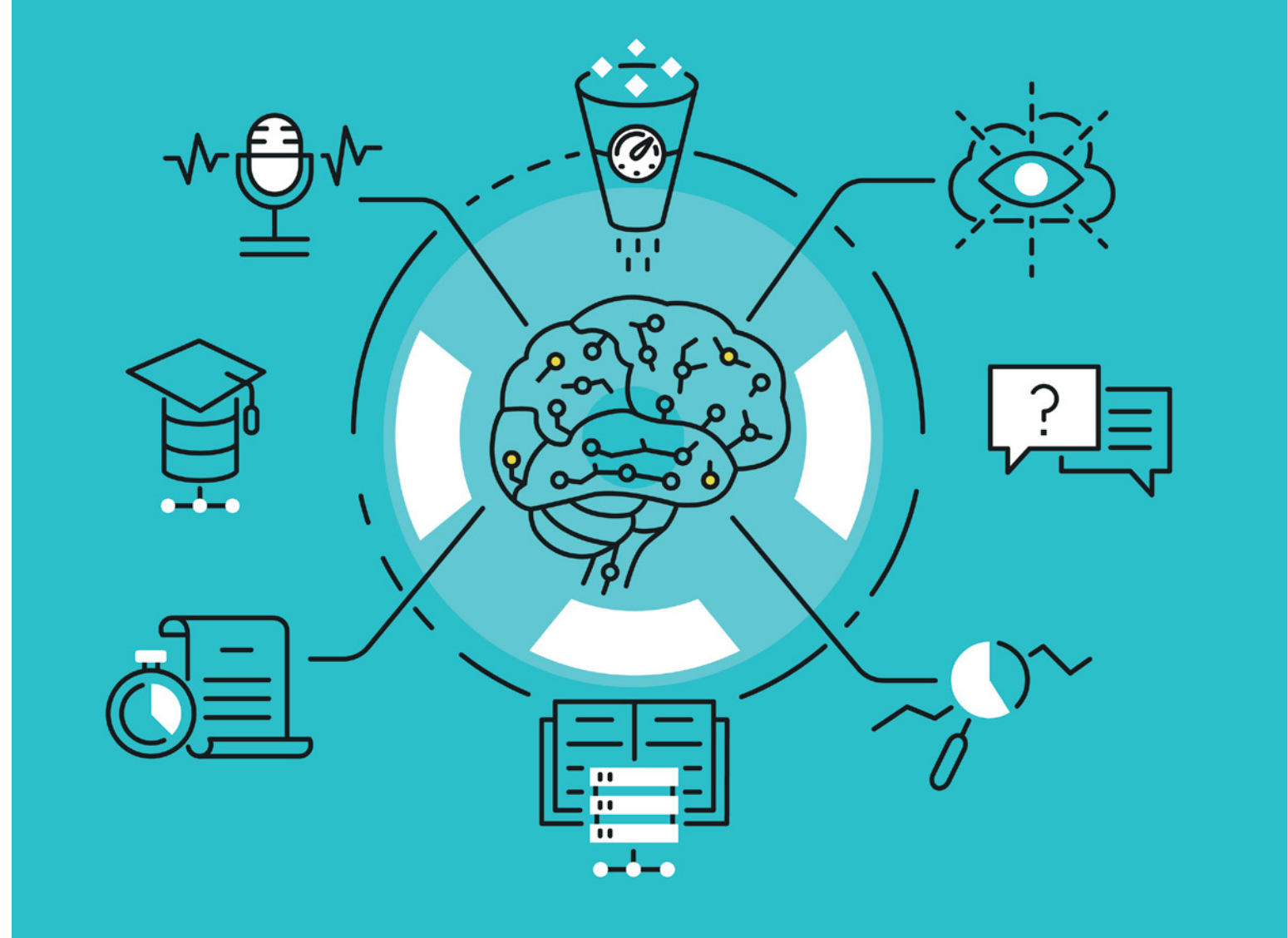
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CIO's 2018 Tools

Projects primed for machine learning

With AI becoming strategic, look for projects that can give you quick business wins

BY MARY BRANSCOMBE

For most businesses, the best way to take advantage of machine learning remains something of a mystery. Still, the drumbeat to experiment keeps getting louder.

Here are eight IT projects that almost any organization will find useful in getting started with machine learning — even if you don't have the budget or the in-house talent to build systems from scratch.

1 Customer service

Using the Microsoft QnA Maker, you can turn a list of frequently asked questions into a customer service chatbot. If you want to have a more interesting interface than just text replies, you can use the .NET SDK and the Microsoft Bot Framework to create a bot that shows pictures and rich content. If you prefer the serverless approach, QnA Maker is one of the templates in the Azure Bot Service, so you can create a bot that works on email, GroupMe, Facebook Messenger, Kik, Skype, Slack, Microsoft Teams, Telegram, text/SMS and Twilio.

2 Marketing

Services like Adobe Marketing Cloud, Dynamics 365 and Salesforce are starting to offer machine learning predictions for everything from recommending related products to personalized search results, classifying sales leads, warning you when a deal is going cold, finding alternate

sales contacts, and even suggesting how and when to reach out to them. If your marketing team isn't already looking at these tools, this is a good way to apply machine learning directly to your bottom line.

3 Fraud detection

On any given day, the merchants that fraud prevention company Fraud.net protects might face a hundred different fraud schemes, each with dozens of variations. Rather than trying to create a single model to score every possible kind of fraud, Fraud.net uses Amazon Machine Learning to train multiple machine learning models to spot a range of fraudulent activity, such as scammers making multiple payments just under a trigger limit, new merchants exhibiting unusual behavior and seemingly legitimate customers who are connected to a network of scammers.

4 Inventory planning

Supply chain automation isn't new, but machine learning is making it much more common. Instead of having just historic sales data, machine learning lets you use data about the way customers research purchases online, the impact of weather on shopping habits and other internal and external trends to manage inventory by forecasting demand. Amazon claims it can predict exactly how many shirts of a particular color and size it will sell every day; Target credits machine learning predictive models with 15 percent to 30 percent growth in revenue.

5 Route planning

You can use the predictive traffic services in the Bing and Google Maps APIs to create isochrone maps that show you not just distance but travel time to compare how many

customers an engineer could reach in a 15-minute drive from various starting points or find the best time of day to make deliveries. (Use the preview Bing Maps Truck Routing API to get routings for commercial and service vehicles that are larger than the average car.) Add in asset tracking and location triggers and you can create your own logistics solution.
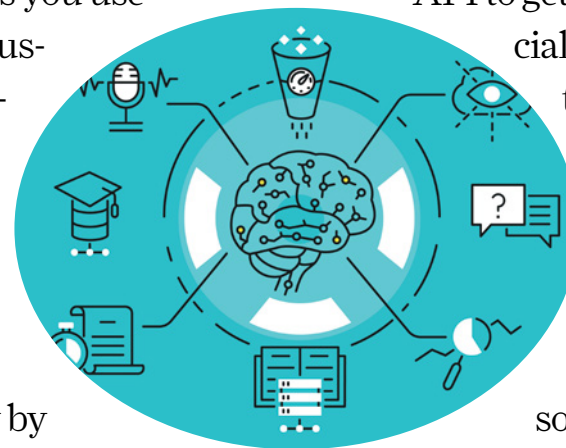
6 Predictive maintenance

When Thyssenkrupp used Microsoft's Azure IoT Suite to remotely monitor sensors, predict failures and preemptively service equipment in the 1.1 million elevators it installs and services, it didn't just increase customer satisfaction by fixing problems before they caused a breakdown. It reduced costs by fixing more issues on the first visit and by predicting what spare parts to carry in inventory.

7 Security

Windows Defender Advanced Threat Protection is a machine learning service that analyzes the behavior of PCs on your network running Windows 10 Enterprise and tells your security team whether an attack is a malicious process, social engineering or a document exploit. You'll still need to dig into logs and deal with the consequences, but Windows Defender ATP can help cut through the noise.

8 Recruitment

There's a growing push for diversity in business, but the way your recruitment team words job postings can actually discourage those applicants. The Textio service uses AI to flag corporate jargon, clichés, stereotypes and other off-putting phrases in job postings and recruitment emails to help you get a wider pool of applicants. SAP SuccessFactors has a similar tool. ♦

Mary Branscombe is a contributor to CIO.com.

Matson IT delivers unified success

A multiyear IT consolidation and cloud migration effort at shipping company Matson led to massive savings and competitive efficiencies. CIO Peter Weis shares his keys to success.

BY BRENDAN MCGOWAN

Matson is an organization with global ambitions. The 135-year-old shipping company, formerly Matson Navigation, has grown from a Hawaiian regional institution to a multiregional player.

Success hinged not only on establishing new trade routes, but also on fulfilling a corporate obligation "to do so without diluting our brand, without eroding mar-

gins and without damaging the customer experience," says Peter Weis, vice president and CIO at Matson.

Regional expansion was linked on a technological level with the need for a "single version of the truth" through a unified platform, Weis says. On this platform, a single set of business rules would dictate every shipment, from order initiation to fulfillment and payment. It would allow for swift reconciliation of claims and customer service issues, as well as unify the company's analytics.

Ultimately, Matson cut its IT operating costs by 50 percent by shuttering its four data centers and moving to Amazon Web Services (AWS) in 2016.

6 components of success

1. THE ROADMAP. With a vision of Pacific expansion articulated by the CEO and board, Weis identified specific technology goals to support that effort. Ultimately, this

> "You have to be both **ruthless cost-cutters** to free up capital and then you need to be **shrewd investors** betting on the right technology, hiring the right kinds of skills, and picking the right technology tools."
>
> – **PETER WEIS,** VICE PRESIDENT AND CIO AT MATSON

meant moving 15 large projects and 60 smaller projects onto a new technology platform and gradually switching off pieces of the company's legacy technology stack.

2. THE TECHNOLOGY STACK. Matson benefitted enormously from its adoption of a J2EE platform, supplemented with open-source tools wherever feasible. "We thought open," Weis says. "We thought standard. We thought, 'Don't get locked in.' It proved to be just a spectacular set of decisions.

"We didn't foresee AWS coming along and doing what they were doing when we started. But it's not

a coincidence that entry into cloud hosting was in largely open-source standard Java, J2EE-architected systems because that has proven to be the best platform to build on."

3. GOVERNANCE. At Matson, the IT executive committee sets direction and approves high-level funding, as well as midlevel operating committees and project-level oversight.

At the same time, Weis says, for every formal piece of the governance framework, there is an informal element. In most cases, this involves collaborating with non-IT peers on how to make the

most of technology or how to provide executive sponsorship on a project.

4. FOCUS ON FINANCE. Weis stresses that during any transformation, IT leaders need to be "wise stewards" of company funds.

"This is very important when you do a multiyear transformation, because you have to be both ruthless cost-cutters to free up capital and then you need to be shrewd investors betting on the right technology, hiring the right kinds of skills, and picking the right technology tools," Weis explains.

5. CHANGE MANAGEMENT.

Matson is in a traditional industry, and its assets are geographically dispersed. On a day-to-day basis, and especially during its long-term transformation, Weis needed to understand how IT could help drive impactful change in the most effective way possible. For five years, he fielded a 33-question survey to his colleagues that assessed IT's contribution on tactical and strategic levels.

"Once I had data that showed we did a good job of keeping the lights on but a terrible job of strategy and innovation, I used that information to drive changes," Weis explains. He advises all IT leaders to find a change management framework and stick to it.

6. SUSTAINABLE INNOVATION.

Weis says the multiyear initiative would have been unsustainable without building a sense of authentic community.

"The key to executing such a

> "[This is] not **burnout innovation** where you work on a project for six months or a year, and everyone is left exhausted or they head off to Maui for two weeks hoping to rejuvenate or update their CV." – **PETER WEIS,** VICE PRESIDENT AND CIO AT MATSON

long transformation cycle was really focusing on what I would call sustainable innovation," he explains. "[This is] not burnout innovation where you work on a project for six months or a year, and everyone is left exhausted or they head off to Maui for two weeks hoping to rejuvenate or update their CV."

And he keeps things in perspective: "Our careers are too long to spend on work that doesn't make us feel alive."

Ultimately, in spite of dynamic and sometimes difficult transitions, Matson was committed to developing and training the right

talent. Matson has never cut its skills and development budget, Weis shares, even during the Great Recession.

Matson's transformation from DOS-based PCs to the cloud has led to massive savings and competitive efficiencies. Over the course of this long-term effort, technology platforms have evolved significantly. Matson's six keys to success, however, have proved to be reliable constants over time. ◆

Brendan McGowan is global media bureau and client research manager at the CIO Executive Council.
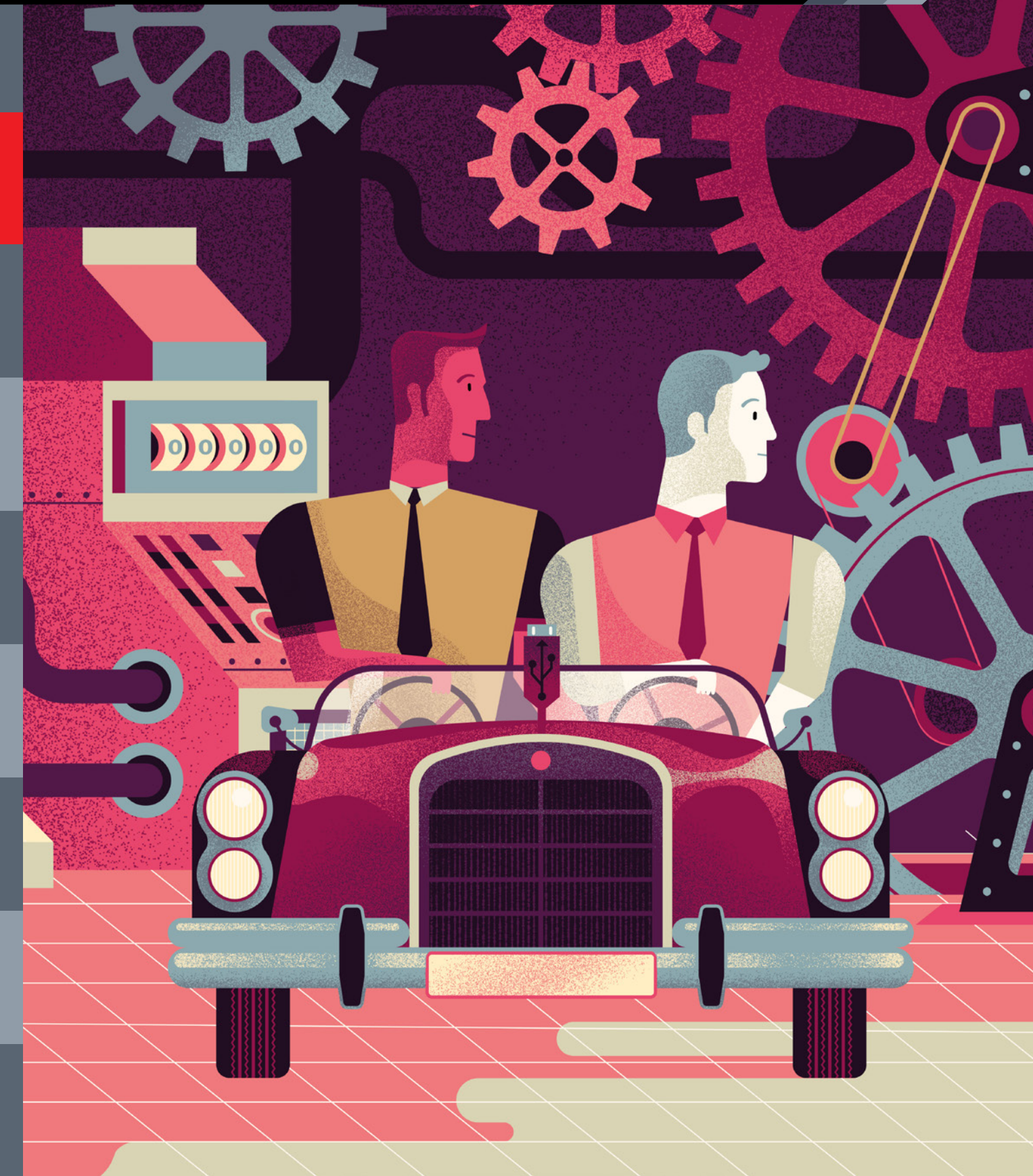
IT-BUSINESS ALIGNMENT (*finally*) GETS REAL

After years of casual courting, IT and business are finally forging effective ways of working together to pursue shared objectives for digital transformation.

BY BETH STACKPOLE

For years, CIOs have been chasing the Holy Grail of IT-business alignment with limited success and plenty of indigestion.

Digital transformation has elevated the CIO role, yet IT leaders still struggle to foster effective collaboration between their organizations and business units at a holistic level. Long-standing perceptions of IT as mired in the technical weeds, disconnected from core ▶▶▶

business objectives and a bottle-neck for speedy deployments, cast a shadow on the relationship, with lines of business (LOB) often taking a view of IT as an obstacle, not an enabler, for strategic innovation.

While some disconnect remains, IT and LOB have turned the corner and are working far more collaboratively than in the past. The 2018 State of the CIO survey found stronger coop-

While some disconnect remains, IT and LOB have turned the corner and are ***working far more collaboratively than in the past.***

eration and better alignment between IT and its LOB partners, especially as digital transformation initiatives heat up. During the past year, almost three-quar-
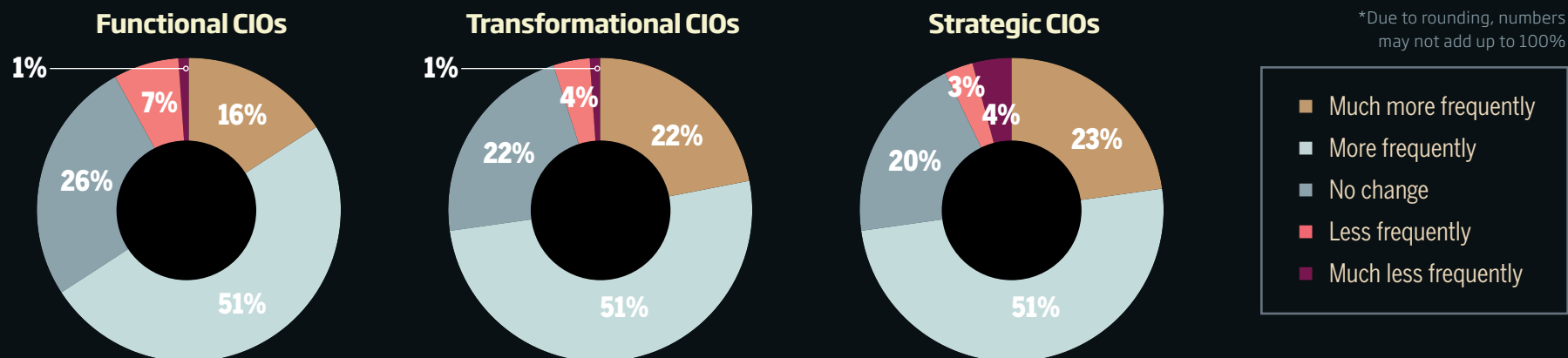
ters of respondents (71%) said IT and LOB engage more frequently in collaborative projects where there is shared oversight.

On the digital transformation

front, in particular, CIOs are playing a significant role assisting the business in driving innovation. Eighty-eight percent of IT leaders and 64 percent of LOB see the CIO role becoming more digital- and innovation-focused, the survey found. To that end, 37 percent of IT leaders said they actively engage with LOB to identify possibilities where technology can alter the business, while 22 percent are a guiding force in selecting the right emerging technologies to accelerate that transformation. The CIOs more likely to be active participants in digital innovation describe their role as transformational (36%) or strategic (45%), versus those that operate in a purely functional (32%) capacity.

TURNING THE CORNER ON COLLABORATION

Over the past 12 months, to what degree has there been a change in the frequency of "collaborative" projects where IT shares oversight to some degree with departments or lines of business?

Functional CIOs
- 1%
- 7%
- 16%
- 26%
- 51%

Transformational CIOs
- 1%
- 4%
- 22%
- 22%
- 51%

Strategic CIOs
- 3%
- 4%
- 23%
- 20%
- 51%

*Due to rounding, numbers may not add up to 100%

- Much more frequently
- More frequently
- No change
- Less frequently
- Much less frequently

SOURCE: 2018 STATE OF THE CIO

Business users are also starting to recognize the potential of IT's contribution. Almost half (49%) of LOB respondents to the 2018 State of the CIO survey now consider IT a strategic advisor for proactively identifying new opportunities and for making technology and provider recommendations — a role cited by 52 percent of IT respondents. A third of LOB (31%) and IT (32%) respondents view IT as a consultant that provides advice on business needs and technology choices upon request. Twelve percent of LOB and 8 percent of IT respondents believe IT can be counted on to be a risk assessor, guiding an organization's technology choices through the lens of risk management and governance.

At AmeriPride Services, the ongoing transformation to become a data-driven enterprise has set the stage for improved It-business alignment. "We've chosen to focus on service and innovation, and that brings IT into the conversation," says Steven John, CIO for the uniform rental and linen supply company. "We're a plank in the core strategy, so that helps with alignment. You can't have a data-driven culture unless business is closely aligned with IT to achieve its goals."

The balancing act continues

Despite this progress, IT leaders remain caught in a balancing act, having to split time between transformational leadership and the functional requirements that characterize the traditional CIO role. Eighty-seven percent of respondents to the 2018 State of the CIO survey said they are st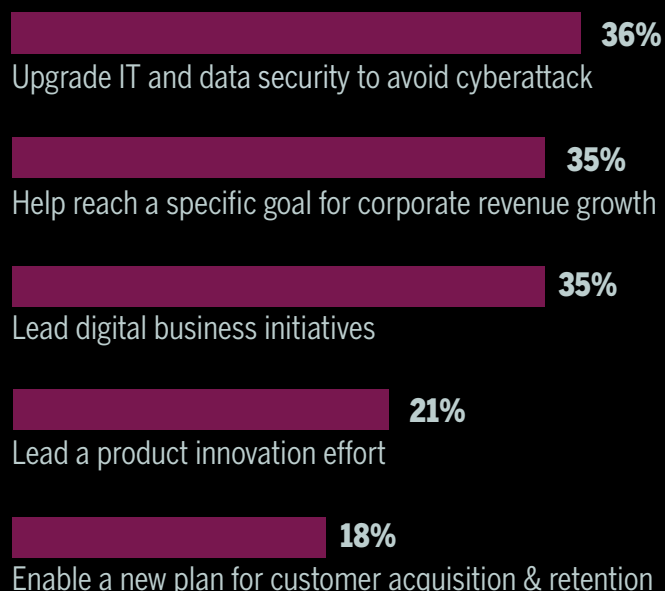ill juggling standard IT operational tasks, including security management (54%), improving systems performance (49%), spearheading cost controls (37%), negotiating with IT vendors (22%), and managing pop-up crises as they occur (19%). At the same time, however, 88 percent of respondents say duty calls for transformational work such as aligning IT initiatives with business goals (50%), cultivating the IT-business partnership (38%), implementing new systems and architecture (36%), and leading change efforts (33%).

Even CEOs' top priorities for CIOs straddle both functional and transformational objectives. While the most pressing CEO

DUTY CALLS
What are the CEO's top three priorities for you in the coming year?

36%
Upgrade IT and data security to avoid cyberattack

35%
Help reach a specific goal for corporate revenue growth

35%
Lead digital business initiatives

21%
Lead a product innovation effort

18%
Enable a new plan for customer acquisition & retention

Multiple responses allowed

SOURCE: 2018 STATE OF THE CIO

> "**We're a plank in the core strategy**, so that helps with alignment. You can't have a data-driven culture unless business is closely aligned with IT to achieve its goals."
>
> —STEVEN JOHN, CIO, AMERIPRIDE SERVICES

IT leaders remain caught in a balancing act, having to split time between transformational leadership and the functional requirements that characterize the traditional CIO role.

mandate for CIOs has been to upgrade IT and data security to avoid cyberattacks (cited by 36 percent of respondents), taking shared responsibility for achieving specific revenue growth goals and leading digital business initiatives are equally critical, cited by 35 percent of respondents,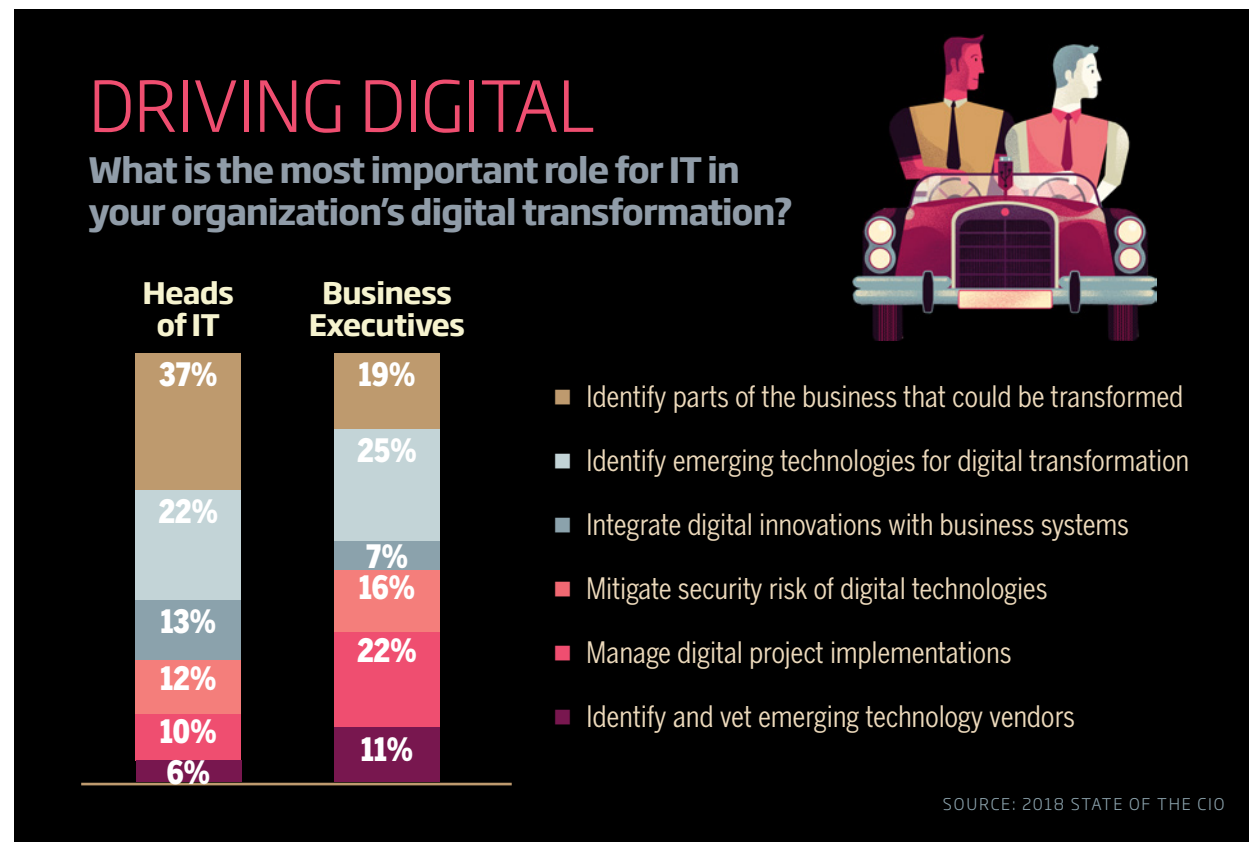 respectively. CEOs also lean heavily on CIOs to orchestrate digital transformation, with 35 percent of CIOs taking the reins, the 2018 State of the CIO survey found. The double-duty directive is compounding the pressure on CIOs: Seventy-three percent of IT leaders surveyed said it remains a challenge to strike the right balance between business innovation and operational excellence.

"You have to make sure you're delivering the basic services like answering people's calls and making sure laptops aren't breaking down," says Carlos Garcia, CIO at Alvarez & Marsal, a global professional consulting services and business management firm. "You can't forget about the basics. If you can't deliver core services, why is anyone going to come to talk to IT about strategy?"

The year ahead

Interestingly enough, strategy is the one area where CIOs are getting relief. According to the 2018 State of the CIO survey, CIOs are spending less time on strategist functions, cited by 53 percent of respondents compared to 62 percent in last year's survey. The CIO focus on responsibilities grouped under the strategist function — developing business strategy, identifying areas for cooperative differentiation, and go-to-market plans — have decreased across the board, an indicator that companies are moving beyond mapping out strategy and plans for digital transformation and heading directly into full-blown implementation.

In terms of what's on the docket for the upcoming year, IT and LOB are once again in sync, both giving

DRIVING DIGITAL

What is the most important role for IT in your organization's digital transformation?

	Heads of IT	Business Executives	
Identify parts of the business that could be transformed	37%	19%	
Identify emerging technologies for digital transformation	22%	25%	
Integrate digital innovations with business systems	13%	7%	
Mitigate security risk of digital technologies	12%	16%	
Manage digital project implementations	10%	22%	
Identify and vet emerging technology vendors	6%	11%	

SOURCE: 2018 STATE OF THE CIO

*"**We have a big target on our back** because if some hacker gets in, they hit the mother lode."*

—STEVEN GRUYTERS, ENTERPRISE PORTFOLIO DELIVERY DIRECTOR, CVS HEALTH

top priority to efforts to increase operational efficiency, cited by 39 percent of IT leaders and 43 percent of their LOB counterparts. Improving customer experience was the runner-up choice for CIOs (38%), but the fourth priority for LOB (25%). But both constituencies were in lockstep on the need to increase cybersecurity protections over the upcoming year, cited by 31 percent of IT leaders and 32 percent of LOB, in addition to growing the business — a core initiative cited by 33 percent of IT leaders and 26 percent of LOB.

As far as specific technology investments go, for 2018, CIOs' preferences and the priorities of

LOB differ. The top technology investment for 2018, according to 35 percent of CIOs surveyed, is in the area of enterprise applications; only 19 percent of business respondents said the same. CIOs are also prioritizing data and business analytics tools (33%) more than their business colleagues (21% of LOB). However, both groups advocate strongly for investments in security and risk management technology, as cited by 28 percent of CIOs and 24 percent of LOB respondents. This continues the uptick in security-related spending from last year, a result of increasing concerns about the continuous spate of high-profile data breaches and cyberattacks.
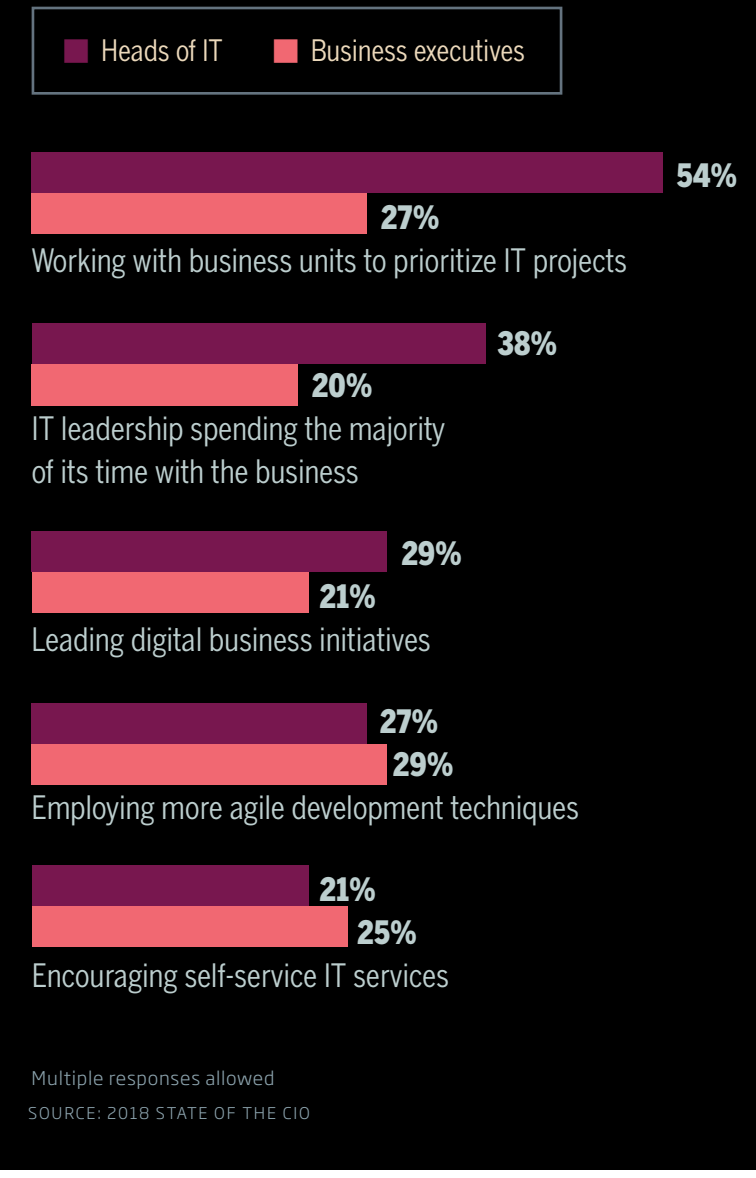
"Security is a very big thing for us, as we keep data on a third of the U.S. population, including health and prescription records," says Steven Gruyters, enterprise portfolio delivery director for CVS Health. "We have a big target on our back because if some hacker gets in, they hit the mother lode. Our level of scrutiny for security is higher than the average company."

The state of 'shadow IT'

One possible driver for improved alignment and collaboration between IT and LOB is the fact that a greater percentage of the technology spend is being shifted to functions outside of IT — a trend cited by 86 percent of respondents to the 2018 State of the CIO survey. Marketing (42%) and operations (35%) hold the highest percentage of the technology purse strings outside of the traditional IT budget. Regardless of the emergence of so-called shadow IT, the technology group

REINFORCING RELATIONSHIPS

What are the top steps the IT organization has taken to improve the IT-Business relationship in the past year?

■ Heads of IT   ■ Business executives

54% / **27%**
Working with business units to prioritize IT projects

38% / **20%**
IT leadership spending the majority of its time with the business

29% / **21%**
Leading digital business initiatives

27% / **29%**
Employing more agile development techniques

21% / **25%**
Encouraging self-service IT services

Multiple responses allowed
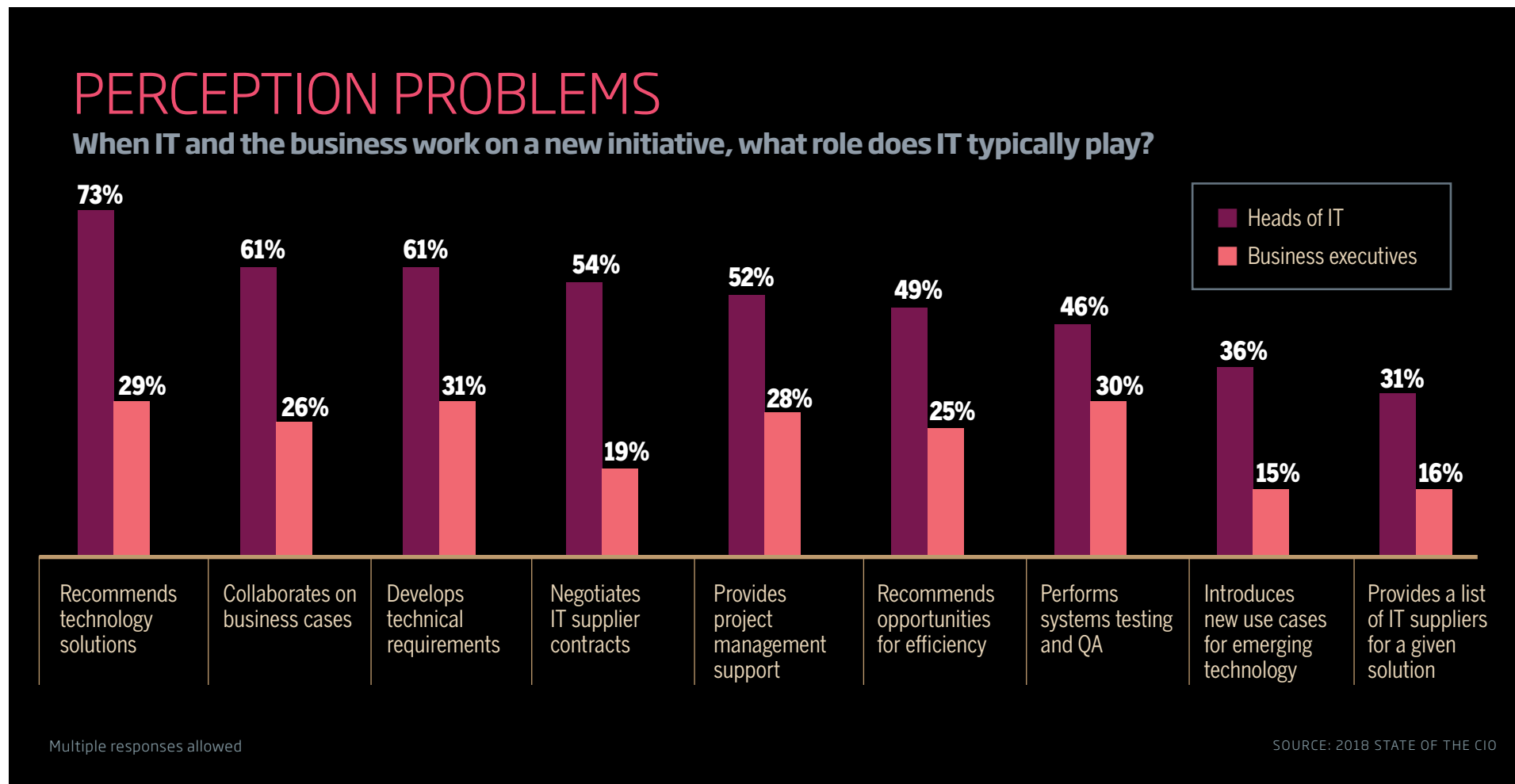SOURCE: 2018 STATE OF THE CIO

still controls 71 percent to 90 percent of the budget for technology products and services for nearly a quarter (24%) of the companies surveyed. Moreover, that particular breakdown isn't expected to change much over the next three years as IT maintains control over the same share of tech budgets for 20 percent of responding companies.

Even when business units go off and make shadow IT investments, almost half (47%) say there is still some level of shared project oversight with the IT organization, and 23 percent say IT still plays an advisory role. Only 2 percent of responding companies say IT plays no role whatsoever when a business unit makes technology purchases on its own.

"There is a significant spend coming out of business ... and you

PERCEPTION PROBLEMS

When IT and the business work on a new initiative, what role does IT typically play?

- Heads of IT
- Business executives

Role	Heads of IT	Business executives
Recommends technology solutions	73%	29%
Collaborates on business cases	61%	26%
Develops technical requirements	61%	31%
Negotiates IT supplier contracts	54%	19%
Provides project management support	52%	28%
Recommends opportunities for efficiency	49%	25%
Performs systems testing and QA	46%	30%
Introduces new use cases for emerging technology	36%	15%
Provides a list of IT suppliers for a given solution	31%	16%

Multiple responses allowed

SOURCE: 2018 STATE OF THE CIO

Even when business units go off and make shadow IT investments, almost half **(48%)** say there is still some level of shared project oversight with the IT organization.

don't want to stifle that," notes David Berry, who has worked as a contract CIO in a variety of industries, including retail, cosmetics and aerospace. "There just needs to be alignment and conversation on how the money is spent — it's all about trust and relationships."

CUSTOMER CONNECTION

How frequently do you and/or your direct reports meet with external customers today?
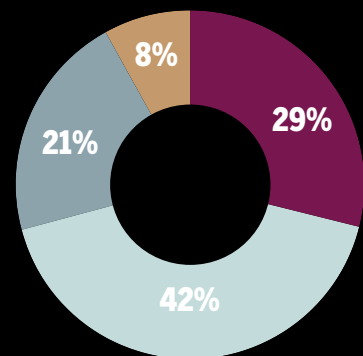
- ■ Frequently
- ■ Occasionally
- ■ Seldom
- ■ Never

29%
8%
21%
42%

SOURCE: 2018 STATE OF THE CIO

Building lasting relationships

Technology's starring role in digital transformation provides some context for the warming relationship between IT and LOB, but there has also been a lot of hard work and specific measures put in place to foster improved alignment and effective collaboration. One of the more popular tactics is having IT work with business units to develop consensus around the prioritization of IT projects — a practice cited by 54 percent of IT leaders. IT leadership is also spending a majority of its time with the business (38%) and ratcheting up work on improving the IT governance process (29%). Employing agile development techniques to accelerate project delivery was another effective measure that drew support from the business, cited by 27 percent of IT heads.

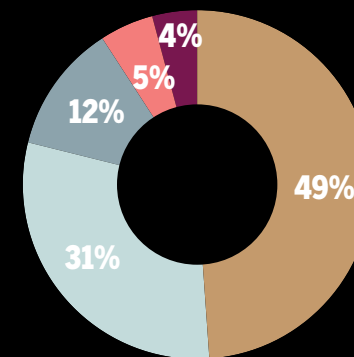At CVS Health, consolidating disparate project management groups sprinkled throughout the company into a single project management office (PMO) with representation from both IT and LOB has been instrumental in fostering a deeper level of collaboration and a better

PLAYING THE PART

Which role best characterizes IT leadership at your organization when it comes to technology considerations?

Heads of IT

3%
5%
8%
52%
32%

Business Executives

4%
5%
12%
49%
31%
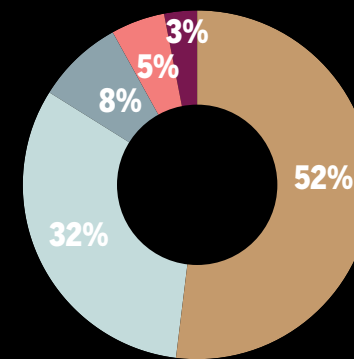
- ■ **Strategic adviser**
  Proactively identifies business need/opportunity and makes recommendations

- ■ **Consultant**
  Evaluates and advises on business need and technology choices upon request

- ■ **Risk assessor**
  Primarily evaluates and advises through a risk management, security or governance lens

- ■ **Voice of caution**
  Identifies red flags and other obstacles

- ■ **Rogue player**
  Primarily does their own thing in procurement for new initiatives

*Due to rounding, numbers may not add up to 100%

SOURCE: 2018 STATE OF THE CIO

understanding of shared business goals, says Gruyters. "With a single PMO, the advantage is you can see what needs to be done from a technology perspective and

Strategic and transformational CIOs are more likely to have established a relationship with LOB whereby they are frequently called on to meet with external customers.

understand what the business is asking for along with all the other constraints," he explains. "We get a much better sense of what's going on and work together with the business after defining their need. That makes us more of a partner with a seat at the table rather than just delivering a component of the overall program."

While CIOs across the board are energized to elevate IT and business alignment, efforts to improve the working relationship are more pronounced among CIOs who characterize themselves as transformational or strategic CIOs. For example, 47 percent of functional CIOs work with LOB to build a business case for new technology initiatives, while 65 percent of

transformational CIOs and 68 percent of strategic CIOs participate in that same practice.

Strategic and transformational CIOs are also more likely to have established a relationship with LOB whereby they are frequently called on to meet with external customers. Sixty percent of functional CIOs or their direct reports meet frequently or occasionally with external customers, compared to 71 percent of transformational CIOs and 82 percent of strategic CIOs.

At Alvarez & Marsal, the IT organization is now routinely tapped by colleagues in the business ranks to participate in customer meetings. IT's expertise, particularly as it relates to tech-

nology strategy and operations, cyber-risks and service level agreements, has also become a critical asset in pitching new Alvarez &

> "You can't forget about the basics. **If you can't deliver core services**, why is anyone going to come to talk to IT about strategy?"
> —CARLOS GARCIA, CIO, ALVAREZ & MARSAL

Marsal business opportunities, says Garcia.

By making a commitment to continuously nurture the IT-LOB relationship, Alvarez & Marsal has not only achieved alignment but fostered trust. "We are now part of

the conversation ... and that would have been unheard of a while ago," says Garcia. "It's a direct result of the engagement model with business."

ness — they have enough trust to have us sit down with their clients and to help earn new business. That's a big change." ♦

Beth Stackpole is a regular contributor to CIO.com.

4 things successful CIOs know about digital transformation

IDC estimates spending on digital transformation will exceed $2 trillion in 2019; 40 percent of all technology spending will be for digital transformation technologies.

BY JOSEPH PUCCIARELLI

2017 was a tumultuous year: From Amazon acquiring Whole Foods to Tesla accepting orders for its new fully electric Class 8 truck, it is evident our world is changing quickly. Within IT, a domain where change is something we live with every day, even we are struggling with what is coming at us!

The pace of change is such that 75 percent of the companies that are currently in the S&P 500 will probably not be independent entities listed within the S&P 500 in seven years. Not that long ago, companies on the S&P 500 stayed there 50 to 60 years; by 2025, the average duration on this list will be under 25 years.

Companies worldwide are aggressively consolidating their data centers, implementing new data models, and shifting development to agile, mobile-first, cloud-based models. They're exploring new leadership strategies and business processes, and adopting new customer engagement models, information and data models, and operating, staffing and sourcing models. They require new ways to measure their outcomes and understand the progress — or lack of it — that their organizations are making.

Here are four ways IT executives are leading this global transformation — and what will happen to those who don't.

> IT leaders now understand that IT will remain relevant only if IT is innovating, and they are exploiting the wealth of data and capabilities within their organizations to become customer- and product-focused.

1 Changing priorities

Recent research by IDC demonstrates that in 2017, the top two priorities for IT executives were "focusing on improving customer experience and creating new engagement models" (64%) and "creating new business models and developing new digital revenue streams" (62%). IT leaders now understand that IT will remain relevant only if IT is innovating, and they are exploiting the wealth of data and capabilities within their organizations to become customer- and product-focused.

Organizations that don't move in this direction will find themselves left behind by nimble business organizations that will circumvent IT to get their needs fulfilled.

2 Skyrocketing digital

In 2016, IDC research showed that IT executives saw only 27 percent of their current business coming from digital and expected that to increase to 33 percent by 2019. Today, they indicate that digital business is 30 percent of the total business and anticipate that it will reach 40 percent by 2020. With this acceleration, organizations must move past initial digital transformation phases.

IT leaders who have not fundamentally changed their organizations to focus on digital will find

that their business colleagues will turn to outsourcing to handle development needs.

3 Embracing agile

As thriving IT organizations shift their cultures and focus, they find that the best way to reach their goals is to adopt agile development. In 2016, 48 percent of organizations were using agile for "innovation projects only." This has now dropped to 23 percent, and the organizations using agile as their "primary development path" has increased from 32 percent in 2016 to 45 percent in 2017. These increased rates of adoption of agile development are happening in organizations that are successfully navigating the waters of digital transformation.

4 Strengths and challenges

Now, compare IDC's 2016 and 2017 findings related to the strengths and challenges of IT executives. IDC data shows that most IT executives believe they have the right vision and leadership to get their organization through the turmoil of digital transformation; they report this as the top strength in both 2016 and 2017. However, we are

> As thriving IT organizations shift their cultures and focus, they find that the best way to reach their goals is to adopt agile development.

seeing interesting shifts in executives' ability to influence their stakeholders and to meet the challenge of finding and retaining the right IT talent.

CIOs who are most successful at digital transformation have found themselves able to influence their stakeholders — with the ability to sell the negative ROIs that are often necessary to drive the digitally transforming enterprise. They have also changed their culture to offer an environment that draws millennials and engages their existing workforce. These "thriving" executives report their "ability to attract and retain talent" as their second-greatest strength. ♦

Joseph Pucciarelli is group vice president and IT executive adviser at IDC

Rethink your IT budgets

**Your IT resolution for 2018:
Build better budget habits**

BY KHALID KARK

Research has **shown** that about half of all adults make New Year's resolutions. However, fewer than 10 percent manage to keep them for more than a few months. As we begin the new year, we recommend CIOs stick to a single resolution: rethinking the IT budget.

Addressing current challenges

In the eyes of some business leaders, IT spending is out of control. The culprits? Weak governance, historical budget allocations and overreliance on industry benchmarks.

Weak governance. Weak governance can lead to lack of accountability. One CIO who had a massive backlog of IT projects struggled to meet business demands for years. After investigating the root cause, he discovered that business leaders significantly exaggerated the business benefits of their IT projects to gain higher priority; no one measured actual benefits.

Historical budget allocations. Treating operations costs as fixed is a common folly. For many years, 70 cents of every IT dollar

spent supported existing business operations. With the shift to the cloud, that figure is closer to 60 cents now.

ALLOCATION OF TECHNOLOGY BUDGETS

- 16% Business innovation
- 26% Incremental business change
- 57% Business operations
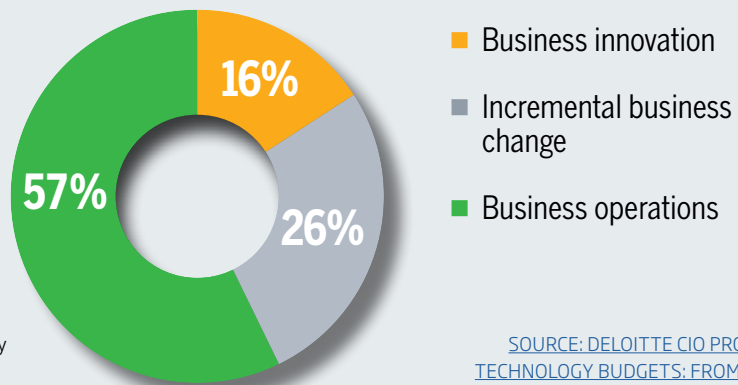
*Due to rounding, numbers may not at up to 100%

SOURCE: DELOITTE CIO PROGRAM, TECHNOLOGY BUDGETS: FROM VALUE PRESERVATION TO VALUE CREATION

Overreliance on industry benchmarks. Many industries have relied on peers to help them define their technology spend, believing that companies in the same industry or sector have similar technology needs and thus similar technology budgets. That doesn't hold true anymore thanks to technological disruption blurring lines across industries.

Other factors that skew industry averages include legacy systems, upgrade cycles, historical investment mix, maturity of IT processes and multiple companies with one-time transformation expenses.

Clearing misconceptions

To set and keep New Year's budget resolutions, CIOs must break down three commonly held misconceptions: that increased IT budgets symbolize the value of IT, that shadow IT can be helpful, and that every IT investment should have positive return.

Higher budgets don't necessarily mean higher value. Research by Deloitte shows a majority of CIOs reported budget increases compared to last year, but larger IT budgets may not be optimized budgets. In fact, we find that CIOs in high-

performing companies spent significantly less on IT as a percentage of revenue compared to their peers. One of the most significant predictors of business value is the clarity of business expectations and IT's capability to fulfill those expectations.

Shadow IT is not always helpful. Many CIOs are told to embrace (or ignore) shadow IT because it provides business agility and lessens the burden on IT. Our research reveals that CIOs in

high-performing companies control 10 percent more of the overall technology budget compared to their peers. Centralized control of technology spending can bring efficiencies, integration and resilience. One organization discovered that shadow IT caused three significant silos over a two-year period.
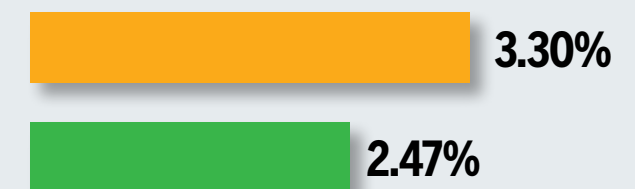
Not every investment must have a positive return. Taking a portfolio approach for tech investments may sound scary, or

IT BUDGETS IN HIGH-PERFORMING COMPANIES

- Global companies
- U.S. high-performing companies

Percentage of technology budget controlled

77%

87%
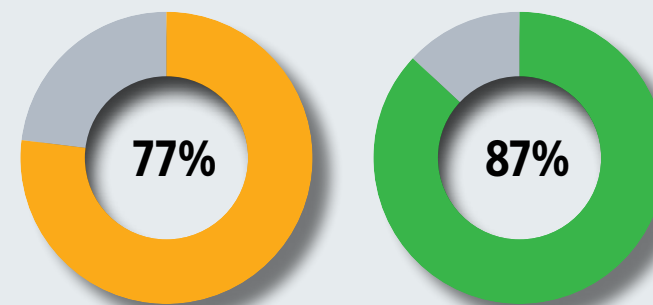
IT budget as a percentage of overall revenue

3.30%

2.47%

SOURCE: DELOITTE CIO PROGRAM, TECHNOLOGY BUDGETS: FROM VALUE PRESERVATION TO VALUE CREATION

unrealistic, but such an approach may help CIOs optimize their value. Like a mutual fund or a stock portfolio, some investments will deliver outstanding results, while others will be mediocre or lag behind. One CIO in health-care is investing in dozens of startups through a venture fund to balance out the tech invest-ment portfolio.

Better budget habits

Finally, we suggest developing these budget-related habits:

Build a strong IT finance capability. It's increasingly dif-ficult for IT finance — includ-ing financial planning and the measurement, management and communication of ROI — to be managed by a part-time or dotted-line resource. Building a strong IT finance capability can optimize spending and help increase transparency and build trust that IT investments are gen-erating value.

Design adaptive budgets. The traditional annual budget cycle may soon become imprac-tical for IT. Adaptive budgets start with an estimate but are not set in stone, with course correc-tions made periodically to meet demand. Traditional annual bud-gets assume knowledge of all the business and technology changes that will occur throughout the year; adaptive budgets start with an estimate and adjust as changes occur. Traditional budgets are also wedded to historical spend and constrained by existing IT capacity, while adaptive budgets reallocate spending as business priorities change and adjust capacity as needed.

Develop joint accountability. IT function and budgets have remained siloed for so long that it may feel unnatural to fuse technol-ogy and business for joint business outcomes, but this may soon be the only choice for CIOs. One CIO in a financial services company builds

In the eyes of some business leaders, IT spending is out of control. The culprits? Weak governance, historical budget allocations and overreliance on industry benchmarks.

"joint ventures" with his business peers where both leaders pitch the business case, and if the project gets approved, each leader makes a commitment to contribute the funding and resources for the proj-ect. At completion, both leaders are accountable to measure and report the ROI.

As with any good resolution, it's important to be realistic (about current IT capabilities), share your resolution (with your busi-ness peers) so you can be held accountable, and find willing (business) partners that can work with you to achieve your goals. Good luck! ♦

Khalid Kark is a managing director with the U.S. CIO Program at Deloitte LLP. *This publication contains general infor-mation only and Deloitte is not, by means of this publication, rendering accounting, business, financial, investment, legal, tax, or other professional advice or services.*

Driving automobile design at Ford

Microsoft's HoloLens is transforming several of Ford's design processes. Here's an inside look.

BY CLINT BOULTON

Few industries are undergoing more technology-driven change than the automotive sector, which has been roiled by ride-sharing services, as well as electric and self-driving cars. Another kind of digital disruption is happening at Ford Motor Co., where designers are using Microsoft's HoloLens headset to refine the look and feel of the company's cars in accordance with human-centric design principles.

HoloLens enables what is known as a "mixed reality" experience. Akin to virtual reality and augmented reality, mixed reality overlays contextual information atop a display. Blending physical and digital worlds, HoloLens helps employees complete their work untethered from a desk. Such flexibility, accompanied by the promise of improved operating efficiency, is a big reason why retailers, airlines and healthcare companies are embracing the technology.

Efficiency gains are exactly what Ford was looking for when it approached Microsoft in 2016 to embark on a HoloLens proof-of-concept test, ideally to improve workflow for designers who make thousands of decisions in modeling Ford's cars, trucks and SUVs, Craig Wetzel, Ford's design technical operations manager, tells CIO.com.

Ford, which worked closely with Microsoft to build custom visualization software for HoloLens, currently uses 10 devices in its

HoloLens enables what is known as a "mixed reality" experience. Akin to virtual reality and augmented reality, mixed reality overlays contextual information atop a display.

Dearborn, Mich., design center. Wetzel says Ford has purchased additional headsets to deploy in Ford design centers worldwide.

Following is an inside look at how HoloLens is helping to reshape Ford's design process.

Model magic

Ford runs five mills that churn out full-size car models in clay. After a mill produces a model vehicle, designers and clay modelers scrape it by hand to refine its look and feel, after which it is scanned digitally for additional scrutiny. But this process makes it hard for designers to align the physical and virtual models because they can't see them side by side. Designers "can't see, feel or touch the vehicle

at full scale," Wetzel says. So when they make changes to the clay model, they go back to the computer to see the impact, then go back to mold the clay some more. A lot of washing, rinsing and repeating ensues.

HoloLens alleviates that problem. The headset projects holographic images onto the user's field of view, using sensors to fix those images in place as the user changes viewing angles, or as they walk around the clay model. Designers can also scroll through multiple design options for components such as grilles or side mirrors with a hand motion and display sketches onto the physical walls of the studio.

"I can walk around these holo-

grams of my car design like the customer would walk around it, and see my digital design at full scale," Wetzel says.

An efficiency bump

This affords Ford significant time-saving opportunities in the design processes. Traditionally, a designer would bring in a prospective customer to weigh in on how a new side mirror design affects a vehicle's aesthetics and try to remember approximately where they were standing when they said they didn't like the look of the car. With HoloLens, the customer's feedback is recorded in real time. "With HoloLens, I'm recording precisely where he is standing so I can replicate what he had seen

before," Wetzel says. "The critical view from where customers see an issue is key for us."

Design processes that once rolled on for days or weeks in an iterative cycle are now completed over the course of one day. A big reason for this is the on-the-go information access and sharing HoloLens enables. If a HoloLens-clad designer makes a change to the clay model, they can get "immediate feedback" regarding the impact of their change, obviating the need to check the change on the computer, Wetzel says. Ford designers in Europe can also "thumbtack" notes about issues they are working on for U.S. designers to work on the next day. "It's getting a 24-hour-a-day creative cycle going," Wetzel says.

Design on the down-low

HoloLens also helps Ford preserve proprietary information. Designers, engineers and product managers huddle more easily on

> # Design processes that once rolled on for days or weeks in an iterative cycle are now completed over the course of one day.

sensitive schematics with components that are highly compartmentalized to preserve secrecy. Engineers often work on pieces of a vehicle without ever seeing its full model design.

Using HoloLens, design and engineering teams can work on discreet parts of the vehicle without risking leaking sensitive design details. "I can control who sees the data," Wetzel says. ♦

Clint Boulton is a senior writer at CIO.com.

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