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INNOVATION SYSTEMS

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BUILD FOR THE FUTURE

Leading AI Is Still Leading

GENERATIVE AI HAS CONSUMED a lot of media and business oxygen this year, and rightly so. Not only are its capabilities novel and impressive, but it might be the biggest leap in the “consumerization” of information technology since the emergence of the iPhone in 2007. Anyone with a browser can create content, sound, and images with AI — artificial intelligence in the hands of the masses! Business leaders are eager to understand the impact, good and bad, that it will have on their organizations.

But while all eyes are on generative AI, practice marches forward in other areas of artificial intelligence, machine learning, and automation. Taking advantage of the opportunities and meeting new challenges requires business leaders to apply their skills and attention to leadership, strategy, talent development, and change management.

For instance, while automating procurement negotiations offers significant benefits, including lowering costs and increasing the pool of qualified suppliers, stakeholders can be leery if they’re not brought along in the right way. In their article “Procurement in the Age of Automation,” scholars Remko Van Hoek and Mary Lacity draw on years of research and the experiences of companies as different as Maersk, Walmart, and Walker’s Shortbread. They offer six evidence-based practices to address concerns of business unit leaders, buyers, and suppliers; overcome stakeholder



resistance; and ensure that investments in automation technology pay off.

In “Using Federated Machine Learning to Overcome the AI Scale Disadvantage,” authors Yannick Bammens and Paul Hünermund explain how “small data” organizations can train and use sophisticated machine learning models while preserving privacy. By joining forces with other entities and using decentralized data, they can gain the benefits of larger data sets. Yes, the technology is what makes this work, but the real challenge for business leaders is to orchestrate the work among partners, secure their buy-in, and offer the right incentives.

Authors Ian Barkin and Thomas H. Davenport bring us solidly back to the idea that AI is no longer the exclusive domain of technologists, software engineers, and IT departments, in their article “Harnessing Grassroots Automation.” Companies in a variety of industries are training less-technical employees to automate the mundane, repetitive, and time-consuming parts of their jobs and

improve their own work experience. The training is relatively straightforward, with employees learning to use low-code and no-code technologies. The tricky part is deciding how to set up, organize, support, and manage these new citizen automation programs. The article outlines the strategies some companies are using to manage this new movement.

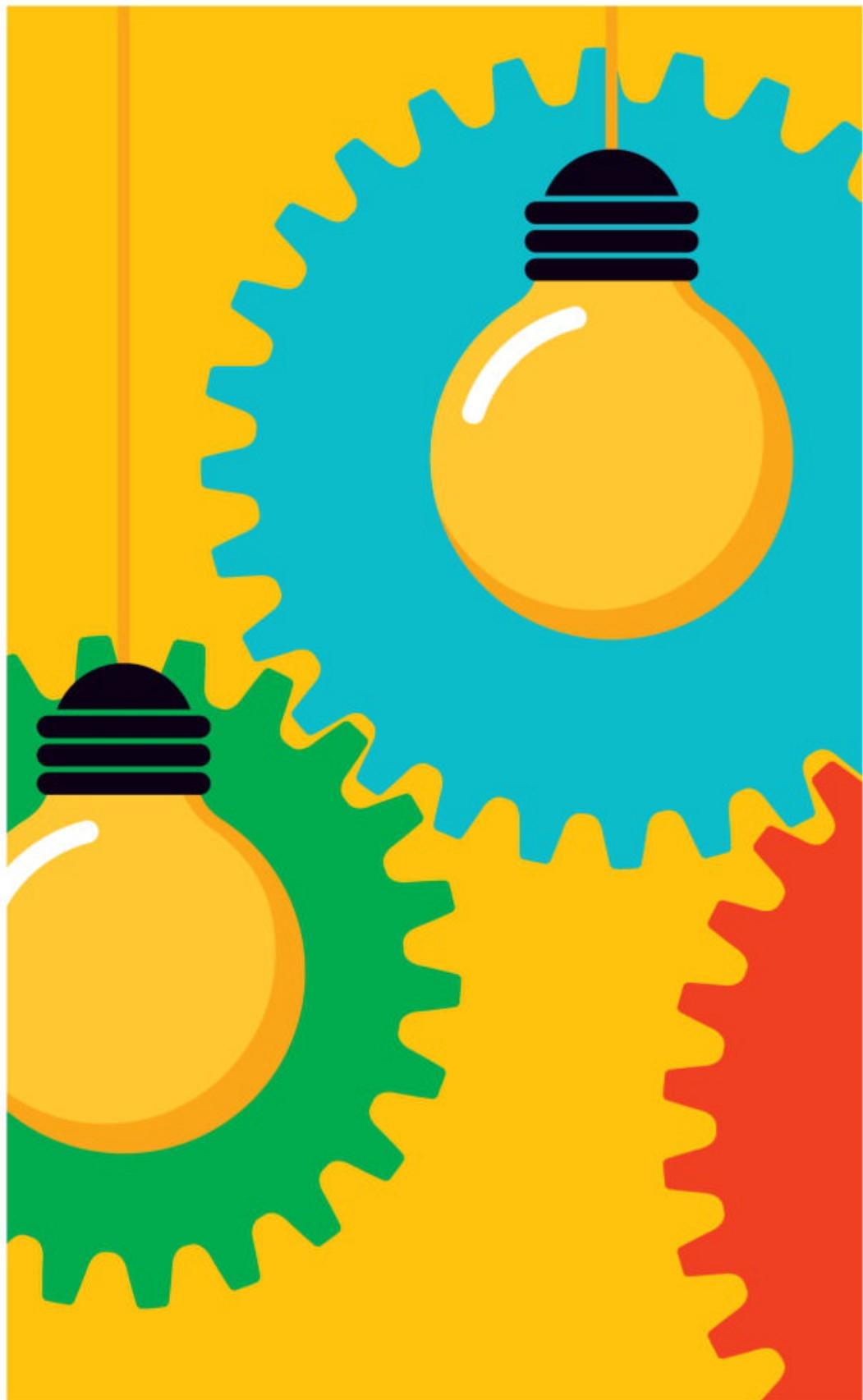
The upshot is that business leaders must stay on top of fast-moving technology developments, particularly around AI and automation. At the same time, they must do what business leaders have always done: Lead. This includes developing a strategy to take advantage of the opportunities while mitigating the risks; setting up the right structures to support new programs or collaborate with partners; training people to learn and apply new skills; engaging with stakeholders; and managing change. And when it comes to the dramatic power of AI and automation, it is incumbent on all leaders to seriously consider how the choices they make today will affect not just their balance sheets but all of the humans in their orbit — especially their employees.

Abbie Lundberg // @abbielundberg
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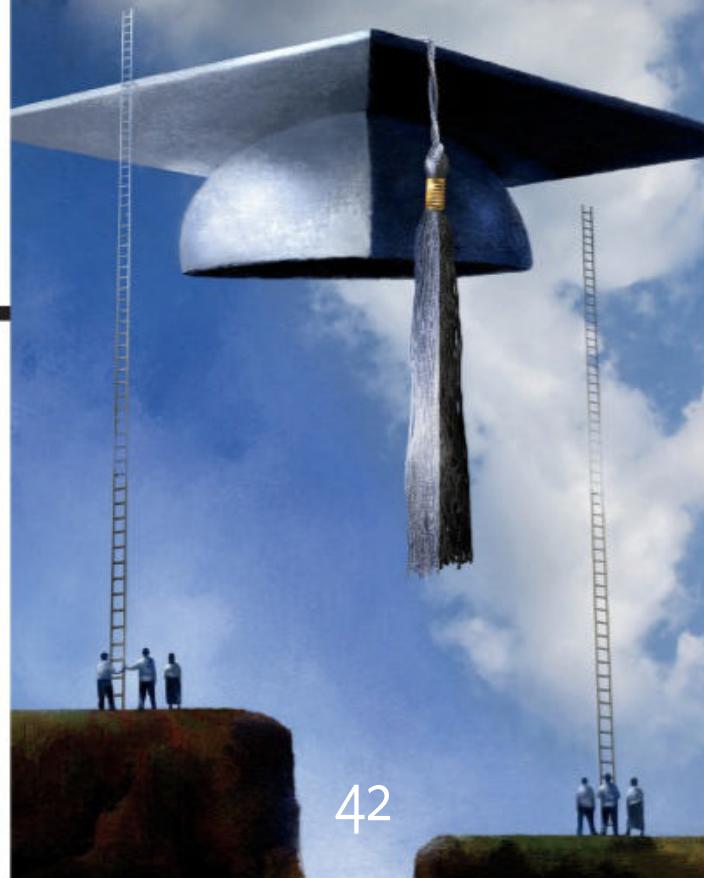
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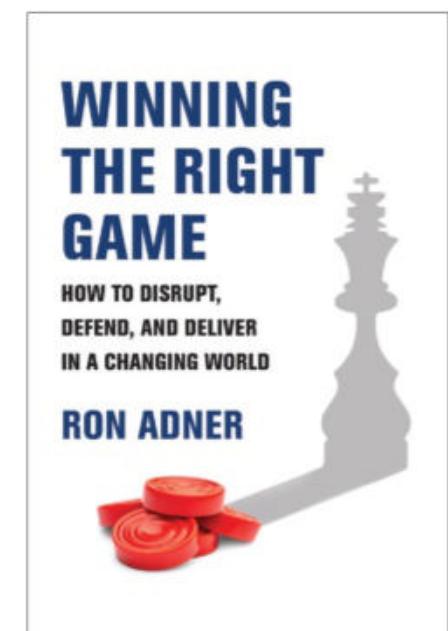
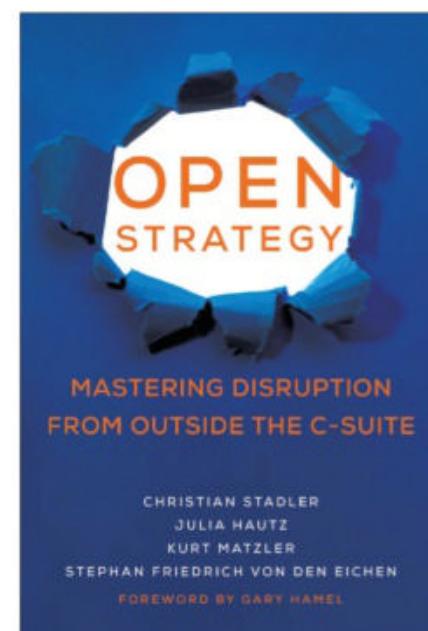
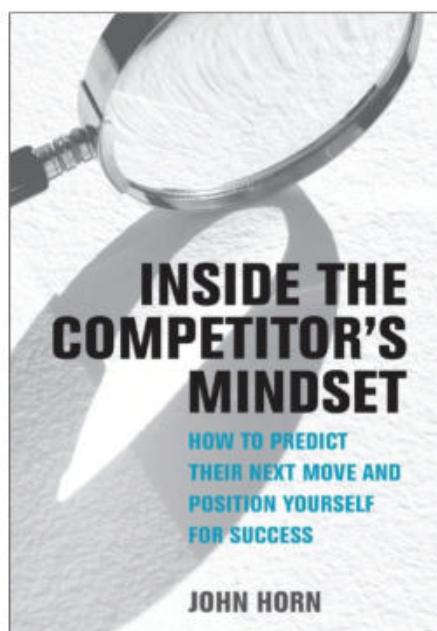
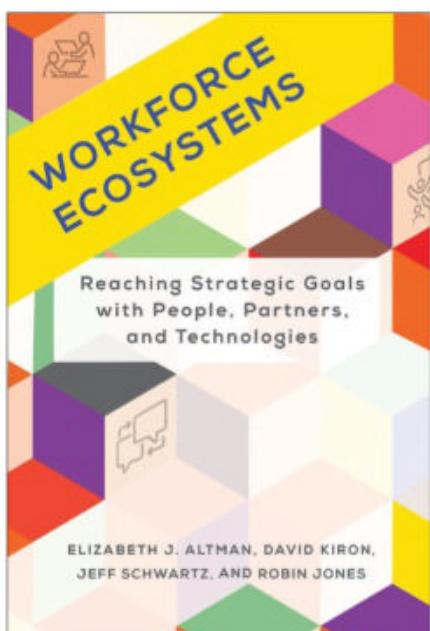
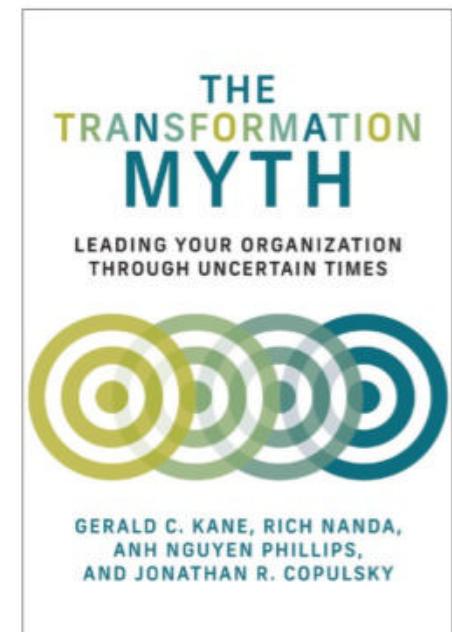
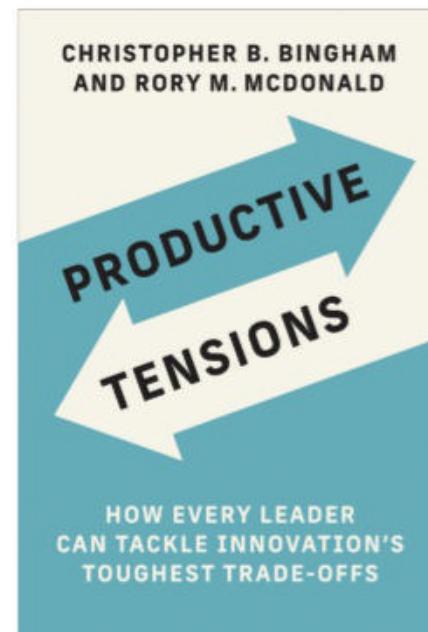
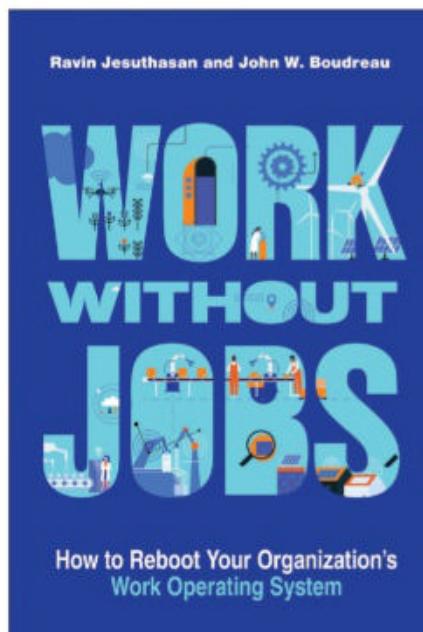
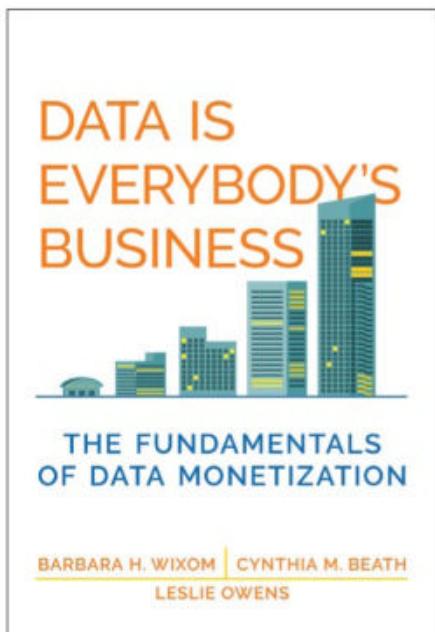
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FINANCIAL MANAGEMENT

The Case Against Restricting Stock Buybacks

A large-sample study of share repurchasing finds that most criticisms against the practice appear to be unfounded.

By Nicholas Guest, S.P. Kothari, and Parth Venkat

Are stock buybacks as bad as they're made out to be? The ubiquitous corporate practice of repurchasing shares has been the focus of much political and media scrutiny. The federal Inflation Reduction Act of 2022 included a 1% excise tax on repurchases (which President Biden has proposed increasing to 4% in his 2024 budget). In addition, senior Democrats have shown interest in barring executives from selling shares for three years after a repurchase, the federal government has suggested that companies that give up buybacks will receive preferential treatment, and the Securities and Exchange Commission has proposed a significant increase in the extent and frequency of repurchase reporting.

The debate on the economic consequences of stock buybacks has so far tended to focus on small

samples or cherry-picked examples. Given that thousands of companies repurchase their shares each year, and aggregate repurchases have exceeded \$500 billion annually for the past five years, we decided that a large-sample study of repurchasing behavior was warranted. Our study, published in the journal *Financial Management*, outlines the benefits of the practice, as stated by its proponents, and provides evidence that casts doubt on the alleged costs cited by its critics.

Critics of buybacks typically make three arguments against the practice. First, they claim that share repurchases enable companies to manipulate the market either by increasing the demand for — and therefore the price of — shares or by tricking naive investors by inflating earnings per share (EPS). Second, they allege that share repurchases enable insiders to benefit through compensation contracts or the sale of shares at inflated prices. And lastly, critics charge that share repurchases crowd out investment and thus sacrifice innovation and long-term economic growth.

Meanwhile, those who support or engage in stock buybacks offer several justifications for the practice. First, payouts to shareholders align manager and shareholder incentives by reducing the potential misuse of free cash flow. Second, using repurchases instead of or in addition to dividends gives corporations flexibility in the amount of cash returned to shareholders, the ability to award repurchased shares to employees as equity compensation, a modest tax advantage to shareholders (less pronounced since the 2003 dividend tax cut), and the ability to signal the company's good prospects to the market. Finally, share repurchases represent well-disclosed and regulated arm's length transactions at current market prices between willing participants.

Given the drive to regulate share repurchases, we would expect evidence of their drawbacks to be observable in public data. To test this, we documented trends in repurchases and compared trading volume,

Unlike dividends, repurchases drop in times of corporate stress, providing companies with the benefit of payout flexibility.

share price performance, CEO pay, and corporate financial activities (evidenced by investment and profitability) of companies that do and do not repurchase shares. We segmented the businesses that repurchased shares in two ways: (1) small positive versus large positive repurchase amounts (defined as below versus above median values), and (2) frequent versus infrequent repurchasers (defined as companies that repurchase in one or two quarters as opposed to three or four quarters of the year).

Our large-sample evidence on thousands of U.S. exchange-listed companies over the past three decades shows that repurchases in the U.S. are a mainstream corporate financial activity that returns several hundred billion dollars of capital to shareholders annually. At an aggregate level, we found that this activity neither creates nor destroys much wealth (that is, it does not produce significant changes in share price). In addition, while repurchases are associated with higher past profitability, they are not associated with excessive CEO pay or underinvestment.

Trends in aggregate repurchasing activity over time indicate that while repurchases have quickly grown in value, much of the growth can be attributed to inflation and increases in market capitalization. In addition, repurchases are now similar in size to dividends and have not grown faster than dividends for quite some time. However, unlike dividends, repurchases drop precipitously (and temporarily) in times of corporate stress, indicating that they do in fact provide companies with the aforementioned benefit of payout flexibility.

A Closer Look at the Data

Through our analysis, we were able to systematically address each of the stated criticisms of stock buybacks.

First, do companies use share repurchases to manipulate the market by creating excess demand to drive up stock prices? If they do, companies that repurchase shares should have higher trading volumes than those that do not. But average trading volumes have largely remained quite similar for all listed companies, regardless of whether or how often they repurchase shares. In fact, in recent years, the trading volumes for companies that do not repurchase shares have greatly exceeded those of repurchasing companies, suggesting that any excess volume arising from repurchases is dwarfed by other forces.

If naive investors are tricked into buying shares of companies that engage in repurchasing behavior because of the resulting EPS inflation, we should observe short-term price bumps followed by poor long-term performance. However, regardless of whether or how intensely and frequently companies repurchased shares, we found no evidence that companies significantly outperformed in the quarters with repurchases. While we did find some marginal evidence that companies that intensely repurchase do outperform slightly in the quarter after repurchases, we found no evidence of future reversals in the short or long terms. This pattern of outperformance is more consistent with companies using repurchases to signal undervaluation — a benefit to investors — rather than to manipulate the market.

The second critique is that repurchases allow insiders to unfairly profit. If share repurchases as rent-seeking behavior by insiders were a common, systematic abuse, CEOs whose companies buy back shares would receive abnormally high pay, including salary, bonuses, and the value of equity awards. Using a model-generated measure of excess pay that has been vetted in earlier

academic literature, we estimate that CEOs of companies that make large positive repurchases earn only \$51,000 more than CEOs of companies that do not repurchase shares — a statistically and economically insignificant amount of excess pay. The difference is even smaller — \$4,000 — when we compare CEOs of companies that repurchase frequently with those that do not repurchase. These differences are economically tiny in relation to the average CEO's pay of several million dollars. Surprisingly, CEOs of companies that repurchase infrequently or repurchase small positive amounts earn the least excess pay, less than even the CEOs of non-repurchasing companies. None of this evidence suggests that companies use repurchases to boost CEO pay.

The third and final critique is that repurchases reduce companies' ability to take advantage of investment opportunities, thereby sacrificing innovation and economic growth. We found that companies that do not repurchase shares invest more but are significantly less profitable than those that do repurchase shares. The companies that repurchase frequently and in large amounts are highly profitable and have steadily made investments in the past, and they continue to make large investments and, at the same time, return capital to shareholders. This suggests that profitable companies repurchase shares while maintaining a steady level of investment, whereas less profitable or loss-making companies do not (or maybe cannot) repurchase shares but are more investment-intensive in the hope of becoming profitable. While there might be isolated examples of poorly governed companies that choose to avoid profitable investments and instead return capital to willing shareholders, it is hard to see how directives

encouraging or incentivizing such poorly run companies to retain cash would lead them to make good investments.

Potential stakeholders who may be affected by repurchase regulations include managers, other employees, shareholders, governments, and society at large. If a company is profitable, a CEO can pay excess cash out to shareholders in the form of buybacks or dividends, keep the money on their balance sheets, or invest in new projects. A small tax on share repurchases may not change corporate behavior significantly and might raise a small amount of revenue for the government. But if the tax rate grows high enough, companies will choose to not buy back shares and instead pay out exclusively via dividends or retain cash. In that case, the government raises no revenue but implements a de facto ban on share repurchases.

How a Buyback Ban Could Backfire

If a company were to switch to only paying out dividends, shareholders would lose the ability to choose whether to receive a cash payout and could face negative tax ramifications, given that dividends are taxed as income while capital gains are often taxed at a lower rate, and only when gains are realized. In addition, the company would lose important flexibility in difficult times, because cutting dividends is punished more by the market than cutting repurchases.

However, the move to restrict stock buybacks seems intended not to motivate companies to shift to paying back shareholders through dividends but to invest more in the business. There is evidence that retained cash is correlated with CEOs making value-destroying decisions, such as pursuing empire-building mergers, accruing

personal expenses, or funding pet projects. It seems implausible that restrictions on share repurchases would induce CEOs of poorly governed companies to invest in value-enhancing projects that they otherwise would not have been funding.

From an employee standpoint, there is some evidence that labor unions are able to negotiate more successfully if their employers have excess cash, but there is plenty of evidence that constraints on a company's flexibility to raise and distribute capital is bad for employees, especially during downturns. Empire-building mergers can also be bad for employees, given that M&As often result in the employees of the acquisition target being laid off and employees of the acquiring company being misallocated. In addition, some repurchased shares are reissued to employees, making any actions that are bad for shareholders also bad for stockholding employees.

Overall, our results show an absence of correlation between share repurchases and price manipulation, return reversals, excess CEO compensation, and underinvestment, which makes it highly implausible that economically significant causal effects of share repurchases still underlie the data. Corporations lose flexibility if they have to rely only on dividends, and evidence shows that poorly governed CEOs who retain cash often spend it on value-destroying mergers, expenses, or pet projects. It is implausible that policies designed to reduce repurchases will also reduce alleged but unobserved malpractices without imposing costs on U.S. public companies and other stakeholders. ■

Nicholas Guest is an assistant professor of accounting at the Johnson Graduate School of Management at Cornell University. **S.P. Kothari** is the Gordon Y. Billard Professor of Accounting and Finance at MIT's Sloan School of Management, where he was previously deputy dean. **Parth Venkat** is an assistant professor of finance at the Culverhouse College of Business at the University of Alabama.

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Overall, our results show an absence of correlation between share repurchases and price manipulation, return reversals, excess CEO compensation, and underinvestment.

MARKETING

The Myth of the Mainstream

Chasing the mass market is a losing proposition for marketers in a polarized culture. Allying with the subculture that loves you is the best way to drive brand success.

By Marcus Collins

For years, McDonald's seemed to embody everything that was wrong with the American diet. The brand had become a symbol of food choices that were driving escalating rates of obesity and hypertension.

The company spent more than a decade trying to fight this perception among American consumers by targeting them with messaging about its updated menu, which offered healthier alternatives more in line with contemporary diet trends — but to no avail. Year over year, McDonald's sales declined, and its brand perception

continued to spiral downward.

Finally, the company decided to go on the offensive. Instead of combating the opposition's hate and attempting to win over those in the middle, McDonald's decided to focus on its fans — the people who self-identify as McDonald's devotees despite the vitriol directed at the brand. The company's tactics included launching its Famous Orders campaign, which celebrated the favored menu items of superstar fans (like hip-hop mogul Travis Scott and K-pop megastars BTS); creating adult-targeted Happy Meals; and promoting fans' own menu hacks. In doing so, it tapped into what these devotees love about McDonald's and not only activated their collective consumption but also inspired them to spread the word on behalf of the brand. The result of this strategy was a 10.4% increase in global revenue for McDonald's from 2018 to 2021 and the return of dormant customers: more than a quarter of those who came in to buy the Travis Scott meal, for example, hadn't visited the chain in over a year. Seemingly overnight, McDonald's went from being a cautionary tale to the darling of brand marketing and a case study for advertising effectiveness.

What's going on here? Conventional wisdom would tell us that in a world

of increasingly polarized opinions, our best bet is to appease the middle, if only because that's where the majority of the market is. That also seems like a safe bet to many companies, as a middle-of-the-road position is less likely to alienate potential customers. But McDonald's demonstrated what can happen when you dismiss this conventional approach. Instead of trying to speak to the mass market, it chose a side. It chose to embrace the love instead, fighting the hate, and it abandoned the notion of enticing the large but indifferent middle of the market. By doing so, McDonald's marketing efforts activated a legion of fans who not only consumed but also won over others as well. What McDonald's realized is an important lesson for contemporary marketers: If you want to get people to move, you must choose a side. The notion that you can win by playing to the middle is a misleading myth.

Choose a Side

The core function of marketing is to influence people to adopt a desired behavior. That is to say, we go to market to get people to move — to buy, to vote, to recycle, to subscribe, to download, to watch, to evangelize, to wear a mask — and to drive a host of other desirable behavioral outcomes that will benefit our organization or interests. And what influences people the most? Well, according to everything we know about human behavior, we are most influenced by other people — not ads, not value propositions, but other people. More specifically, we are most influenced by *our* people: the individuals who abide by the same culturally established conventions and expectations that dictate what is considered acceptable behavior for people like us. These individuals typically share a similar worldview and, therefore, adhere to a shared way of life in an effort to promote social solidarity among themselves — their subculture. They consume the way the subculture consumes, vote the way it votes, and behave the way it behaves, because that is what is expected of people like them.



If these people are against you because of the shared conventions and expectations of people like them (their culture), then the likelihood of getting them to take action on your behalf will be slim. That's why right-wing Republicans won't bother trying to convert left-leaning Democrats. Instead, Republicans speak to their base — the collective of people who see the world similarly, express a similar set of cultural characteristics as the brand, and are more inclined to move in step with the brand as an act of social solidarity. They identify as members of this group and follow its behavioral norms.

Those in the unaffiliated middle of the population, on the other hand, are by nature indifferent and risk averse. While they may have opinions, they lack strong convictions in either direction and are therefore less likely to take action. In politics, they don't vote in primaries or campaign for candidates; instead, they sit on the sidelines and wait to see how things shake out. Their behavior is the same when it comes to brands.

The middle doesn't adopt new products with any urgency. They are not the first to respond to marketing communications, nor are they likely to weigh in on a debate between advocates and detractors. They mitigate their own risk of moving out of step with what might be considered generally acceptable by stepping back and observing other people's responses first.

The red herring is that we perceive this indifference as an opportunity to persuade them to one side or the other. But the truth is, they are not typically convinced by any marketing communications. Instead, they, too, take cues from other people — sometimes those who are for you, and at other times those who are against you.

With this in mind, it becomes abundantly clear that in a polarized scenario, the chances of marketers getting people to move are far greater when we activate the collective of the willing as opposed to trying to convince detractors or even persuade the indifferent. And yet, historically, marketers

have focused their efforts on the middle because it represents the biggest market opportunity. However, our chances of successfully influencing behavior increases when we choose to address the people who are most likely to take action. When we do so effectively, we catalyze a propagation effect that causes the product, behavior, or idea to cascade throughout the population, thanks to the process of social contagion — the spread of affects, behaviors, cognitions, and desires due to direct or indirect peer influence of people "like us."

The Power of Propagation

The idea of propagation demands that marketers leave behind the conventional approach of targeting the middle, where the majority of the population resides. Besides being of questionable effectiveness, as discussed above, reaching the middle requires costly media spending (think prime-time TV and Super Bowl ads) and places marketing messages in an arena that is noisy and saturated with competing messages. Marketers pay little attention to the fringe, a population that conventional wisdom tells us is too small and too niche. But everything that is now mainstream once started on the fringe: It started within a subculture and propagated out to become popular culture.

For instance, if you were into comic books 20 years ago, you would have been considered a nerd. Today, however, many of the most-viewed movies across the globe, such as Marvel's *Avengers* series, originated from comics. Twenty years ago, if you were into video games, you would have been perceived as an immature adult. Today, gaming is not only considered cool but is also a multibillion-dollar industry. Indeed, what is now normal was once fringe. Thanks to social contagion, the cultural characteristics of a community propagate from the fringe to the middle — from the subculture to popular culture. It happens from the outside in, not the inside out.

Unlike traditional marketing communications, the reach and subsequent adoption

that is achieved through this kind of propagation does not rely on people hearing a message from a company or brand. (It helps, but it's not necessary.) Instead, people hear about it from someone they trust — someone like them — which increases their likelihood of adoption. As the network scientists Nicholas Christakis and James Fowler contended, "When a small group of people begin acting in concert — displaying similar visible symptoms — the epidemic can spread along social network ties via emotion contagion and large groups can become quickly emotionally synchronized." This is the network effect that is catalyzed when you activate the collective of the willing. Don't focus on the middle: Focus on the people who see the world the way you do. Choose a side, and they will convince the bystanders, the passive, the indifferent.

Although broadcast messaging might get our attention, it's the influence of people like us, people with whom we identify, that changes our outlook and, subsequently, our behaviors. This provides a new perspective, and corresponding strategies, for marketers who aim to communicate with consumers in a culture where ideological binaries seem to divide the market. Like McDonald's did, marketers benefit from choosing a side that is most likely to move and then activating its members so that they might convert people on the brand's behalf. Status quo practices position the middle as a safe bet. However, the dynamics of cultural diffusion subvert these long-standing best practices for connecting with consumers and influencing behavioral adoption, and demand that today's practitioners develop new strategies and accompanying tactics. ■

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TECHNOLOGY AND SOCIETY

Why the Power of Technology Rarely Goes to the People

A new book reviewing 1,000 years of technological progress reveals how it benefits entrenched interests.

Daron Acemoglu and Simon Johnson, interviewed by Kaushik Viswanath

In a new book, economists Daron Acemoglu and Simon Johnson provide a sweeping historical overview of just how unevenly the spoils and costs of technological change have been distributed. *Power and Progress: Our 1,000-Year Struggle Over Technology and Prosperity* reminds us that technology is not itself a force but rather a tool that is developed to support the agendas of the people and institutions who hold power in society. Claiming a fair share of technology's benefits for the rest of society — that is, for most of humanity — requires

that that power be challenged. Acemoglu and Johnson chatted with features editor Kaushik Viswanath about what lessons the past holds for how we should develop and implement technology today and in the future. This conversation has been edited for length and clarity.

Kaushik Viswanath: What's the central argument you're making in *Power and Progress*, and what motivated you to write it?

Daron Acemoglu: This is a critical time

to be thinking about the future of technology. A lot of decisions of great import are being hampered by the fact that there is "techno-optimism" in academia, the tech world, and the policy world. Techno-optimism is the notion that impressive technological change will automatically lead to better outcomes for society, especially for workers via the labor market, even if there are some transition costs.

Our understanding of the relevant economic theory and history has led us to believe this isn't right. Throughout history, deliberate decisions have had a bearing on who gained and lost from a particular technology, whether it brought anything approaching shared prosperity, or even whether it helped or destroyed democracy. So our purpose in writing *Power and Progress* was to dispel the notion that in the history of technology, everything has always worked out OK. There are similar choices and struggles over technology today as we've had in the past.

One of the key concepts you discuss is the productivity bandwagon. What is this, and how does it create winners and losers whenever we have technological change?

Simon Johnson: The productivity bandwagon is the notion that when technology improves, you get higher wages, more opportunity, and better health, and everybody gains from it eventually. Our key problem with that notion is the "eventually." "Eventually," from the beginning of the Industrial Revolution, was 120 years. The 1720s to the 1840s saw a lot of new technology, but we know that in the 1840s, children as young as 6 were still pushing coal carts deep underground with their heads. Conditions improved for more people in the second half of the 19th century but as a result of a lot of effort, not through any kind of automatic economic or political process.

Acemoglu: The perspective that Simon and I bring to the British Industrial Revolution is that it was really a revolution of vision. A new class of ambitious people emerged who wanted to apply technology

to improve how people control their environment and the production process. They weren't doing it out of altruism; they were preoccupied with making money, wanted to rise within the British hierarchy, and didn't have much sympathy for the people who were below them in that hierarchy, whether in Britain or the rest of the world.

This is an illustration of what ambition does unless it is countered by institutions and other groups that have alternative visions of how society should be organized. It also illustrates the weaknesses of the productivity bandwagon. People were left behind in the early phases of the Industrial Revolution for two reasons. First, most of the technology was used for automation, not increasing workers' productivity contributions. When technology displaces workers, it doesn't increase their contribution to production or create a powerful reason for employers to go out and pay higher wages to workers. Second, this was all embedded in an institutional setup, both because of the vision of the entrepreneurs and because trade unions were banned and heavily prosecuted, and Britain was very far from a democracy at the time.

The working class did not have any rights or protections. That's why, even as many people made fabulous amounts of money, workers' real incomes stagnated or even declined. Sharing the gains of technology required a complete change in the institutional fabric of British society, which the elites and upper middle classes resisted. It required a change in the direction of technology, too — for example, it was necessary to invest in urban infrastructure to improve sanitation and bring infectious diseases under control. Until then, urban life was horrible for working people.

Fast-forwarding to post-World War II in the U.S., you describe how this period

saw a more equitable distribution of the productivity gains from technology. How did this happen?

Acemoglu: That episode illustrates how the factors that worked against shared prosperity during the Industrial Revolution were turned in favor of shared prosperity in the 20th century, especially in the decades that followed World War II.

Its origins can be traced to the American system of manufacturing, because this was a key part of a general effort to make unskilled labor more productive using machinery. That, in turn, was critical for less-skilled workers to earn a high and rising wage. In this period, workers' contributions to the production process could be bolstered by training. This was facilitated by a combination of technologies that didn't simply automate work but created new and more technical tasks, more maintenance tasks, and more advanced machining

tasks for workers. And it was in the context of institutions that provided countervailing powers to the most powerful firms — in particular, a secure democracy by historical standards, a labor movement that had become much stronger after the New Deal and during World War II, and a supportive regulatory environment by the U.S. government that encouraged technological change but also brought limits to what the largest companies could do, for example, through antitrust enforcement.

You also write that the U.S. labor movement during this period actually encouraged the mechanization of the industries in which they worked. Why did they do this?

Johnson: The key was in their insistence that their workers get trained to use the machines. They realized that mechanization was coming whether they liked it or not. They couldn't simply ask for higher wages,

because that would lead to more automation. So [labor unions] asked their workers to acquire the necessary skills and be compensated appropriately. Unions are much weaker today, so that kind of countervailing power is missing, which means the benefits of automation will go to whoever has social power — which means relatively few people.

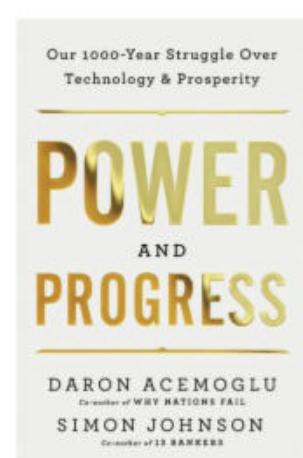
Acemoglu: We are not against automation. Blocking automation would not just be infeasible, but to the extent that it's tried, would be hugely costly. In its best moments, the labor movement, both in the United States and in Europe, encouraged the introduction of advanced automated machinery but at the same time negotiated the creation of better, more advanced tasks for workers to operate and inspect these machines. Where workers didn't have those skills, employers would have to train them. So it was the combination of new tasks and training that unions advocated for. Today the question is, can we still encourage the right type of automation?

What is the role of business leaders in determining the direction of technological advancement and distributing its gains?

Acemoglu: The future of technology is inseparable from the vision of powerful actors. It's not something we can all democratically vote on. The same is true of how CEOs decide to split profits between different stakeholders. Do they see labor as one of those stakeholders? That is a question that is entangled with the future of technology.

Over time, business leaders have shifted toward just serving the interests of the shareholders. Labor is viewed as troublesome and costly, so they try to eliminate it as much as possible. And that has synergized with the vision of the tech community to develop machines that can automate as much as possible.

But nothing in the laws of capitalism makes that necessary. During other periods, in other contexts, businesses have prioritized increasing worker productivity. They



**Power and Progress:
Our 1,000-Year Struggle
Over Technology
and Prosperity**
(PublicAffairs, 2023)

have found ways of rewarding their shareholders while giving raises to their workers when the company is doing well, and investing in technologies that increase worker productivity. A new vision among business leaders would be feasible and highly useful for the kinds of futures of work that we're talking about. But that won't emerge by itself. It will require pressure from institutions, civil society, and the media, as well as some amount of organized labor.

You describe how the doctrine of maximizing shareholder value became consensus in management schools and then management consultancies, ending an era of widely shared gains from technology. Do you see that changing?

Acemoglu: I have a paper with Alex He and Daniel le Maire where we find that CEOs with business degrees from the top MBA programs in the United States don't increase productivity, exports, or investment, but they reduce wage growth and labor share. But the CEOs in our sample are all from the 1970s, '80s, and '90s. Today, the same schools have a somewhat different air. Students seem to care much more about broader aspects of business. Faculty don't just talk about increasing shareholder value and creating lean corporations by eliminating labor. So I already sense some change in that direction. How effective it is, we don't know yet.

Johnson: There's a lot more progress to be made. The curriculum and the core ideas that are imprinted on students still lean a lot more toward Milton Friedman than toward Acemoglu-Johnson or any other view.

If you consider the pressure from financial markets and look at the language used by analysts, it reinforces that narrow view, which is, I think, not ultimately good for business.

Turning to the tech that's on everyone's minds these days: Where do you think AI — and generative AI, specifically — is headed?

You're replacing people who are quirky and sometimes difficult to manage with machines that are designed for mediocrity.

Acemoglu: These are phenomenally interesting and impressive technologies. That only raises the stakes of getting the direction of this technology right and setting up the right regulatory structure.

But the two polar views that are most loudly heard in the media are both unhelpful: On one end are techno-optimists, who say, "Everybody will benefit. Yes, a few people might lose their jobs. But you'll get more massage therapists, even if you don't have enough white-collar workers." On the other end is the view that killer robots are coming and we have to worry about existential risk.

Neither of these views addresses the right concerns. AI can do a lot to help workers and society. It could go along the lines of the platforms that Taiwan introduced, for example, to facilitate more democratic participation; those have worked reasonably well. Or it can go in the direction of automation that deepens inequalities, delivers more misinformation, disinformation, manipulation of users — what we've seen with social media, especially platforms like Facebook.

We really worry about that direction, and that's where our leaders are asleep at the wheel. Society is not worrying enough about these things. There isn't even the right set of aspirations that have been articulated about what we should want from this technology.

Johnson: I've heard the view that people are complaining now because it's cognitive tasks that are being replaced by a machine, whereas before it was manual work. What we say in our book is that what's actually vulnerable here are all routine cognitive tasks. Wendy's, for example, has said it's going to use chatbots to take orders at drive-throughs. They'll still use humans to

flip the burgers. Is your ordering of a burger going to be any better with this machine? Are they going to be paying the burger flipper any more money? No, they're just doing this so they can have fewer workers.

We call it *so-so automation*. It's a way to tilt power against the workers. You're replacing people who are quirky and sometimes difficult to manage with machines that are designed for mediocrity. Where's the productivity breakthrough? Where's the big positive benefit?

Acemoglu: In productivity revolutions of the past, like at the Ford Motor Company, automation was critical, but only when combined with new products, new tasks, new ways of using machinery, new creativity. The Ford factory would not have done anything of note if it took exactly the cars that other companies were producing and made them with a bit more automation.

This is why we prefer to emphasize machine usefulness rather than machine intelligence. We should be using machines to make humans better. Generative AI is so promising because it has that capability. It could help with the retrieval and filtering of information so that human decision makers make better decisions. But that's very different from automating a few more McDonald's kiosks. ■

Daron Acemoglu is an economist and an MIT Institute Professor, the university's highest faculty honor. **Simon Johnson** is the Kurtz Professor of Entrepreneurship at MIT and a former chief economist to the International Monetary Fund. They are the authors of *Power and Progress: Our 1,000-Year Struggle Over Technology and Prosperity* (PublicAffairs, 2023). **Kaushik Viswanath** is features editor at MIT Sloan Management Review.

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Countering the Corporate Diversity Backlash

As opponents of inclusive business practices grow more vocal, leaders are backing down from diversity promises or going quiet. Here's what they should do instead.

By Victor Ray and Tsedale M. Melaku

Corporate diversity is facing a backlash. Target, a company that has carried merchandise celebrating LGBTQ+ pride for over a decade, ordered some stores to remove such products after conservative activists accused the company of sexualizing children and organized a boycott. Anheuser-Busch lost sales in response to a promotion with trans influencer Dylan Mulvaney, costing Bud Light its spot as America's bestselling beer. Even Chick-fil-A, perhaps the prototype of corporate conservatism with its opposition to same-sex marriage and policy of closing on Sundays, recently came under attack from conservatives for employing an executive to lead its diversity, equity, and inclusion (DEI) efforts.

Universities are also facing a diversity backlash. The U.S. Supreme Court recently struck down race-conscious admissions programs at Harvard and the University of North Carolina at Chapel Hill. Ending race-conscious admissions will likely have ripple effects, as an unclear regulatory environment might discourage organizations from implementing current diversity efforts while spurring some to explicitly exclude Black, Latine, and Indigenous groups.

These recent events show that resistance to civil rights progress for members



of marginalized or underrepresented groups remains entrenched, and opponents of efforts to improve equity have been emboldened.

Diversity backlash puts companies in a difficult position. Bowing to pressure from anti-diversity groups may cost them the goodwill they have tried to cultivate among other consumers; Target's capitulation to conservative pressure earned it blowback from progressive activists. Backing down can also encourage conservative activists to push their demands further. While it might temporarily reduce the pressure on companies, giving in to anti-diversity forces could hurt them over the long term. Demographics are changing, with non-Whites making up an increasing portion of the coveted youth market, and legal protections for LGBTQ+ Americans have broad support. Rooting out discrimination and increasing access to opportunity is essential to ensuring a rich talent pipeline. And for many individual managers and employees, anti-discrimination is simply a moral imperative.

Diversity initiatives are vulnerable to attack because many have been tentative. One-off hours-long training sessions, unsupported new hires, or programs that

wither as anti-racist protests recede fall far short of the transformative structural changes needed to make organizational outcomes truly equitable. Leaders who are sincerely committed to diversity must prepare for the cost of defending inclusive organizations and adopt policies that make it difficult to roll back diversity gains.

A Tepid Embrace of Diversity

When President Lyndon Johnson signed the 1964 Civil Rights Act, with Martin Luther King Jr. present, he was responding to decades of agitation for full economic inclusion. Under the act's Title VII, the commonplace racial discrimination foundational to American workplaces became illegal. Most organizations that adopted diversity policies did so because social movements forced their hand, not out of a high-minded commitment to equal opportunity.

Many organizations retroactively recognized that greater diversity helped them exploit niche markets or foster innovation. But arguments that diversity can be good for the bottom line haven't led to a fundamental transformation of segregated and racially stratified American workplaces. And relying on a business case for diversity lets leaders withdraw support for these initiatives if economic gains don't materialize.

While civil rights laws drove real workplace changes, they were largely marginal. Despite early gains in Black and Latine employment, workplace desegregation essentially stopped in the 1980s, and hiring discrimination against Black men has been relatively constant since. When hired, people of color were often designated to diversity positions cordoned off from the organization's core functions, limiting opportunities for their career growth and mobility. Enforcement of anti-discrimination laws varied greatly depending on the political winds, typically (but not exclusively) increasing under Democratic presidents and waning under Republicans. As sociologists Frank Dobbin and Alexandra Kalev have found in their research, attempts to comply

with an uncertain regulatory environment led companies to adopt diversity policies with dubious effectiveness. Human resources experts often introduced policies that courts countenanced as good-faith anti-discrimination efforts, despite the policies being ineffective and sometimes counterproductive.

Diversifying organizations rarely undermined the White norms and the power that shaped them. Homogeneity remained the standard, diversity a deviation. Acknowledging the changes brought to workplaces by the Civil Rights Movement, Kimberlé Crenshaw and colleagues nonetheless highlighted in their 1996 book *Critical Race Theory* the unequal ground on which diversity policies were seeded: “The very same Whites who administered explicit policies of segregation and racial domination kept their jobs as decision makers in employment offices of companies, admissions offices of schools, lending offices of banks, and so on.”

This history of organizations’ tepid embrace of diversity has left them unprepared to deal with the current backlash. Three short years after their collective response to massive protests over the police murder of George Floyd, companies are reneging on their diversity pledges. Promises included increasing the representation of marginalized groups and women in senior-level positions and boards; addressing retention, promotion, and pay gaps; and working with senior leaders and managers on upskilling inclusive leadership behaviors. Companies added positions focused on DEI to demonstrate their intentions to tackle injustice, without transforming in ways that would support long-term organizational changes.

A slowing economy and, we suspect, a diversity backlash led companies to cut those new DEI positions at a faster rate than other jobs. Attacks on DEI have led some organizations to backtrack from their commitments to create initiatives centered on addressing organizational policies, practices, and cultures that target groups facing

persistent inequities. Attempts to integrate substantive DEI programs also succumbed to the backlash, as evidenced by Coca-Cola abandoning its proposed DEI policy for outside law firms. Some activist shareholders have attacked companies’ DEI interventions and also targeted the practice of DEI audits, which help mitigate workplace discrimination.

Confront the Resistance

Although we’ve outlined a pessimistic story, diversity programs can succeed. Research shows that diversity programs are effective when organizations dedicate specialized positions to manage and monitor equity goals and programs.

Accountability is key to sustaining effective DEI policies and programs. While equity work should involve all employees, DEI professionals must be empowered to hold the leadership accountable. Organization leaders must take responsibility for designing, modeling, and implementing equity programs that reshape organizational policy. Research shows that strategic DEI initiatives, including establishing mentoring programs that incentivize employees to sponsor marginalized group members, demonstrating transparency in hiring and promotion processes, and holding employees accountable for diversity goals, can work.

The latest backlash against diversity should prepare organizational leaders for possible resistance to diversity initiatives from internal stakeholders and external anti-diversity activists. Making public statements in support of DEI can help establish accountability goals, but unfortunately, it seems that a growing number of leaders are choosing silence or capitulation in response to anti-diversity activists.

We see a similar phenomenon in how the right-wing rejection of climate science has led some leaders to downplay sustainability goals, a practice known as *greenhushing*. A recent study examining this dynamic in the hospitality industry found that consumers preferred when hotels communicated their corporate social responsibility

efforts rather than engaging in greenhushing. Interestingly, the study found that such communications also prompted consumers to consider the ethics of their own choices. Similarly, we believe that openly discussing an organization’s commitment to address systemic issues through accountability reduces resistance to initiatives that can change behaviors and attitudes and lead to progress.

Organizations should confront the diversity backlash, along with the empty nature of superficial diversity policies, head-on. With diversity training increasingly criticized and White fatigue derailing serious discussions of racism, racial inclusion in organizations faces an existential threat. Resisting this diversity retreat requires organizational accountability to the broad array of commitments made in response to acknowledged racial injustices.

For organizations committed to embedding equity within their mission, values, culture, and practices, we recommend taking a strategic planning approach. Expectations for overnight results must be regulated by realistic goals that are results-oriented and measurable, with targeted dates for completion. This process must include a feedback loop design that allows for corrections in planning, implementing, and executing, thus providing managers with openings to check for impact and progress. Recent events give organizations an opportunity to reaffirm and strengthen their commitments to working toward creating an equitable organization by stamping out inequality. ■

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HEURISTICS

The Potency of Shortcuts in Decision-Making

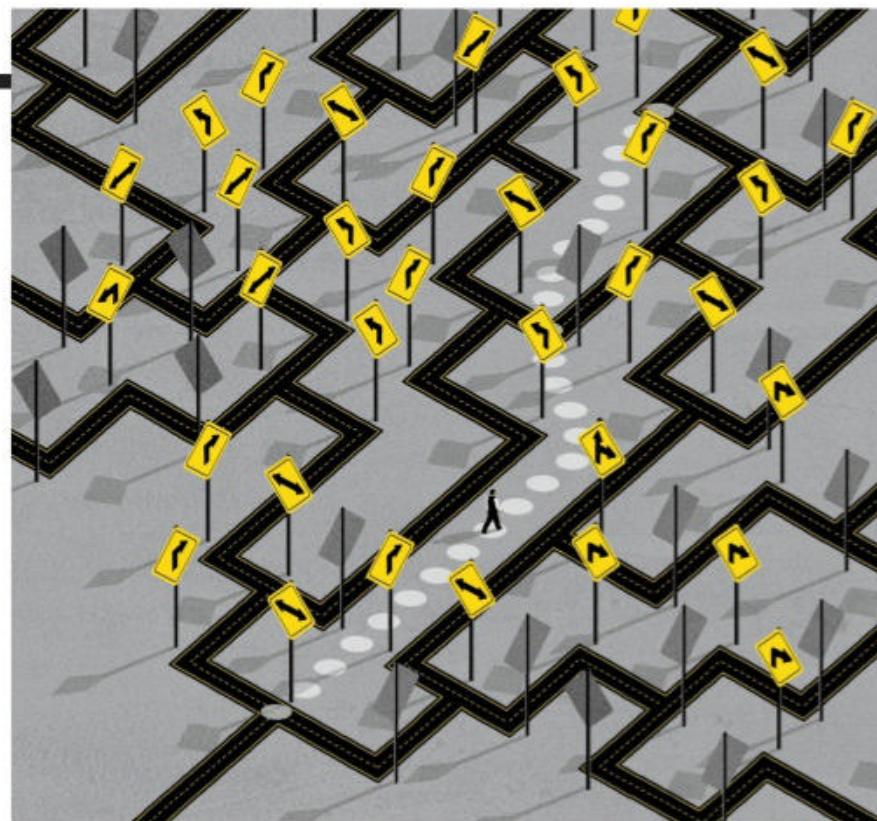
A growing body of research suggests that CEOs who use heuristics can make more effective decisions than those who take a more comprehensive approach.

By Sebastian Kruse, David Bendig, and Malte Brettel

How do CEOs make good decisions? At a time when senior leaders have access to more data and sophisticated analytics tools than ever before, the central challenge of making good decisions about hiring, product development, and resource allocation is increasingly not a lack of information. Rather, it is knowing how much information is enough, and how to use it.

Scholars of decision-making have long recommended that CEOs and managers gather and analyze comprehensive information before making choices. This advice is based on two assumptions: (1) More information leads to better understanding of the decision at hand and possible consequences, and (2) an emphasis on gathering information rather than relying primarily on one's own knowledge may reduce harmful biases.

However, a growing body of research shows that CEOs may often be better off putting more trust in the simple rules of thumb known as heuristics. These usually spring from a leader's direct experience, are applied deliberately, and frequently result in superior decision outcomes. Our recent study, published in the *Journal of Management Studies*, suggests that CEOs who use more heuristics in making decisions can accelerate the speed of new product development in their



organizations and achieve greater overall business performance. Another study, by Christopher Bingham et al. in *Strategic Entrepreneurship Journal*, suggests that using heuristics for international expansion decisions can lead to higher sales and revenue growth from those initiatives.

When (and Why) Heuristics

Research finds that heuristics work best under three conditions.

When the decision environment is noisy. In such an environment, more information is unlikely to lead to a better understanding of a specific decision problem. For example, when executives make choices about which innovation projects to invest in based on estimated market size, feasibility, or timeline, these data points often reflect the subjective evaluations of potential project leaders rather than objective facts. Using heuristics under such conditions filters out noise in the decision-making process.

Research shows that simple heuristics, such as "invest in projects with the most advantages" or "invest in the project that the most experienced team member prefers," can be as accurate in selecting successful innovation projects as comprehensive decision-making while also accelerating the speed of decision-making.

When decision makers face a highly

dynamic environment. In this case, information becomes outdated quickly, and using outdated information can diminish decision quality. For instance, when selecting target customers for new marketing initiatives, it can be more effective to use simple heuristics rather than relying on past, possibly outdated customer data. The simple rule "target customers who

have bought from us in the past six months" can predict future purchasing behavior more accurately than complex models trained on large amounts of older data.

When obtaining large amounts of information is difficult. In the case of hiring, for example, it's impractical or costly to obtain extensive information on every potential candidate. Employers instead have to rely on a few pieces of information, such as a candidate's CV and their impression of a candidate's performance in an interview.

Research suggests that using heuristics in such situations can forecast future job performance more precisely than analyzing detailed information obtained in structured interviews. For example, managers might ask themselves three simple questions when considering a job candidate: Does the candidate have exceptional ability? Do I admire the candidate's track record? And will the candidate raise the level of performance within the team? They might choose to hire a candidate only if the answer to all three questions is "yes." However, heuristics used in hiring must focus on performance-related criteria and not have the effect of unfairly discriminating against individuals or reinforcing social biases.

In short, heuristics work best in environments that are noisy and dynamic, and where information is scarce.

How Heuristics Can Clarify Thinking

To understand how using heuristics can help in practice, let's consider how they help leaders address four fundamental questions in new product development.

On which opportunities should we focus in new product development?

Comprehensive decision-making in this regard would involve instructing development teams to analyze a wide variety of market segments and technologies to identify the most promising opportunities. Alternatively, CEOs can use heuristics to focus their efforts on certain customer types ("develop products only for end customers") or specific product types ("develop only software products"). Such heuristics enable a narrower focus for new product development and a higher likelihood of generating more innovative ideas. CEOs can also use heuristics to limit the number of projects that can be developed in parallel, ensuring that sufficient resources are available for each project.

How do we choose among competing projects? Heuristics can also help CEOs effectively choose among projects within a specified search field. Many factors can influence the attractiveness of a new project, such as future profitability, risk, product advantage, feasibility, market size, competition, and length of payback period. When using comprehensive decision-making, CEOs carefully analyze and weigh each of these factors. However, simple heuristics are often faster and more effective when deciding which projects to move forward with and which to drop. CEOs can assign positive and negative scores (+1 / -1) to each factor for each project, tally these scores, and select the project with the highest total. Or they can eliminate all projects that score poorly on the factors they consider the most important, a heuristic called *elimination by aspects*. Research shows that these two heuristics can identify which projects are likely to fail and which are likely to succeed in the vast majority of cases.

What's the right pace of new product development? Heuristics can assist CEOs and managers in establishing a sense of rhythm and pace for new product development. For example, Apple uses the simple rule of "release a new version of the iPhone every 24 months" to structure its development activities. This rule promotes efficiency by providing employees with a continuous and predictable sense of urgency, facilitates the integration of external suppliers, and smooths the transition of employees from one project to the next. Similarly, some CEOs set the rule that all new-product projects must be finished within 18 months to provide a steady rhythm and pace. Other CEOs set the rule that new B2B product releases must be synchronized with customer release cycles, forcing development teams to reduce their project scopes to deliver projects within customer deadlines.

How can we balance efficiency and flexibility? Development groups must be efficient (that is, streamline processes to deliver products under time and resource constraints), and they must also have the flexibility to explore and experiment, but focusing on one often comes at the expense of the other. Heuristics can help CEOs effectively balance this trade-off. For instance, 3M famously uses the rule of thumb that all developers can spend 15% of their time working on projects based on their own ideas. This simple rule balances efficiency and flexibility by determining the time available for independent exploration, in order to foster innovation while effectively managing resources. Similarly, CEOs have the option to stipulate that a specific number of projects must embrace high experimentation (such as "one-fifth of all projects should be radically innovative") or set limits on the resources allocated each year for entirely novel projects ("10% of the budget is reserved for new-to-the-world ideas"). Research has shown that such simple rules can empower companies to develop highly innovative products despite limited resources.

Getting the Most Value From Rules of Thumb

In order to gain the advantages of speedier decision-making with heuristics and still maintain decision quality, CEOs who employ them should consider the following actions:

Use heuristics in the right context.

Heuristics are effective in environments that are noisy and dynamic and where information is hard to obtain, whereas comprehensive decision-making is more effective in stable environments where large amounts of objective information are readily available. CEOs should thus adapt their decision-making style to the characteristics of the environment.

For example, when making decisions on which companies to acquire in mature markets, comprehensive decision-making can be effective because objective information on acquisition targets is readily available. In contrast, when CEOs acquire companies in highly dynamic markets experiencing rapid technological development, heuristics may be more effective, since more information often does not necessarily lead to better predictions of a target's value.

Develop and refine your own heuristics. Effective heuristics are not arbitrary — they are developed through careful reflection and an understanding of difficult business problems. Heuristics are reliable when they capture causal regularities in a simple rule, but they can introduce bias when they do not capture a causal link. Reserving space for careful reflection when generating heuristics may therefore be time well spent for CEOs.

Developing one's own heuristics is crucial because the insights captured in a heuristic developed by someone else may not transfer to a different decision context. Heuristics also become more effective when CEOs put them into practice, observe their outcomes, and refine them over time. Research finds that a simple heuristic for international expansion for a supplier to the pharmaceutical industry, such as "enter countries that have a lot of

pharma activity,” can, with experience, be refined into the more complex and effective heuristic of “enter countries that have lots of pharma activity and are home to the headquarters of a large pharmaceutical company.”

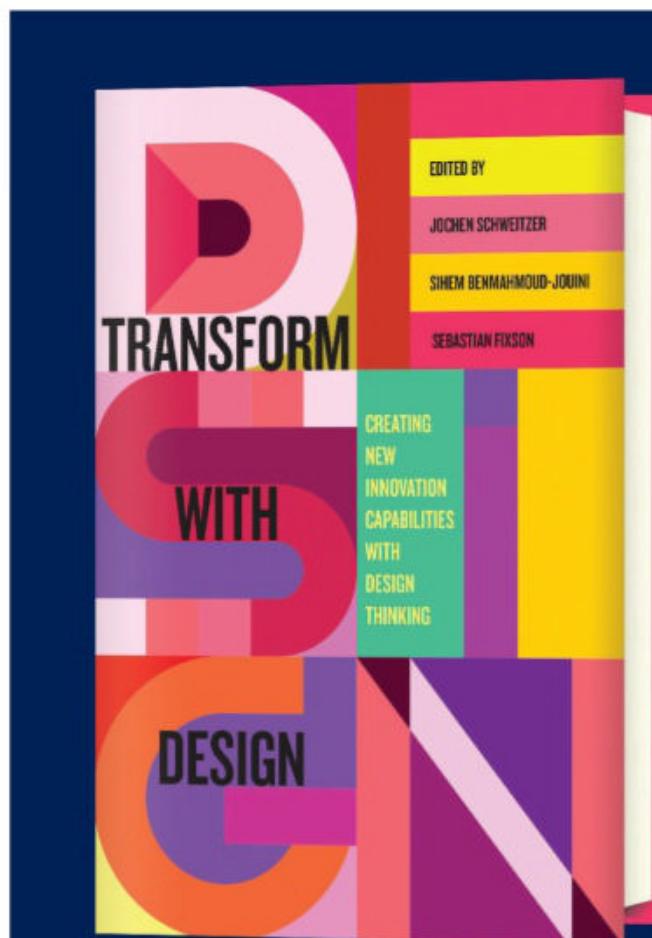
Share and explain the story behind a heuristic. The heuristics developed by CEOs will serve as decision guidelines for many members of an organization, who will themselves apply rules such as those defining what kinds of international markets may be of interest or what kinds of development projects to pursue. However, because heuristics are very short and simple by nature, they don’t convey the logic behind them. Sharing the story about why a heuristic was created increases the chances that employees will remember and apply it.

RECENT ADVANCES IN DATA ANALYTICS — and many organizations’ success at gaining useful insights from these tools — suggest that analyzing large amounts of information using complex algorithms may be the most effective way to make decisions. However, many managerial decisions need to be made in noisy and dynamic environments, where quality information can be hard to obtain and evaluate. In such environments, simple rules of thumb can lead to faster and better choices than complex analyses based on large amounts of information. We encourage CEOs and managers to understand the value of heuristics and learn how to develop and use them as a complement to thorough information gathering and analysis in decision-making. ■

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Innovation Systems: Advancing Practices to Create New Value

Every organization builds its future through innovations, large and small. These can spring from grassroots efforts to find a better way of doing things and respond to unmet customer needs, or take shape as big bets on new products or business models. As the pace of change accelerates and pressures organizations to speed innovation cycles, new, repeatable processes that support ideation, exploration, and incubation are essential to capturing new ideas' full value.

New research and analysis from Wenjing Lyu, Gina Colarelli O'Connor, and Neil C. Thompson reveals why companies should engage in a comprehensive incubation process before making a judgment on the potential impact of a particular innovation. Evidence shows that innovators are often very poor judges of whether a new development represents a simple incremental improvement or could lead to a blockbuster new product. Taking time to fully explore potential applications early on can save companies from prematurely dismissing good ideas that might turn out to be radical innovations.

David L. Rogers focuses on the particular challenges of digital innovation and argues that businesses won't succeed at it unless they rethink

governance of the overall innovation process. He delves into the new structures and practices that enable the rapid pace and iterative progress required to bring new digital services and products to market.

Open innovation — which involves partners, customers, and others outside the organization in generating or vetting new ideas — has gained popularity as a way to speed new product development. Michela Beretta, Linus Dahlander, Lars Frederiksen, and Arne Thomas bring us new insights from recent research at Lego Group. Already well known for its success drawing on customer ideas for new products, the company continues to evolve its open innovation practice. The authors derived lessons from Lego's practices that could help other companies better integrate customer communities into their product development operations.

Finally, like every other process in a corporation, innovation has been affected by the large-scale shift to remote or hybrid work, with a greater dependence on virtual collaboration. Research conducted by Wietske Van Osch and Burcu Bulgurcu on the use of digital tools for collaboration reveals that the communication and transparency parameters teams set in these environments have implications for the kinds of innovations that are fostered.

— *The MIT SMR Editors*

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Unleash the Unexpected for Radical Innovation

Breakthrough inventions arise unpredictably. Better exploration can identify surprising opportunities.

By Wenjing Lyu, Gina Colarelli O'Connor, and Neil C. Thompson



THE ACCELEROMETER CHIP — A small but radical innovation — is ubiquitous in today's digital devices. These speed and orientation sensors tell our phones whether they're being held in portrait or landscape mode, deploy airbags in our cars, and track our forehands when we play virtual tennis. They also help sense when the earth starts to shift before earthquakes or volcanic eruptions. But while it is easy to recognize the significance of this innovation retrospectively, its true impact didn't become apparent until many of today's most valued applications were developed. This gradual unveiling of an innovation's potential over time is a surprisingly common pattern — so common, in fact, that companies need to craft their innovation management systems with this phenomenon in mind.

Here's how the accelerometer made its mark. In

the early 1980s, an R&D scientist at Analog Devices learned of a new invention in the world of integrated circuits that incorporated mechanical devices within their designs. Today, we know that innovation as microelectromechanical system, or MEMS, devices. The scientist was intrigued enough to invite the inventor, a professor at a nearby university, to give a talk to Analog's R&D group. He then began to experiment with design and generated ideas with colleagues on packaging such a device on a circuit board, the benefits the technology could provide, and how such systems could be manufactured at scale. He expected that there would be uses in the automotive industry, a sector attractive to Analog because automobiles were becoming increasingly dependent on smart electronic systems. Eventually, the team demonstrated the potential of these new devices to sense changes in speed and showed how they could be produced economically, and thus the accelerometer chip was born.

Over the next 10 years, the company searched for applications in the automotive market. Airbag detonators were its first target, but along the way, many more applications surfaced, mostly outside of the automotive industry. Eventually, Analog found that the device could be modified to enable advances in video game technology, training simulators, medical instrumentation, sporting goods, optical telecommunications, and satellite technology, including gyroscopes. The company also began receiving inquiries for more and more use cases such that, by the time the technology's foreseen applications in the automotive industry were being adopted, its unforeseen applications were already transforming many other markets.

This case is just one example of how ideas that at first appear to simply be an interesting leap, a next step in product development, or a combination of known technologies can turn out to have more radical impacts. As such technologies are incubated, both the company and the broader market learn more about them. Unanticipated use cases emerge and, in many instances, are far afield from those that were originally imagined, perhaps leveraging different characteristics of the technology or different business models.

The Difficulty of Predicting Radicalness

While the story of the accelerometer is one of amazing success, it also speaks to Analog's ability to fully explore the idea's potential. Those opportunities can be missed if much of that radicalness appears only as

THE RESEARCH

- One of the authors, Gina Colarelli O'Connor, was part of a team that conducted 600-plus in-depth interviews with innovation project managers and their leaders at 30 large corporations across industries and countries to understand innovation practices and systems.
- The other two authors, Wenjing Lyu and Neil C. Thompson, along with a larger group, designed a representative survey that was fielded to innovation leaders at 300 large corporations in seven industries across Australia, China, France, Germany, Japan, South Korea, the U.K., and the U.S. to gather data on their most successful innovation projects.

a technology incubates. How much radical innovation is lost because organizations abandon projects before this radicalness appears?

One of the sturkst illustrations of the unpredictability of achieving "breakthrough" status for a particular project is a seminal analysis published by DuPont. In 1968, R&D managers were asked to consider projects that were early in their development and identify which ones should be abandoned as well as those they considered to be *discontinuous innovations*, defined as having the potential for a "sudden appearance of a breakthrough in technology that can yield entirely new products, processes, or services" that result in high reward for a company.¹ Thirty years later, in 1997, their answers were compared with the actual outcomes. (See "DuPont's Predictions of Radicalness," p. 24.)

The results showed that the managers were wrong more often than they were right and that they had both overestimated and underestimated projects' prospects. Some projects that managers had considered promising ended up being abandoned, irrelevant, sold, or killed. Only 1 in 6 of these expected high-reward projects was still active. In contrast, of the seven projects expected to fail because of low returns, three — Tyvek, Surlyn, and Clysar — had become clear winners, two others remained in development, and two had been killed. So not only were breakthroughs unpredictable even for a company taking this question as seriously as DuPont, but all but three of its successful breakthroughs would have been lost had it acted on the opinions of managers

DuPont's Predictions of Radicalness

In 1968, Dupont R&D scientists predicted outcomes for certain early-stage projects. The table below shows the projects' actual outcomes as of 1997.

Innovation projects predicted to have HIGH potential (more than \$100 million in earnings in 10 years postlaunch)		Innovation projects predicted to have LOW potential (be loss makers or have low earnings)	
PROJECT	RESULT	PROJECT	RESULT
Permasep	Active	Tyvek	Winner
Polyester microfoams	Sold	Surlyn	Winner
UV Imaging	Killed	Corfam	Killed
Office Copier	Killed	Nordel	Active
Absorbent Products	Killed	Krytox	Active
Qiana	Killed	Clystar	Winner
		Symmetrel	Killed

who couldn't yet see their promise.

Our own research confirms how difficult radicalness is for R&D leaders to predict. We asked respondents at 300 large corporations across seven industries in seven countries about the most successful project they had developed in the past few years — specifically, whether the innovation was judged to be incremental, substantial, or radical initially, and whether that prediction was borne out. In fact, while 93% of the projects wound up being substantially or radically innovative (as might be expected of respondents' most successful projects), initial expectations for most — a full 92% — had been that they would be merely incremental. (See “Expectations Were Low for Successful Innovation Projects,” p. 26.)

Practices to Search for More-Radical Opportunities

When executives rely on their initial assessments of an innovation's radicalness, they tend to skip the work needed to purposefully consider a broad array of contexts and industries the idea might affect. That leaves the organization less aware of emergent opportunities and more likely to treat them as out-of-scope surprises, or even annoyances, when they crop up. R&D teams or technology scouts might discover breakthrough technologies but be unable to prove that the market is big enough.

“We have big ideas that are incrementally

executed,” the CTO at one company told us. He went on to describe an example in which the first, most obvious application of a novel technological platform that fit with one business unit’s expectations was easily transitioned to a commercialization team, but many other potential opportunities were left on the table, completely unexplored. At another company, the central R&D organization was tasked with identifying, selecting, and developing advanced technology programs that would produce breakthroughs aligned with the company’s current business units, according to the CTO. Two years later, he realized that the most exciting opportunities emerging from these programs were in fact not aligned with the business units, but since R&D hadn’t planned for this outcome, no alternative mechanism was in place for pursuing them.

In both of these cases, two organizational competencies might have helped the innovation teams uncover hidden breakthrough potential: *proactive discovery* and *wide-eyed incubation*.

Proactive discovery is the work a team undertakes to identify the myriad possibilities an invention might offer. Team members invest effort upfront to identify the multitude of applications, use cases, and markets that might be newly created as a result of these advances. Through outreach to thought leaders, engagement with experts from other industries, and a host of other methods that provoke associative

thinking, discovery teams can uncover the opportunity landscape that a novel technology, idea, or business model could offer.

Proactive discovery can play a big role in convincing internal decision makers that a specific opportunity is worth pursuing. It can also affect how big an impact a technological breakthrough can have, by broadening the number of industries and markets it can potentially influence. And, of course, when radical innovations do surface, it can profoundly affect the company's growth.

Nutrition and bioscience company DSM engaged in proactive discovery in the early 2010s, after having made advances in protein development that led to the development of its clean cow feed additive. The additive reduces a cow's methane emissions by more than 30% without any adverse effects on the animal's welfare, feed consumption, or performance.

The members of DSM's strategic innovation team also looked for other applications for the additive: They read scientific and market research, attended conferences and trade shows, interacted with thought leaders, and imagined potential applications. The team also identified and catalogued many potential opportunities for proteins while maintaining the highest sustainability standards. As a result, DSM was well prepared as these markets began to emerge. It has since commercialized products such as a canola-based protein isolate that can be used to increase the quantity and quality of protein in plant-based alternatives without introducing soy or gluten; textured vegetable proteins to be used as food additives; and solutions for manufacturing cheese, ice cream, and other dairy products.

At DuPont, several years after the project analysis described earlier, a director of new business development engaged in proactive discovery by placing advertisements in scientific journals and trade magazines soliciting input on potential use cases for new materials arising from ongoing internal R&D programs. Each advertisement described the properties of the material being developed and invited readers

— presumably R&D colleagues in other companies — to contact his new business development team with potential applications. An ad for a biodegradable polyester (later named DuPont Biomax) received more than 100 inquiries and resulted in over 20 different applications that DuPont explored. The bio-based materials business ultimately grew from one formulation to an entire family of offerings, none of which had been anticipated.

Learning Through Incubation

Discovery is a necessary first step, but it is not sufficient for assessing how promising an opportunity might become. Doing this requires a next step — incubation — to more fully examine each of those opportunities that proactive discovery surfaced.

Wide-eyed incubation is the process of vetting the myriad opportunities and testing the many uncertainties that have been uncovered during proactive discovery.² This process can involve diverse activities, such as clarifying the performance thresholds needed for a technology to be valuable for a specific use case, working out viable business models that the company is willing to use, or collaborating with partners to fill gaps in the company's expertise.³ New applications can emerge as the market is engaged and technical development proceeds.

The interactions with market agents and technical experts during incubation surface additional unanticipated uses and benefits. With wide-eyed incubation, team members are motivated to explore those opportunities rather than narrow their focus and deem the applications out of scope. As the team comes to understand the market, the market comes to understand the potential benefits the technology can deliver, and thus an increased understanding of the radicalness of the innovation takes shape.⁴

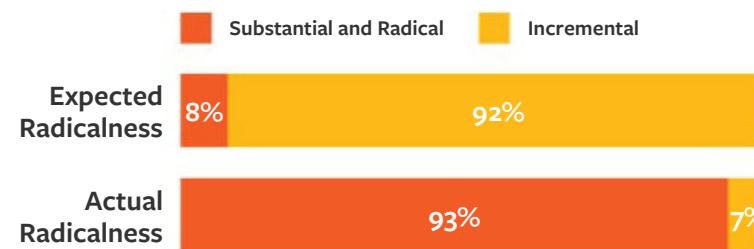
Over time, ICL Group, a multinational chemical company, developed and improved a capability to produce high-purity phosphates. They were initially used only in fertilizers, but as the purity levels have improved, they have been incorporated into food and a number of other applications. When a Chinese battery company approached ICL to buy phosphate materials, the ICL team realized that lithium iron phosphate could address problems in the lithium battery market. Ultimately, it won a large grant from the U.S. Department of Energy to explore this and other opportunities adjacent to battery technology.

These examples show how difficult it is to predict how radical an innovation project will be, even for companies already in the process of incubating the

Discovery is a necessary first step, but it is not sufficient for assessing how promising an opportunity might become.

Expectations Were Low for Successful Innovation Projects

Survey results show the radicalness that innovation leaders at 300 companies expected when they started what turned out to be their most successful innovation projects — and how dramatically those expectations differed from their after-the-fact appraisals.



project — just as they show how critical incubation is during the commercialization process for avoiding the loss of important opportunities.

Internal R&D Helps Capture an Innovation's Radicalness Potential

With so much unexpected potential emerging during incubation, one might wonder whether the source of the innovation matters. For example, external innovators, such as universities or startups, may look more broadly than an established company that has difficulty seeing beyond its sector, and thus be able to identify and execute on more promising opportunities.

Surprisingly, our survey data shows that more unanticipated radicalness is found when projects are developed by internal R&D teams: On average, these projects become 1.5 points higher in radicalness ($p < .001$) on a scale from 1 to 7 than do innovations that are sourced externally.

This greater ability to foster radicalness internally makes sense for several reasons. First, organizations that develop, own, and nurture the technology themselves may be better able to communicate within their internal networks about the innovation, and other organizational members may spot a use that hadn't previously been considered. In a survey of 47 members of the Innovation Research Interchange, a professional association of mid- and senior-level R&D leaders, a number of management practices were positively correlated with commercial success from radical innovation. Of the 15 management practices that were measured, the strength of informal internal networks — the relationships that employees form across functions and divisions to share knowledge and accomplish tasks — was the most strongly and significantly correlated with radical innovation commercial success, with the correlation coefficient $r = .56$ ($p < .0001$).⁵

Many companies seem to recognize the

importance of these informal networks. 3M is famous for its Tech Forum poster sessions, in which internal R&D members present their current projects and colleagues from other parts of R&D and the business units come to learn about the R&D portfolio. Many creative collisions have occurred as a result of the forum, which has been run for over 65 years.

GE's fluoroscopic imaging technology was originally developed for use in its avionics unit. The R&D scientist who led that program recognized that GE Medical Systems' Imaging business might benefit from the technology, which could image movement in ways that had the potential to offer whole new levels of diagnostic data over conventional CT scanning technologies. The scientist mentioned the possibility to a colleague in R&D who was dedicated to the GE Medical Systems division, and ultimately this led to the MRI imaging technology that GE commercialized — a completely unexpected breakthrough in the industry.

A second reason why internal innovation sourcing can be beneficial is that internal leaders have greater control over the strategic choice points that inevitably arise on a technology's development path than they do with corporate venture investments or university lab research that their company may be funding. Which applications to pursue, which technological platforms to use, how to integrate a radical innovation with other known technologies, and other critical decisions are completely under the control of the company's decision makers. For externally developed innovations, the large company could take on the role of customer, investor, or board member but would not have absolute decision authority. This type of relationship limits the organization's ability to deeply understand the nuances of the technology's potential, or to shape its development path or strategic choices.

Interestingly, the DuPont experience also provides a case study supportive of the benefits of

internal innovation sourcing. Across all 13 projects in its portfolio, DuPont had three winners, a 23% success rate. This is notably higher than what is found when venture capital performance is measured, where win rates are estimated to range from 0.05% to 5%.⁶

These findings do not negate the importance of open innovation, technology scouting, and external sourcing as critical components of a company's innovation activities; these relationships and activities often make up for important capability shortfalls.⁷ Rather, our results indicate that relying on open innovation to the exclusion of meaningful investments in purposeful exploratory R&D may decrease the likelihood that a company will realize the innovative potential of a new technology.

The Rewards of Unanticipated Radicalness

One might imagine that unanticipated radicalness would be a mixed blessing, since radical projects are typically more difficult to implement than incremental innovations. Greater unexpected radicalness could increase the innovation's impact but could also make its implementation more challenging. Interestingly, this does not seem to be true. While our data affirms that more radical projects are generally harder to implement, if the radicalness emerges as project development progresses (for example, during incubation), it seems to be less difficult to implement than expected.

These findings suggest an additional benefit of uncovering these hidden radical innovations: They will be disproportionately easy to implement. This is exemplified by a project that a smartphone app company undertook for geolocating customers. The initial purpose of the project was to make weather predictions and inform customers about canceled events. As the project progressed, the team came to recognize more (and more important) ways to use the geolocation information, such as customizing location-specific advertisements, facilitating real-time location exchanges among cohorts for meetups, and

providing personalized recommendations based on customers' location histories. With a deeper understanding of the potential breadth of the market and the scope of the technology's impact that emerged through incubation, the company's leaders became more willing to invest in its commercialization.

The pattern of projects becoming easier to implement as they become more radical can be explained through dynamics that emerge when a market is introduced to new technology (*technology push*). While technology push is often criticized as a worse approach to innovation management than listening to the market and meeting its requirements (*market pull*), we find that as the market learns about the technology, technology push can turn into market pull.

For example, one of our interviewees, a research fellow at IBM, described giving a talk at a scientific conference in which he mentioned a phenomenon associated with a gallium arsenide-based chip. At the end of the presentation, an R&D scientist from another company approached him with a problem he'd been unable to solve; that audience member ultimately became the first customer for a use case that had not been considered by the inventor or his team. This example and others like it demonstrate that as technology push occurs, the market begins to pull, which can smooth the path for implementation.

The recent rapid development of drone technology is another example of technology push leading to market pull. In our interviews, a leader at an industrial drone startup mentioned starting the business with one "relatively simple goal": increasing the precision of mapping. As the company developed the technology, it realized that precision mapping could be integrated with other technologies (such as a flight control system) to develop new industrial drone products. The company incubated many of these new use cases, such as drone-based inspection of photovoltaic power plants, which led to many new offerings.

In sum, the further a technology is taken through the discovery and incubation process, the more it can find promising applications where internal or external users will demand it and smooth the implementation process.

Embracing the Surprise of Radicalness

We encourage organizations looking to increase their radical innovation capabilities to follow four guiding principles.

- 1. Avoid overdependence on external**

Hidden radical innovations, once uncovered, may be disproportionately easy to implement.

technological sources. Depleting internal R&D in an effort to fully embrace open innovation is a path many companies have chosen of late. Our research results suggest that leveraging the full breakthrough impact of innovations without the internal networks, decision control, and deep expertise that come with continued investments in internal R&D will be challenging. Companies might also need to broaden their technology expertise beyond the areas that are directly applicable to the business units, to better explore opportunities that would be more radical.

2. Build internal capabilities for proactive discovery. The objective of discovery is to generate and elaborate the richness of an opportunity landscape. Rather than presuming that a technology offers one solution for a big, widely held problem, use tools to stimulate divergent thinking, imagination, and the early exploration of use cases and their implications in terms of product offerings and market segments. One option is to map technology, applications, market segments, and product formulations, in any order, within a problem/opportunity domain. This process helps teams recognize the many different ways their company could participate in addressing a complex problem area that requires radical innovation.

3. Have the patience to cultivate innovation projects through incubation. During the incubation process, it is possible that a killer application that has never before been imagined will surface as a result of interactions with other niche markets. Tools such as the Learning Plan project management approach and discovery-driven planning can be used to vet opportunities.⁸

4. Staff the discovery and incubation teams with new business creation expertise. This is not the same thing as R&D skills. Corning's exploratory marketing and technology teams have engaged in proactive discovery for each major R&D program where there were no immediately obvious use cases but plenty that could be imagined. DuPont eventually instituted inbound marketing teams within R&D to find applications for many of the ideas emanating from its central R&D facility and then begin testing them with interested parties. Each of these examples points to the importance of hiring, developing, and promoting people with strategic innovation opportunity generation and new business creation skills.⁹

ULTIMATELY, ORGANIZATIONS MUST BE prepared to take advantage of surprises. When companies are laser-focused on finding a technological

During incubation, a killer application may surface as a result of interactions with other niche markets.

solution for a known problem, they tend to ignore the unanticipated signals of enthusiasm that come from internal and external markets. Companies that have discovery and incubation capabilities in place must also be willing to devote attention and financing when these types of surprises arise. Part of the art of radical innovation is embracing surprises with an open mind and agile exploration of their potential beyond the confines of the anticipated. ■

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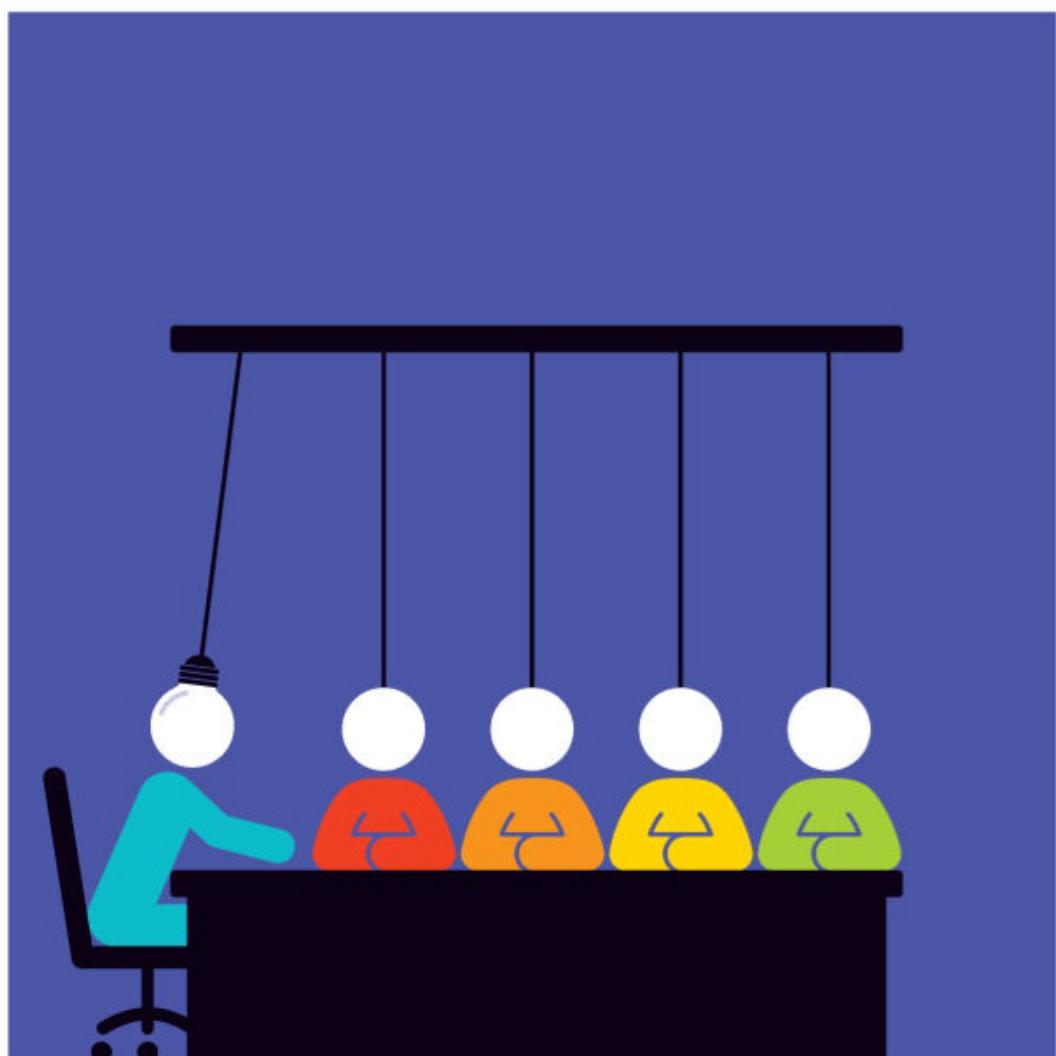
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Rethinking Governance for Digital Innovation

Rapid, iterative, customer-centric innovation is possible in large companies — but not if you carry over your traditional ways of working. Innovative ventures need innovative governance.

By David L. Rogers



WHEN GLOBAL CHEMICAL COMPANY BASF launched its Onono lab in São Paulo, Brazil, its mission was to accelerate innovation through rapid collaboration with local partners and startups. But Onono's director, Antonio Lacerda, faced an immediate hurdle from corporate governance: He was told that his lab would have to follow the same corporate data policies used to secure BASF's entire cloud infrastructure — which would have made it impossible to partner quickly

and nimbly with new startups. Lacerda postponed the launch until he was able, with significant political capital, to arrange an exception: a “sandbox” of separate data for his team, with special permission to share that data through APIs with new partners.

Lacerda’s experience, and that of so many innovation champions, points to a fundamental problem for digital transformation: In large companies, innovation teams are left to fight for waivers in the face of business rules that contradict their own mandate for change. But innovation will never happen at scale as long as it relies on ad hoc exceptions approved by senior leaders. Instead, we must rethink our approach to governance and design new management practices for innovation at the speed of digital.

Designing repeatable processes for innovation is essential for growth in the digital era, yet it is incredibly hard. In too many organizations, new ventures are green-lit based on a single executive sponsor. Once started, ventures move slowly, managed by teams that sit in traditional silos. Resource allocation is slow too, as promising projects wait weeks or months for their next round of approvals. Because each project is backed by an influential executive, no one wants to shut it down, even if it shows little promise.

Meanwhile, risk aversion leads businesses to fund only their low-hanging fruit — incremental improvements in the core that bring a guaranteed, quick ROI. This path will never lead to transformation. Instead, you need governance that embraces uncertainty and supports growth both within and beyond the core. (See “How Governance Helps or Hinders Innovation,” p. 31.)

Digital transformation requires that governance be carefully designed to address several issues. The first is *oversight*. Who approves new projects? To whom do they report? And who shuts them down? Next is *fund-ing*. How will you allocate resources across a portfolio of

ventures to maximize opportunities for success? Equally critical are *people*. Who will staff new ventures, whether inside or outside your organization? How will teams be formed with the right mix of skills? Governance must also include *metrics*. How will you measure the progress of new ventures? And, crucially, how can you bring discipline to regularly *shutting down* ventures, a practice so often neglected at large enterprises?

In this article, we will discuss how to design governance models to drive digital innovation across any enterprise, by focusing on two critical work groups: the people engaged in building new ventures and those overseeing and assessing their work. We'll delve into the top governance issues for managing growth at scale, including how venture teams and supervisory boards work together. And we will explore how to manage ongoing decisions to green-light new ventures, grant additional funding to those that merit it, and shut down others to free up resources.

Design Teams to Drive Innovation

Decades of experience have shown us that, in established businesses and small startups, meaningful new growth always starts in one place: small teams, effectively empowered. These teams do the work of rapid, iterative experimentation, which is at the heart of every modern approach to innovation — whether agile, design thinking, lean startup, or product management. Every innovation team's job is to take a proposed new venture and rapidly test every facet of its business model to validate what will or will not work in the market.

Within any established enterprise, the rules governing innovation teams are critical to their success. Many readers will be familiar with the idea of small multifunctional teams. But size and composition are only part of what matters for team success. By studying innovation in digital natives like Amazon and Google, and digital transformers like Walmart and Mastercard, I have identified five essential pillars of team governance. Great innovation teams are:

Small. Research has shown that small teams communicate, coordinate, and make decisions much faster than large ones.¹ Small teams are foundational to agile methods, which use a rapid cadence of short sprints in which every team must deliver new working code, test and learn, and adjust priorities. At Amazon, innovation teams are called two-pizza teams because each one should be small enough to be fed by two pizzas (a maximum of eight people).

Multifunctional. Great innovation teams have diverse members who cut across functional silos (for example, marketing, engineering, and design). The goal is for each team to have members who can provide

all the essential skills needed to do its work. Instead of constantly waiting for another department's input before taking the next step in its project, a multifunctional team is able to push ahead entirely on its own.

Single-threaded. The best innovation teams have all members dedicated full time to the team's work. At a minimum, the innovation team's leader must be single-threaded, meaning they cannot be splitting their workweek between the team's new venture and other projects. Leading the team is their full responsibility.

Autonomous. Successful innovation teams have clear decision rights that give them the authority to work under their own direction. They should not need to get approval on their work from anyone outside the team — whether it is on product design, what tests to run next, or which customers to pursue. Autonomy also means there are no prohibitions on contracting resources from outside the company.

Accountable. Autonomy is possible only if the team is also clearly accountable for the results of its work. Here, good governance demands a clear definition of success, which is defined in terms of outcomes, not deliverables. That definition may include quantitative metrics as well as qualitative principles, and it must be agreed on with leadership before the team's work begins. Effective accountability also requires transparency: At any time, the team's results must be visible to anyone inside or outside the team. Every test run, every MVP built, and every metric tracked should be visible to anyone in the company.

Establish Oversight With Growth Boards

Innovation teams' most critical partners are the managers who will allocate funds and oversee and support their work. In my experience, the most successful model for sponsoring corporate innovation is the board. In the board model, a small group regularly convenes and deliberates to decide whether to sponsor various possible innovation ventures — much like a group of VC investors listening to pitches from startups. One innovation board will sponsor and support multiple teams working in parallel.

This approach contrasts with what I have found to be all too common: organizations where new ventures are approved by a single sponsor. In these companies, one or more executives may use their clout within the organization to sponsor a new digital venture they deem strategically important and promising. This model is inherently ad hoc, with decisions based on the instincts and judgment of different individuals. And once a sponsor puts their name and reputation behind a project, it is very hard for them to let it die, no matter what market validation shows about its prospects. By contrast, the board model — with its greater diversity and impartiality of

How Governance Helps or Hinders Innovation

SIGNS OF POOR GOVERNANCE	SIGNS OF GOOD GOVERNANCE
▪ A top executive must personally approve any new innovation.	▪ Established structures provide resources and governance for innovation.
▪ New ventures move slowly, led by traditional teams in functional silos.	▪ New ventures move fast, led by highly independent, multifunctional teams.
▪ Allocating resources to new ventures is slowed by the annual budgeting cycle.	▪ Resource allocation happens quickly through iterative funding.
▪ Innovation is limited to a few big projects, which are hard to shut down once they are started.	▪ A steady pipeline of innovations is managed with smart shutdowns to free up resources.
▪ The only ventures to gain support are low-risk innovations in the core business.	▪ Governance supports ventures with low and high uncertainty, both in the core and beyond.

decision-making — is inherently better for managing innovation at scale.

Effective corporate innovation boards — also known variously as growth boards, venture boards, or growth councils — should number no more than eight people. They should include members with topical expertise and knowledge of the market. A board should be able to challenge company orthodoxy, advocate a long-term view, and bring in ideas from outside the industry. The best boards combine internal stakeholders from different divisions and at least one member with an external perspective. Members should be senior enough to have real clout in the organization but not so senior that they can't make board work a priority.

The job of the board is to regularly meet to green-light new ventures, provide strategic guidance to teams, decide on each stage of additional funding, and make disciplined decisions about when to shut down ventures. Here again, decision rights are critical. The innovation board must have complete funding authority for each team in its portfolio. Its decisions should be informed by open and lively debate with the team, but the decisions remain with the board. Other senior executives, including the CEO, may advise and provide input on ventures, but they cannot vote on or overrule the board's investment decisions.

Green-Light New Projects

The first process where boards and teams must work together is green-lighting — that is, approving new ventures to start work. When a board green-lights a new venture, it should allocate just enough resources (in the

form of time, money, and people) for the team to conduct a first round of testing to validate the initial questions about the business model. The key to effective green-lighting is to *minimize* the initial investment made in each team and *maximize* the number of ideas that are approved to be tested.

This approach may seem counterintuitive — it certainly contrasts with the tendency to try to “pick a winner and bet big,” seen at so many organizations with poor innovation governance. In fact, it is important for boards to resist the urge to try to pick the best ideas among those submitted. First, the board has truly no way of knowing which ideas will work. That knowledge can be gained only through testing and validation. Second, successful ventures often emerge from ideas that are initially flawed but evolve in response to testing, feedback, and iterative design. Instead of trying to evaluate the likelihood of success, I recommend that boards judge new venture pitches based on their problem definition, strategic fit, and team mindset.

To green-light many innovation ideas, it is essential to build a fast, cheap, and effective validation process. This means bringing in the voice of the customer to rapidly test whether the venture is focused on solving a genuine problem. At Citibank, new ventures often begin with a two- or three-day workshop in which employees explore a problem/opportunity statement and have a chance to develop their own innovation ideas in a rapid, iterative fashion with actual customers. As you increase the speed and drive down the cost of your first stage of validation, your business can afford to approve more venture teams to test and pursue more possible ideas for growth.

Manage Resources With Iterative Funding

The next critical process for managing innovation is iterative funding, which is how boards allocate resources to teams after their ventures have been green-lit. Iterative funding is designed to be extremely agile, based on the VC approach to financing startups. At each board review (typically every 30, 60, or 90 days), the board will review each team's progress, including new data from its tests in the market, and decide whether to release the next tranche of resources to that team.

Iterative funding is a dramatically different process from traditional budgeting in large enterprises. Here's why it's a better approach for managing investments in new innovation:

Get off to a faster start. In a traditional budgeting process, a new project will be granted a large initial sum that reflects commitment to the project. But that happens only after a long period of analysis that strives (misguidedly) to assess the chances of an uncertain

new venture through benchmarks and third-party data. Iterative funding, in contrast, gives ventures a small initial budget but allows teams to get started fast, if the opportunity they are pursuing is well defined and strategically relevant.

Be more agile with shorter funding cycles. Corporate budgets are typically set annually, with projects and departments funded through a complex process that takes months. A promising new venture can wind up waiting over a year to get resources for a four-week test. In contrast, when boards meet frequently and funding rounds provide teams with just one to three months of resources, decision-making is much more agile.

Invest based on real-world data. Many leaders will overcommit funds to an untested new venture because they have a personal conviction that the strategy is right or because they are swayed by the persuasive talents of the team. With an iterative funding process, the board decides on each round of resources based entirely on real-world data. Every time they meet, the board and the team must agree on what data the team needs to bring to its next review meeting. Those metrics — typically three to six key variables — will shift over time, depending on the biggest sources of uncertainty still facing the new venture. They capture what the venture team has learned so far and what it needs to learn next.

Scale fast to drive exponential growth. In traditional budgeting, when funding is renewed, any increase is only incremental from the previous budget. With iterative funding, if validation is successful and a venture moves ahead, the size of each investment round should grow exponentially. Allocation of human resources should increase as well. This means that innovation teams that uncover meaningful growth opportunities can scale quickly to make a measurable impact on the company's bottom line.

Clearly, iterative funding requires that boards be ready to ramp up investment quickly in ventures that prove themselves in the market. That means the enterprise must fund a pool of resources in advance, for the board to allocate over the course of a year and across a portfolio of projects.

Within each portfolio, similar innovations (for example, a portfolio of high-risk innovations within a single business unit) should compete for funds. Don't let apples compete with oranges. First fund the portfolio for a specific class of innovations, and then let the board iteratively fund the various ventures.

Make a Habit of Smart Shutdowns

Of course, not every team review will conclude with a decision to continue funding. One of the classic problems

that bedevil corporate innovation is that companies learn how to start new projects but not how to stop them. For innovation to deliver results, companies must be ready to exit projects that prove unsuccessful or are insufficiently aligned with strategy.

Shutting down ventures systematically and regularly is a critical job for growth boards. Every time a board meets for an iterative funding review, the question must be, "Do we fund this venture further or shut it down?"

At legacy companies, the biggest barrier to shutting down innovation projects is often an aversion to admitting failure and an irrational feeling that any kind of failure poses too much risk. But the cost of failures is minimal when they are shut down early, through iterative funding. In contrast, there are very real costs to the company if your teams do not shut down ventures quickly and smartly. Without this discipline, your innovation will lack focus, your resources will be spread too thin, and you will run out of bandwidth for new experiments. You will be stuck with *zombie projects* — unsuccessful ventures that never shut down and continue siphoning off resources. At Johnson & Johnson, an entire new series of innovations was funded by evaluating the existing portfolio and shutting down projects that no longer matched the company's updated strategy.²

Halting projects will become easier only if you make it a routine decision, and here innovation boards with a regular calendar of funding reviews will make a huge difference. In GE's oil and gas division, projects were rarely shut down before its board was instituted. As soon as the board began, it easily shut down 20% of existing projects in its first 90-day cycle. As the board and teams became focused on aligning to strategy, this rose to 50% of new ventures shutting down within 60 days.³ At media giant Schibsted, the goal is to remove one venture whenever adding something new to the development pipeline. When a project comes up for review, set a high bar for yourself by asking, "Why shouldn't we shut this venture down?"

The following five practices are essential to achieving smart shutdowns in any organization:

Plan a pipeline with survival rates. Innovation at scale requires planning for most new ventures to be shut down. Only a third to a half of bright, shiny new ideas typically survive their first funding review after they've had contact with real customers. Survival rates typically increase in subsequent rounds. Understanding your survival rates at different stages of validation will allow you to plan a pipeline for the future. For example, if a board is expected to help bring three or four new ventures to market within a year, it needs to plant enough seeds at the start to have good odds for success.

Use a venture backlog to reassign swiftly. An

innovation board should maintain a ranked list of ideas for ventures that have been approved but not yet begun. Using this backlog in your review process will make shutdowns much easier. The point is no longer simply to kill a failing idea but to free the team and its resources to work on a more promising idea from the backlog. So, when you shutter a project, quickly reassign members to the best next idea. In many cases, that may just mean refocusing that team on a different solution to the same problem.

Extract value from shutdowns. When you decide to shut down a project, look to extract as much value as possible. In some cases, a company may be able to sell the venture to another business. When Walmart's Vudu streaming video service was no longer a strong strategic fit, Walmart spun it off to media giant Comcast. Sometimes a venture is promising but not yet workable; by shrinking your investment, you may maintain your future options. After Google Glass failed as a consumer product, the company shrank the project to an enterprise-only device focused on applications on factory floors.⁴ Sometimes only a full shutdown makes sense, and the key value to extract is the learning gained from experimentation. When Amazon shut down its Amazon Auctions and zShops services, it applied the lessons it learned for the subsequent launch of Amazon Marketplace to great success.

Share learning widely. Sharing what you learn from failed ventures is one of the hardest principles to follow. Most companies prefer to look away from projects that didn't work out. In a 2014 internal report on its early digital transformation efforts, The New York Times Co. admitted, "When we do shut down projects, the decisions are made quietly and rarely discussed, to protect the reputations of the people who ran them. As a result, lessons are forgotten, and the staffers involved become more risk averse."⁵ Overcoming this reluctance was essential to the ultimate turnaround of The New York Times Co. and its business model. The German affiliate of Fédération Internationale de l'Automobile (FIA) ran an innovation lab where eight of 10 projects were killed in a single year. Its biggest win? Sharing those results with other FIA affiliates around the world that were struggling with the same challenges in their own markets.

Distinguish people from projects. This is a final critical piece to building a culture that accepts and learns from innovation failures. A strong board review process will hold teams accountable for their results. But you should be careful not to associate a failed project with the merit of the individuals who worked on it. Those same team members could achieve tremendous success for you in their next project. Be sure to encourage your innovators to keep working on their next idea.

If your process for shutdowns is truly working, you will begin to see volunteering. When teams are truly focused on validating growth opportunities through experimentation, they will often suggest their own shutdown to the board, reporting, "Here's what we have learned and why we recommend shutting down now." Don't be surprised when those same employees soon return to their board with another venture idea. It could be your next big breakthrough.

FOR DIGITAL TRANSFORMATION TO DELIVER real growth and value to any organization, it must involve more than isolated pockets of innovation from teams struggling under the yoke of ill-suited management. Without new governance models to manage new ventures, the potential for digital innovation will always fall short.

Innovation governance requires three key building blocks: (1) Teams must be empowered to move fast and experiment to discover what works in the marketplace; (2) boards must be empowered to oversee and advise portfolios of teams, allocating resources where most needed; and (3) both must follow regular processes for green-lighting new ventures, funding them iteratively, and shutting them down to free up resources for the next emerging opportunity.

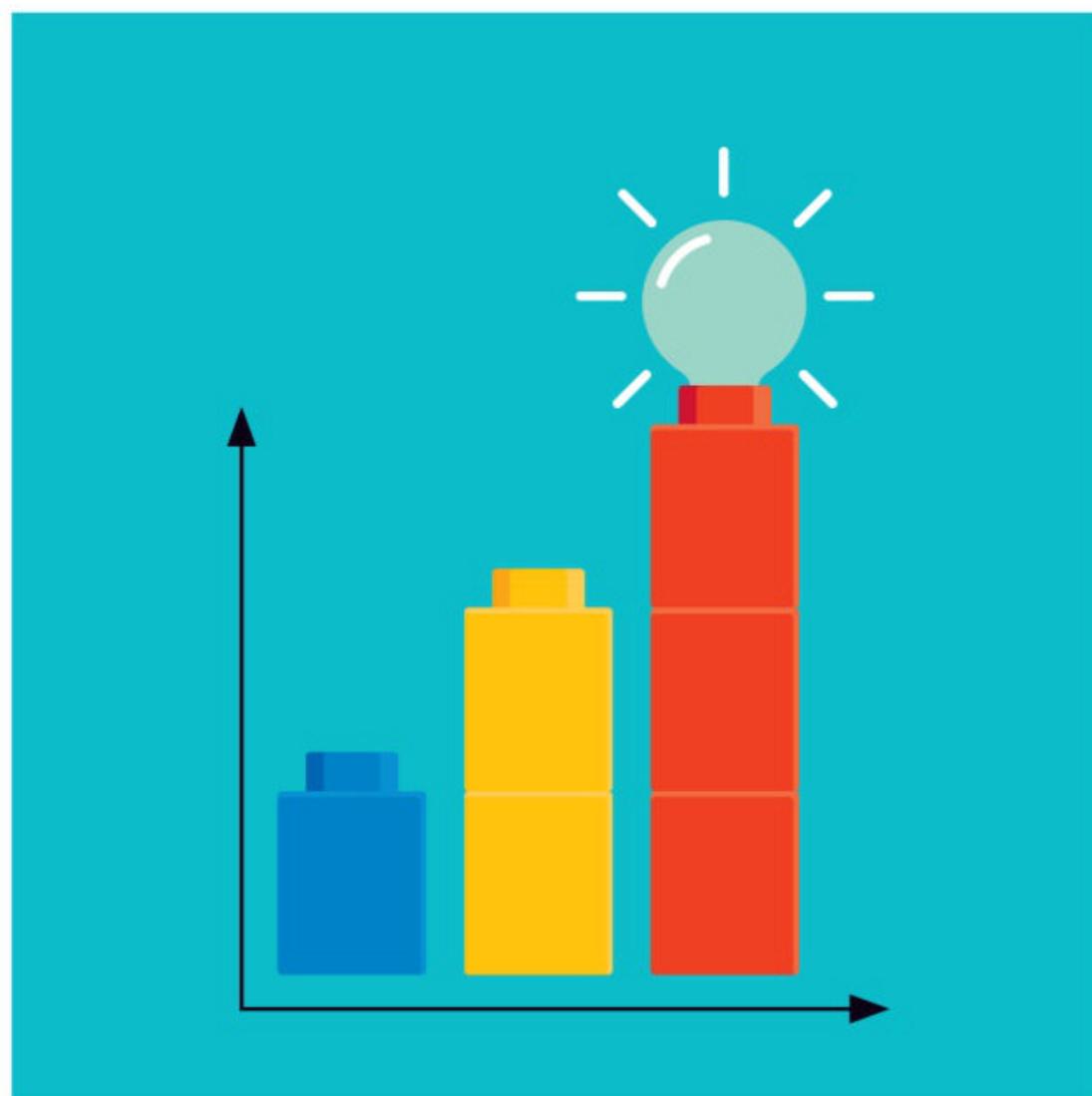
With the right governance in place, established companies of every kind can unlock the potential in their own employees to drive transformation and growth at every level of their business. ■

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Lego Takes Customers' Innovations Further

Three new insights about Lego Group's open innovation practices highlight the benefits of integrating customer communities into product development operations.

By Michela Beretta, Linus Dahlander, Lars Frederiksen, and Arne Thomas

T IS RARE FOR COMPANIES TO GENERATE CONSISTENT commercial hits from their customers' ideas. In fact, customer-generated innovation efforts tend to be ad hoc or difficult to sustain.¹ But when they succeed, they can create new sources of revenue, outcompete internally generated ideas, and create more loyalty among customers — which explains why business leaders continue to pursue this path for idea generation.²

The Lego Group has been one of the most widely researched and emulated companies for its open innovation achievements with consumers. A crowdsourcing pilot that Lego launched in 2008

evolved into Lego Ideas, a community of more than 2.8 million customers that has shared and debated more than 135,000 ideas for Lego sets and generated significant revenues for the company. The lucky few whose ideas are commercialized (like the top-selling medieval blacksmith set) get 1% of the product's top-line revenue — often a life-changing sum. Meanwhile, popular ideas that are not selected as Lego products can get a second chance through a crowdfunding program on BrickLink, a consumer-led channel that Lego acquired in 2019.

Our four-year study of Lego Ideas and BrickLink has uncovered fresh insights for managing open innovation platforms. Many open

innovation initiatives start on the edge, as Lego's did, and remain there. To create value over time, however, they need to be integrated into the organization's core.³ We looked at how Lego involves customers in choosing hit products, provides an outlet for customers whose ideas are rejected, and enables customers to profit from their creations. Our findings could help business leaders strengthen their customer communities and keep members active in revenue creation, in part by integrating members into their product development and marketing operations.

INSIGHT 1: Let Customers Find the Hits

Participants in the Lego Ideas community generate many more ideas than the Lego Group can implement. To winnow the field, customers vote for the best ideas in a multiround competition. The winners — ideas that gain support from 10,000 customers within a specific time frame — enter the final selection process, in which Lego Group employees determine which designs will join the Lego product portfolio.

The question is whether the online community does a better job at choosing the ideas that ultimately win compared with relying on employees to vet each raw idea. That is, does it matter that Lego includes customers in the selection process? Prior research suggests that this is the case in other markets. For example, not only does peer influence have a significant effect on whether books, movies, and songs become hits, but the choices made by the crowd often do not match experts' predictions about which creations will be commercially successful.⁴

Using machine learning, we identified the key factors that predict which ideas will garner the minimum 100 votes needed to pass the first round in Lego Ideas. We found that at this stage, participants rely on signals such as the idea proposer's status in the community, and how an idea is framed and formulated, to filter out what they perceive as low-quality ideas and choose the ones they will support. Specifically, ideas from members whose previous proposals had gained high levels of community support were more likely to move forward. So were ideas that were accompanied by upbeat, detailed descriptions and an average of seven images.

However, predicting which ideas would receive 10,000 votes at the final stage was almost impossible. We found a large degree of randomness regarding which ideas made it to the last round after passing the initial threshold. In the end, social influence played a significant role in selecting the finalists for Lego to evaluate.

These findings suggest that although companies could apply artificial intelligence technology to select the most promising ideas from customers, such an approach would be less useful in finding the hits. An engaged customer community can contribute insights about which ideas have a certain something — call it market fitness or viability — that can't be easily replicated. Community involvement across multiple selection stages complements the expertise within the Lego Group by detecting high-quality ideas with strong market demand.

INSIGHT 2: Give Unhappiness an Outlet

Involving customers in selecting product ideas poses a diplomatic challenge. From 2008 to 2019, there were 148 ideas that garnered 10,000 votes, and of those, only 23 were selected for development and production by the Lego Group. Rejecting so many popular proposals could stir a backlash if not managed carefully.

THE RESEARCH

This article draws on four years of qualitative and quantitative research that the authors conducted with the Lego Group, including workshops and interviews with Lego employees and Lego Ideas customers, as well as analyses of weekly data on Lego Ideas activity from 2008 to 2019.

We looked into how community members who supported the ideas that the Lego Group rejected reacted, by analyzing their activity before and after they learned about the company's decisions. We found that they not only stayed on the Lego Ideas platform but also became more engaged in commenting on others' ideas. However, when doing so, they expressed their disappointment by providing more negative feedback for about two weeks

after their cherished idea was rejected.

These results illustrate that rejecting a participant's idea can affect the wider community. That the consequences were short-lived can be attributed to participants' high identification with the Lego Group and Lego Ideas, as revealed in interviews with participants. Customer loyalty has enabled the company to say no without destroying its community.

Members we interviewed described different ways Lego has been able to create such loyalty. One

tactic has been to design the platform to encourage participants to connect individually. One member from Greece said that she has continued to participate because she values the relationships she has with fans from different countries, including France, Italy, and Spain.

Further, the company has organized fairs, in-person competitions, and test labs where Lego Ideas participants are invited to contribute. A member who frequently attends Lego shows described his luck at being invited, along with his son, to the Lego 1-90 Builders event, which was held in 2022 at the newly expanded Lego London store to celebrate the company's 90th anniversary. Guests shared their stories of what Lego meant to them, and they had the chance to be featured alongside Lego designers in a series of 90 photographs by renowned fashion and portrait photographer Rankin.

INSIGHT 3: Share the Wealth

Although children are Lego's primary customers, the company has embraced opportunities to expand its reach by partnering with adults. When we interviewed Lego Ideas and BrickLink managers and observed the BrickLink Designer Program (BDP) — where members compete to have their ideas crowd-funded — we found that the company encourages not only creativity but entrepreneurship as well.

Many creators are able to earn money from their proposals outside of Lego Ideas competitions. Many fans have side careers as Lego builders, showcasing their creativity on YouTube and other social media platforms. And they have fueled demand for after-market sales.

A Lego enthusiast, Dan Jezek, started BrickLink in 2000, after he discovered a demand for after-market bricks on eBay. At first the site hosted just 15 resellers' stores.⁵ Today, it hosts more than 10,000 sellers in 70 countries.⁶ Consumers can buy and sell bricks, sets, and original designs from each other. The Lego Group purchased BrickLink to complement Lego Ideas, providing a way to extend its relationship with adult fans and especially with a smaller niche of skilled designers. Owning BrickLink also offered Lego the possibility of better control over the quality of ideas submitted and exchanged on the platform.

The company is using BrickLink to create new revenue streams with members. It launched BDP in 2021 with a competition for members of its 10K Club — those whose ideas had garnered 10,000 votes on Lego Ideas but had not been chosen by Lego

employees for commercialization. Fans could pledge money to help their favorite projects get a second chance at being realized.

If a design had at least 3,000 preorders on BrickLink, Lego assembled exclusive kits, including both bricks and a building manual, for those customers. If an idea did not get enough preorders, all rights to the idea reverted to the creator, who could do anything with it, including selling the digital building instructions on the platform.

Lego invested in the program by assigning designers to help creators test, build, and refine their projects before submitting them for crowdfunding. The company also performed quality checks on sets that were headed into production to ensure adherence to safety and legal standards as well as a first-rate building experience.

The program was well received by adult fans, according to a BrickLink manager we interviewed. Many designs reached the crowdfunding threshold of 3,000 preorders within days — or even minutes. The Lego Group has since expanded BDP to allow for submissions by anyone who lives in a country where it operates. To encourage Lego fans' digital creativity, the company provides them with software called BrickLink Studio that they can use to design and submit their proposals.

Although the company markets the Lego Ideas competition winners through its regular retail channels, BrickLink creators market their crowdfunded ideas themselves. The kits produced are not official Lego sets, but they include a small Lego logo on the side of the box in addition to the BDP logo on the front to remind consumers of the connection with the company.

Late last year, the company announced that rather than one-off or occasional events, BDP competitions would become a permanent feature of the program, and launched two in early 2023, with winning designs expected to ship in mid- to late-2024. After BrickLink members have voted for their favorite submissions, the company will weigh crowd support alongside its own selection criteria (including creators' design skills and digital acumen) and compatibility with its existing product portfolio to select five designs.

Finally, BrickLink members will be invited to preorder any of the five designs. Those that receive over 3,000 preorders will be manufactured in limited quantities — up to a maximum of 20,000 sets. Creators, who again will market their own designs, will receive 5% of the net sales.

Many creators are able to earn money from their proposals outside of Lego Ideas contests.

End ‘Not Invented Here’

Each of the above insights highlights a way that the Lego Group has rethought how it operates to capture more benefits from customer-generated innovation. Companies often find this hard to do. Skeptical employees may resist ideas from outside — the classic not-invented-here syndrome — but they might change their attitudes after exploring the perspectives of external contributors.⁷ Further, working with consumers can challenge internal product developers’ professional identities. They might have to redefine what they think of as their roles.⁸

Lego has found productive ways to overcome these challenges by integrating its open innovation pipeline with its internal design organization in a way that capitalizes on its designers’ and marketers’ unique knowledge and expertise. Consumers’ ideas will vary in quality, and some will not appeal to a mainstream market. Lego’s internal experts have a key role in ensuring that customer-generated designs reflect the Lego brand by upholding company standards for design complexity, quality, safety, and buildability.

Because Lego Ideas and BrickLink are pillars of the company’s business strategy, the Lego Group needs to nurture the community and keep it aligned with the organization’s internal priorities. For Lego Ideas, this requires a two-pronged approach, with one team responsible for community engagement and another charged with ensuring that customers’ ideas are compatible with the larger product portfolio. The two teams cooperate to determine the best development direction for the platform.

Another team focuses on community engagement, integration, and alignment for BrickLink. It also coordinates with the Lego Ideas team to ensure that the company takes full advantage of the complementarity between the two platforms.

Lego designers still create the majority of products for the company. But by embracing Lego Ideas and BrickLink, the company ensures that a broader spectrum of ideas reaches consumers than would be developed internally and that it captures a large share of the value from these ideas.

OUR FOUR-YEAR STUDY OF HOW LEGO manages its customer innovation platform uncovered three important lessons for managers who seek the benefits of open innovation.

First, customers contribute to the open innovation process in two ways: by generating ideas, and by identifying the most promising ones with the highest market demand. Second, companies can mitigate negativity within customer communities when they reject customers’ ideas if they make building and sustaining customer loyalty a priority. Last, companies can deepen their relationships with customers by allowing them to earn money from their creative efforts.

The gains from open innovation are more likely to stick when companies make internal changes that help them integrate and manage collaboration with customers. Lego’s focus on keeping the customer community engaged and its contributions aligned with product strategy has enabled it to reap the benefits of increased innovation, revenues, and loyalty among its customers. ■

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The Profound Influence of Small Choices in Digital Collaboration

Simple decisions about how to use collaboration tools can set teams on a path toward either incremental or breakthrough innovations.

By Wietske Van Osch and Burcu Bulgurcu

THE WIDESPREAD SHIFT TO REMOTE WORK OVER THE PAST several years has made digital collaboration tools increasingly essential to employee communication and coordination. Many managers worry that a decrease in face-to-face interactions between employees could be suppressing creativity and innovation, and they are relying on software such as enterprise social media and chat tools to help knowledge workers, in particular, come together. But how do the features of these platforms affect the direction of creative collaboration, and how can managers help teams use them in ways that support the type of collaboration that will be most productive in a given case?

We sought to investigate these questions, focusing on how the use of such tools affected two dynamics that previous research has shown influence the process and outcomes of creative teams and problem-solving: transparency and privacy. Groups working transparently within a larger organization engage with a broader community,

including through spontaneous encounters with previously unknown colleagues elsewhere in the organization.¹ They develop bridging relationships with diverse individuals and are exposed to fresh perspectives, which may help creativity.² On the other hand, creative teams that choose to work together privately benefit from a safe space characterized by a sense of trust that fosters authenticity and creative deviance, risk-taking, and idea incubation, which may also help create space for innovation.³ Working in this way fosters bonding ties, cementing a shared identity that may produce stronger motivation to contribute and engage.⁴

Organizational choices between privacy and transparency have played out through changing fashions in physical workplace design. In recent years, open-plan offices have replaced high-walled cubicle farms, but such configurations have faced pushback from employees who find open environments distracting for focused work. The digital environment, however, permits more flexibility: Platforms such as Slack or Microsoft Teams allow groups to create either public or private channels as needed for collaboration on specific projects.

The choice to make a new group transparent via a public channel or to keep it private has important implications for whom members connect and communicate with. Each choice fosters a different type of communication structure, with different implications for creative outcomes.⁵

Two Paths to Digital Creativity

Our study of 215 groups using a collaborative platform at a large manufacturer shows that digital communication features (transparency versus privacy) and digital communication structures (bridging versus bonding) produce two different paths resulting in different types of creativity that we identify as *developmental creativity* and *disruptive creativity*. (See “Two Types of Creativity in Digital Collaboration,” p. 40.) Developmental creativity involves combining or expanding existing concepts to produce new outcomes, and we found that it is the most likely outcome of collaborating in a public channel. Disruptive

THE RESEARCH

- The authors studied communications among 215 different groups — of which 109 were public groups and 106 were private — at a large manufacturing company that was using a digital collaboration platform.
- They used a machine learning algorithm to classify the 28,083 conversations within those groups as evidence of either developmental creativity (via the combination or expansion of existing concepts) or disruptive creativity (via reframing problems to reach a novel solution).
- They identified instances of bridging and bonding from the network data embedded in the platform.
- In combining the insights about transparent versus private settings, and bridging versus bonding ties, the authors identified two distinct paths that led to either developmental creativity or disruptive creativity.

creativity involves the creative destruction of an object or problem so that a new view of the object or problem emerges. In a digital environment, this is most likely to occur when groups set their communications to private.

Managers can foster these two different types of creativity by carefully designing the two distinct paths that lead there. By combining the right communication features with the right communication structures, managers can facilitate the type of creativity that will be most useful for a particular project or project stage. Importantly, some groups may benefit from shifting from one mode into the other as an innovation project progresses.

To illustrate how different digital configurations influence whether developmental or disruptive creativity emerges, we drew from the real discussions we collected from collaboration platforms for our research. As the two examples below demonstrate, transparent groups with bridging ties produce developmental creativity, while private groups with bonding ties produce disruptive creativity. Our research suggests that when these paths are misaligned, creativity tends to stall.

The Path to Developmental Creativity

Choose transparency: John is trying to solve the problem of recycling particleboard for one of his clients. He turns to the organization’s main channel, a public group that describes itself as providing a forum to ask questions and share ideas.

The digital environment offers flexibility to collaborate publicly or privately as needed.

Two Types of Creativity in Digital Collaboration

The authors analyzed actual dialogues that occurred via digital collaboration tools at a manufacturing company and identified two different patterns of creativity.

DEVELOPMENTAL CREATIVITY	DISRUPTIVE CREATIVITY
Creativity that involves either the combination or expansion of existing concepts.	Creativity that destructs an object or problem so that a new view of the object or problem emerges.
Example Dialogues: <ul style="list-style-type: none">▪ “Let’s merge A and B.”▪ “Why don’t we use the solution we developed for problem X and apply it to problem Y to see if it solves it.”	Example Dialogues: <ul style="list-style-type: none">▪ “Let’s rethink this.”▪ “Could we invent a new perspective on the issue?”▪ “I’ve been thinking of a new way to approach this problem.”

Engage in bridging: John reaches out to someone who had previously mentioned in the forum that it is common to recycle particleboard in the European Union. He explains that clients in the U.S. are struggling with the problem and to date have only found ways to downcycle the material. He asks, “Can you please explain this process more?”

Outcome: Seb, a member of the global team, offers information he’s learned from his clients abroad and suggests combining recycling with energy recovery, as has been applied in Europe. The dialogue eventually shifts to developing creative solutions and expanding the use of that knowledge to help the client. From this short conversation, we see that open organizational forums like this one provide the opportunity to bridge across groups to find creative solutions to tricky problems, often through serendipity or unexpected sources. This kind of interaction enables the expansion of knowledge from one context to another.

The Path to Creative Disruption

Protect privacy: Elena leads a private group with 15 members. Its members are trying to reimagine how their organization works to make it more agile and creative and in doing so is challenging accepted ways of working. The group is protective of its privacy, and members express reservations about eventually making the group a public forum, noting that they’d prefer to keep comments they’ve made in the forum away from a larger audience.

Encourage bonding: The members of the group are keenly aware of their bond and praise the “common language” and “sense of community” that they have been able to build. Elena notes that working as a group in this shared space allows them to discuss a philosophy of work with a specific vocabulary and concepts, and to share a professional identity.

Their dialogue reveals concern that eventually opening up the group to others in the organization might diminish the level of honesty and directness in communications.

Outcome: Reframing happens within this bonded group: For instance, the group is excited about the idea of a debate about organizational structures, calling such discussions “highly generative”; this is another indication that the safety of a private group promotes more argumentative discourse that can yield new ideas. From the team’s exchanges, we can see that a private group provides bonding opportunities that not only establish a sense of safety and shared mission but also enable greater risk-taking, a focus on reframing questions, and creative disruption.

Designing Digital Groups for Creativity

The interactions that we studied among the users of digital collaboration tools show that they are uniquely suited for facilitating collaborative creativity. With the growing digitization of workplaces, further amplified by a preference for remote or hybrid working arrangements among knowledge workers, the challenge for organizations is to understand the demands of different projects and choose the right paths to creativity accordingly. That requires strategically combining different features of the collaboration tools in use with the appropriate communication structures. Here are three points for managers to consider in doing so:

- 1. Choose collaboration tools that allow both public and private spaces.** The type of creative output that a problem requires can guide decisions on the kind of group needed. If a new project is likely to involve incrementally improving an existing product or process — that is, developmental creativity

— enabling a transparent group with bridging ties that encourage connecting with serendipitous and diverse perspectives is the ideal path to follow. On the other hand, a novel challenge with lots of uncertainty — disruptive creativity — is best enabled through a private group with bonding ties that allow for safety and shared identity.

2. Managers should consider how to support private groups that they can't see or monitor, and how to make the knowledge embedded in these groups available to the broader organization. Organizations should try to create opportunities for organizationwide learning from the creative deviance that happens in private spaces, but without undermining the safety and sense of shared mission that form the conditions for disruptive creativity to emerge. Managers must be willing to place trust in the process and let it evolve organically, even if it is invisible and thus outside of their control. Managers leading transparent groups could similarly support creative risk-taking when needed by facilitating secret conversations from time to time. To ensure that learning is ultimately accessible to others in the organization, creators of these private groups should be encouraged to find ways to transfer what they learn — for instance, by establishing an open group for sharing news and updates about the group's activities.

3. Organizations can combine different groups to create multiple pathways to different types of creativity. Digital tools offer a unique opportunity to real-world groups to create multiple distinct digital spaces that could be managed simultaneously or sequentially to support different types of creativity. For instance, Elena's group discussed creating a second, public group following the creation of a minimum viable process, in order to "get out of the strategy room" and "connect with key stakeholders in the organization" to "test their assumptions and turn them into knowledge." Hence, having a private group facilitates an initial stage of disruptive creativity that can be followed by a secondary stage of development creativity enabled through a public group. Likewise, for public projects that require some experimentation and idea incubation,

managers could encourage groups to "withdraw" into private enclaves temporarily to foster greater risk-taking.

AS MANAGERS WONDER HOW TO FOSTER creativity and innovation in the digital workplace, understanding the unique opportunities that digital tools afford for creativity is critical. Different communication features of these tools — especially those that enable transparency versus privacy — produce distinct paths to creativity that ultimately amount to developmental or disruptive forms of creativity. Leaders need to be mindful that there is no one-size-fits-all approach to innovation. What is most effective depends on the scope of ambition and the stage of the innovation process. They must empower users to blend and embrace multiple paths to creativity, and leverage these paths for maximizing the creative potential of their digital workforce. ■

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Private groups enable risk-taking, reframing questions, and creative disruption.

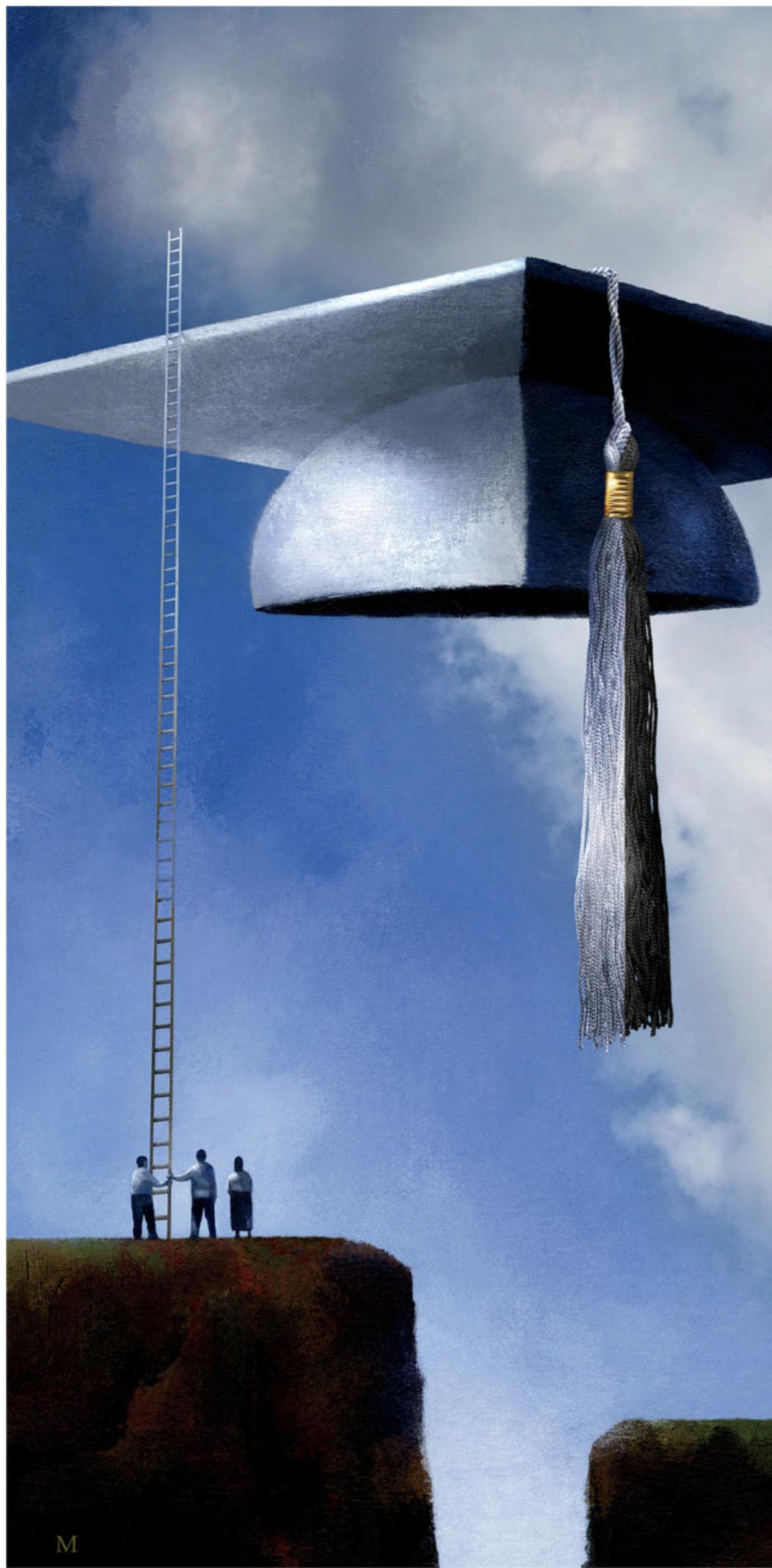
How Outlawing Collegiate Affirmative Action Will Impact Corporate America

Leaders who remain committed to hiring high-potential talent and offering equal opportunities to members of disadvantaged groups must reconsider their workforce pipelines.

By Derek R. Avery

ON JUNE 29, 2023, THE SUPREME Court of the United States ruled 6-3 in favor of outlawing the use of race and ethnicity as factors in college admissions. This was a momentous decision that stands to have widespread societal and organizational implications. Although the scope of the ruling was limited to college admissions, we can draw upon existing data to forecast the impact on corporate America. The evidence clearly points to two key outcomes: First, collegiate patterns of racioethnic diversity will change fairly dramatically; and second, these changes will have considerable downstream consequences for workplace composition as well as patterns of racioethnic inequity across a host of other measures.

As tempting as it might be to view those conclusions as hyperbolic, research on three decades of state-level affirmative action bans strongly suggests otherwise. In fact, eradicating affirmative action has led to reductions in the proportions of underrepresented (Black and Hispanic) students in undergraduate and graduate programs, particularly in science, technology, engineering, and math; it has also led to fewer underrepresented





students enrolled in and graduating from medical and law schools.¹ These effects tend to be lasting — and, importantly, implementing alternative policies that don't explicitly consider race and ethnicity has done little to counter them.²

Extending these state-level findings to the national level suggests that employers will have less racioethnically diverse college-educated talent to draw upon when filling their vacancies, particularly from premier institutions. Alternatively, the Black and Hispanic candidates within their applicant pools are less likely to be selected because they will be less credentialed as a result of having fewer degrees or having graduated from lower-ranked colleges, where they are more likely to apply and be accepted post-affirmative action. A somewhat less-intuitive consequence is that the White (and Asian) graduates of more prestigious colleges and universities will have had less exposure to people of other racioethnic backgrounds. This has implications for their multicultural competence — the ability to relate to those dissimilar from oneself — and may help account for why employers tend to pay higher starting salaries to graduates of more racioethnically diverse business schools and universities.³

The fallout within Black and Hispanic communities stands to be devastating. Most notably, there will be fewer minority professionals to help meet the needs of racioethnically similar minority clientele. Though this might seem to be more a matter of convenience, it is especially troubling in fields like medicine or law (which employs attorneys and members of law enforcement), where minority underrepresentation is often noted as a contributing factor to well-documented racioethnic health care and criminal justice disparities.⁴

Lower odds of graduating from a more prestigious school or graduating at all also have implications for racioethnic inequality within organizations. This begins with underrepresented minorities being less apt to obtain a job or more likely to land a lower-quality one. It goes on to influence outcomes spanning the entire human resources management landscape, from entry to exit, because initial placements have lasting consequences for things like compensation, promotions, training/development, retention/separation, and deployment. For instance, even Black and Hispanic professionals who gain access to employment opportunities may be more likely to find themselves facing the “last hired, first fired” phenomenon. Moreover, a low starting salary can affect the size of raises or competitive offers from other companies and has deleterious compounding effects on one's retirement savings.

Those seeking even more concrete evidence that outlawing collegiate affirmative action can influence

diversity in corporate America need look no further than recent research by Harvard Business School professor Letian Zhang.⁵ He examined affirmative action bans' effect on whether people from different racial backgrounds became managers, using data from the Equal Employment Opportunity Commission on more than 11,000 private-sector U.S. businesses from 1985 to 2015. He anticipated that executives might interpret bans as a sort of license to discriminate and, therefore, be less likely to hire Black managers or promote Black candidates. The results showed that “after a state adopts the affirmative action ban, growth in the proportion of Black managers in establishments with corporate headquarters in that state slows down by more than 50% and this slowdown is mostly concentrated in firms with politically conservative CEOs.”

By widening the collegiate achievement gap, the ban on affirmative action in colleges actually kicks the proverbial can of equal opportunity further down the road by adding larger higher education differentials to existing racial differences in wealth and access to quality preschool and K-12 education that also disfavor underrepresented minorities. Ironically, this further enhances the need for workplace affirmative action strategies just to maintain the racial status quo. That said, any such efforts will almost certainly be challenged along legal grounds, and the Supreme Court (at least as currently constituted) has shown itself highly unlikely to view such efforts favorably.

In fact, in a form of preemptive strike, 13 state attorneys general recently informed companies such as Apple, Microsoft, and Uber that they should expect greater scrutiny of any policies perceived as promoting race-based preferences in employee selection. They went on to promise legal action against “violators,” signaling their intention to extend the parameters of the Supreme Court ruling to U.S. workplaces. This raises the question, what can organizations that remain committed to racial equal employment opportunity do to limit any losses they might suffer in this new, evolving employment landscape? Below, I provide four suggestions to help practitioners, managers, and organizations navigate this challenge.

Don’t Wait on the Sidelines

President Theodore Roosevelt is often credited with saying, “In any moment of decision, the best thing you can do is the right thing, the next best thing is the wrong thing, and the worst thing you can do is nothing.” In the wake of the Supreme Court ruling, it is probably tempting to maintain business as usual, wait and see how things proceed, and adopt a reactionary approach as the

Equal Opportunity

dust settles. Doing so, however, promises to have considerable consequences. Namely, continuing to source applicants from the same schools while making no adjustments based on the predictable changes to student-body compositions leaves an organization entirely dependent on college admissions staffs to retool their strategies to solve a problem that few have been able to address in the past 30 years.

Accordingly, continuing to use degrees and degree-granting institutions as proxies for human capital, as many organizations historically have, will likely result in race differentials widening across virtually all employment outcomes, with cascading effects for nonemployment outcomes. For instance, a recent study showed that underrepresented minority youth tend to increase their engagement in risky behaviors (smoking cigarettes, alcohol use, and binge drinking) immediately following an affirmative action ban.⁶ In short, expect to have fewer underrepresented minority employees and greater racial inequity, including larger differentials in earnings and advancement.

Question Everything

Well, you might not have to question everything, but if an organization wants to get better at something, it will need to do some things differently and examine how they've been done in the past. For instance, an HR executive once told me that it was company policy to recruit only from the country's top 10 engineering programs. An unintended consequence of this practice was that new recruits came from geographic regions that were quite dissimilar to the company's locale, and new-hire turnover was unusually high for its industry. There was no qualitative difference between the No. 10 program and the No. 12 program, which was located within 100 miles. Why not recruit from the No. 12 program to reduce the chance of a new employee experiencing extreme culture shock and leaving within the first year?

Applying this logic in the current context, companies might need to broaden their search parameters to attract applicant pools that are demographically consistent with those of their recent past. Recruiting at historically Black colleges and universities and Hispanic-serving institutions is a good way of engaging in targeted recruitment — a strategy that is presently legally permissible. Placing online advertisements in places frequented by underrepresented minorities conveys that your organization is interested in receiving applications from members of these groups. Moreover, when it comes to selection and compensation, companies will need to reevaluate the implicit and explicit weights assigned to degree-granting institutions. The spoils of graduating from a premier

institution are already distributed inconsistently, with larger benefits for White graduates than for Black degree holders.⁷ Why not make that benefit smaller for everyone and simultaneously open more employment opportunities to a larger group?

Lean Into the Data

To address the issues raised by questioning everything, organizations can turn to what their data reveals. For instance, though inertia and benchmarking against competitors may suggest that a job requires a college degree, does the data support that contention? Job requirements that are linked to racial differences, like degree attainment and earning degrees from highly prestigious schools, tend to have an adverse impact on underrepresented groups — a form of statistical discrimination. In the context of selection, adverse impact occurs when a particular decision-making tool advantages members of one racial group (or any other legally protected category) relative to members of another racial group. While such differences are not illegal if the difference is job relevant, data is needed to establish such relevance.

Requiring degrees, favoring graduates of elite schools, and using minimum GPA cutoffs can adversely impact underrepresented minorities when such requirements are not directly related to job performance. In the past several years, there's been more discussion of eliminating these types of requirements, not only to enhance racial justice but also to simply tap a larger pool of high-potential candidates in a tight job market. Although some may interpret this as a form of "lowering standards" to enhance diversity, it should be noted that standards unrelated to performance are unnecessary and potentially illegal and may result in employee overqualification, which can have negative implications for hires' attitudes, well-being, and performance.⁸ Use your data (and that of relevant others) to determine job relevance and get rid of barriers that aren't boosting your bottom line.

Select for Potential, and Train for Performance

Though colleges invest considerable resources in preparing students for careers, there are inevitable shortfalls in the competency levels that graduates possess and employers desire. For instance, the National Association of Colleges and Employers indicates that employers are nearly unanimous in naming communication as the most important competency, and almost all students know this. Nevertheless, though 80% of students rate themselves extremely proficient at communication, only 47% of employers see students in this same light. The point is that more than half of employers see graduates

When it comes to selection and compensation, companies will need to reevaluate the implicit and explicit weights assigned to degree-granting institutions.

as lacking the most important competency. Clearly, the 53% of employers that consider college graduates less than extremely proficient communicators are not leaving their vacancies unfilled. If they were, the unemployment rate for 2022 college graduates would not be 4%. Rather, many, if not most, employers recognize that they will need to invest in training to get new hires up to speed.

Identifying potential in a race-neutral yet valid way is certainly easier said than done. Generally speaking, the more closely the indicators used to select employees relate to what employees actually do, the better. This suggests that tools like high-fidelity simulations, work samples, and behaviorally anchored structured interviews may be particularly useful.⁹ Selection approaches should also focus on identifying trainability to ensure that organizations are able to maximize returns on their training investments. This could entail giving top candidates an opportunity to demonstrate their trainability by actively learning a new job-relevant competency and subsequently demonstrating their proficiency.

OVER THE PAST HALF CENTURY, AFFIRMATIVE action and its progeny have helped transform the racioethnic landscape of American colleges, universities, and organizations. These programs have done so by providing opportunities to those who history suggests would otherwise have been unlikely (or at least considerably less likely) to receive them. The choice of word — *opportunity* — is both intentional and important, as many people often lose sight of the fact that these programs grant beneficiaries only the chance to show that they belong. Although the Supreme Court decision eliminated one means of helping to level the playing field, as Alexander Graham Bell once said, “When one door closes, another opens.” Though the path may seem somewhat less clear, innovative companies will create and maintain competitive advantages by finding, attracting, and selecting the most talented people from *all* racial and ethnic backgrounds. ■

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Procurement in the Age of Automation

Automated negotiations can cause anxiety among business leaders, buyers, and suppliers despite the benefits. Here's how to overcome resistance.

By Remko Van Hoek and Mary Lacity

EXECUTIVES ARE OFTEN SKEPTICAL about automating procurement processes, particularly when they involve negotiations, but automated negotiation tools offer considerable value for all stakeholders and can be used effectively throughout many businesses.

Over the past three years, we have studied modern automated procurement practices at dozens of organizations. We studied technologies that have been around for a while but not widely adopted, such as e-auction technology, as well as newer technologies, such as AI chatbots. Companies in our study that had automated procurement negotiations consistently saved money compared with those engaged in traditional person-to-person negotiations and improved supply chain resiliency by identifying more qualified suppliers. Automated negotiations also increased buyer productivity, allowing buyers to spend less time and energy on tasks that are now handled by software. Suppliers benefited from clarity on how they would be assessed, shorter sales cycles, real-time feedback on their current standing, and confidence that they would be treated fairly, even in situations that involved entrenched incumbent suppliers.

However, implementing a new procurement model and a different approach to relationships isn't easy. Stakeholders often have legitimate concerns. Business unit heads paying for goods and services worry that automated negotiations will land them the cheapest suppliers (chosen based on costs only), leaving them to deal with shoddy quality, inferior services, and broken supplier relationships. Buyers often reject automation tools because they view negotiations as their specialty and worry about being marginalized or even replaced. Suppliers want opportunities to differentiate themselves on more than just price; nonincumbent suppliers often suspect that



buyers use automated negotiations merely to pressure incumbents to lower their prices and thus fear that they do not have a legitimate chance of winning the business.

In this article, we detail the substantial benefits organizations have derived from automated negotiations, what it takes to persuade stakeholders to use the technology, and how to incorporate automation into your procurement processes.

Reaping the Benefits of Automated Negotiations

Both large and midsize companies in our study achieved notable savings with automated negotiations. Danish global shipping company Maersk uses various automated negotiations for \$1 billion in annual spending and has saved 7% to 8% during

the past few years compared with manual negotiations. Walmart International automated negotiations for over \$7 billion worth of spending, gaining 5% or more in additional value compared with traditional negotiations. Google has seen good results from its large-scale e-auction program and has embedded the technology into its procurement toolkit and processes.

Smaller companies have also generated savings. Walker's Shortbread, a family-owned baked-goods manufacturer in Scotland, buys 80 million British pounds' (\$105 million) worth of ingredients and packaging materials each year. It used automated negotiations for 90% of its spending on raw ingredients in the first half of 2023, saving between 1.5% and 7%, depending on the category. Mexico-based Grupo Herdez, another family-owned food-product manufacturer, has been using e-auctions for a fraction of its annual purchase of raw materials, saving around 8% on items like spices and seeds. The company is planning to expand e-auctions to other procurement categories this year.

Walmart, Maersk, and Google have scaled automated negotiations across procurement categories as varied as marketing media, food for vessel crews, transportation services, general contractor services, e-commerce small-parcel delivery, supply chain equipment, and even marketing agency services. Through June 2023, Maersk had conducted over 10,000 e-auctions. In 2022, Walmart applied e-auctions to 65% of its total indirect spending. While the number of auctions Walker's Shortbread conducts is minuscule compared with Maersk's or Walmart's, its default procurement option is now e-auctions.

Automating negotiations dramatically increases the number of suppliers and negotiation rounds that a company can include while significantly decreasing the amount of time the process takes. In a wide range of e-auctions, Walmart had up to 150 suppliers participating simultaneously, conducting multiple rounds of negotiations in about two hours. "It would take a buyer months to complete a negotiation like that in person," said Michael DeWitt, vice president for strategic sourcing at Walmart.

Such efficiency benefits companies of all sizes. "It's the speed of e-auction execution that drives value," said Kees Bressers, head of procurement at Walker's Shortbread.

Companies that have scaled their automated negotiations have matched the procurement strategy for a particular spending category and market conditions with the best automation processes and tools.

THE RESEARCH

The authors have been studying procurement and automation for two decades.ⁱ Mary Lacity has conducted more than 50 case studies on enterprise use of automation technologies. Remko Van Hoek and Lacity have been studying early adopters of procurement technologies for three years, including companies using e-auctions, artificial intelligence, and other emerging technologies, such as blockchains. For this article, they interviewed senior executives, business unit leaders, managers of centers of excellence for procurement, buyers at dozens of companies, suppliers, and automated negotiation software vendors.

(See "How Automated Negotiations Work," p. 48.) They work to win over members of the three stakeholder groups — business unit heads, buyers, and suppliers — by promoting the benefits each will gain.

- *Business unit heads* get access to an expanded base of qualified suppliers at the best price. They continue to define requirements, desired terms and conditions, and budgets, so their roles do not change. However, they must accept that their favorite incumbent suppliers might be replaced.
 - *Buyers* aren't eliminated; rather, their responsibilities expand, and they use their expertise more strategically. They will consider more procurement options, formalize business unit heads' needs into templates or scorecards, find more qualified suppliers, and leverage new automation tools. Instead of having face-to-face negotiations with suppliers, buyers organize and qualify suppliers to participate in automated negotiation events.
 - *Suppliers* will need to be trained in the new automated tools and processes. They benefit from rules that increase fairness, real-time feedback on the competitiveness of their bids, and a reduced administrative burden. Compared with the experience of face-to-face negotiations with buyers, suppliers spend more time planning for automation events but much less time negotiating, reducing their overall sales cycles.
- By studying companies that have successfully transitioned to automated negotiations, we've identified six key practices to help leaders overcome

How Automated Negotiations Work

There are many nuanced automated negotiation processes and tools, but at a high level, they can be divided into two categories: one buyer and many suppliers, or one buyer and one supplier. In both scenarios, the human buyer prepares the software for negotiation events. Once the event is deployed, the human buyer remains on the sidelines while the software interacts with humans representing the suppliers.

One Buyer, Many Suppliers

E-auctions — or interactive bidding, as Walmart calls them — are real-time online negotiations that use competition to achieve true market value by delivering time and process efficiencies.ⁱⁱ Compared with traditional negotiations, where the buyer is in the middle, an e-auction allows the buyer to step out of the process so that suppliers compete with one another directly, as illustrated below.

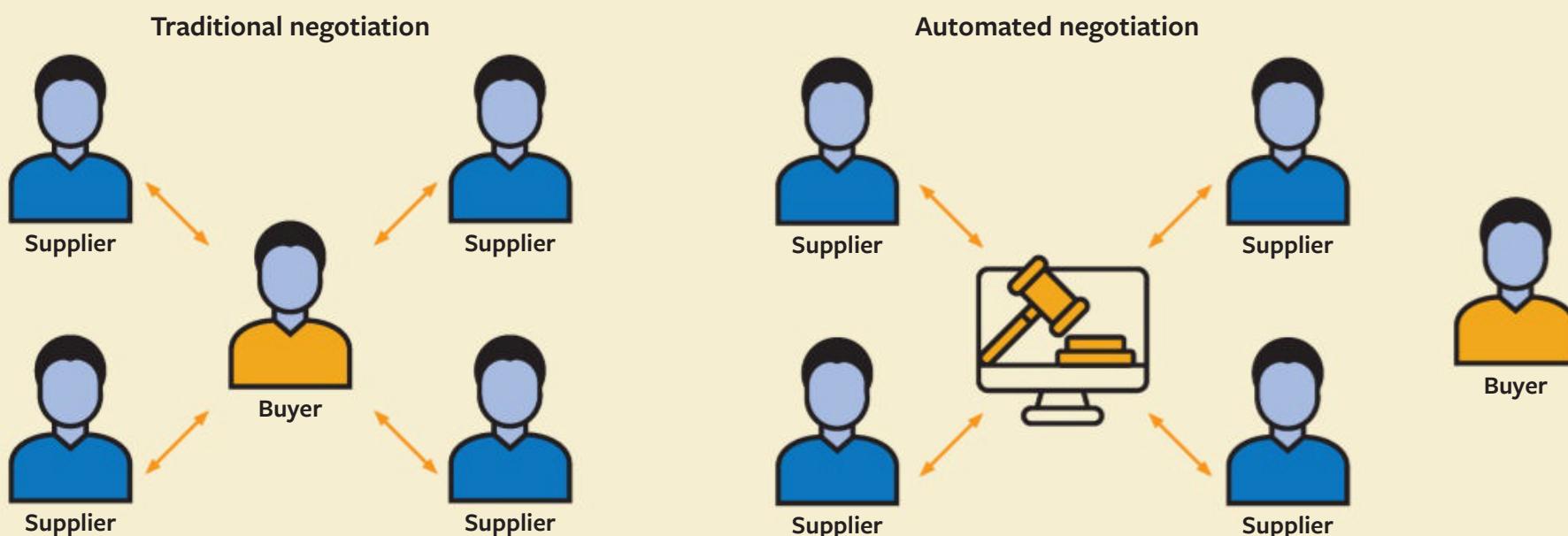
The process lets the market do its work, without potential buyer bias, such as favoring the incumbent supplier. Procurement teams can consider conducting an e-auction when at least two qualified suppliers are willing to participate.

There are three main types of automated e-auctions:

English reverse auctions. Suppliers compete in real time to be the lowest bidder. Suppliers can see everyone's bids

Tradition Versus Automation With Multiple Suppliers

In automated negotiations, the buyer is still responsible for the process and for defining the rules.



stakeholder resistance and deliver value.

1. Mandate consideration, not use. While executives might be tempted to mandate adoption of automated procurement, it's generally a poor way to get buy-in from business unit heads and buyers. Instead, executives of large procurement organizations might mandate that buyers *consider* participating in automated negotiations. This practice allows the buyers to use their subject-matter expertise and relationships with business unit heads to identify the best automation opportunities, which helps with stakeholder buy-in and optimizes the effectiveness of automations.

Times were tough for the shipping industry in

2009, so Maersk saw cost cutting as crucial to ensuring its competitiveness in the market. The chief procurement officer (CPO) at the time mandated that buyers *consider* adopting e-auctions and set minimum yearly targets for each buyer as part of their annual performance evaluation. The CPO recognized that there could be valid reasons for not using e-auctions, such as an insufficient number of bidders, so the business unit heads and buyers selected which deals were best suited for automated negotiations to meet the targets.

Like Maersk, Walmart requires that all buyers consider automating all negotiations. Initially, the procurement leaders did road shows with business

and can repeatedly enter lower prices. The supplier that submits the lowest price before the event is closed is awarded the buyer's business.

English reverse auctions are suitable for procuring goods and services in markets where there are plenty of competitors. The format stimulates competitive bidding and tends to drive pricing across bidders toward a narrow range in the final stages of the auction. The format can be used for multiple lots within a tender, and many rounds and bidders can be accommodated.

English reverse auctions are the most-used format, but buyers should be mindful not to always use them by default and should consider other options.

Dutch reverse auctions. Here, the buyer seeds the competition with a low price. If no suppliers bid on the initial price, the buyer's software increases the price incrementally. The process repeats until a supplier bids or the buyer reaches its upper bound on what it is willing to pay. The first supplier to accept the current price is awarded the buyer's business.

Dutch reverse auctions, with their winner-takes-all award strategy, are suitable for procuring goods and services in supplier markets where there is great supplier interest in securing an agreement. A large number of suppliers is not necessary. However, the format does not enable price discovery

as much as English reverse auctions do.

Japanese reverse auctions. In this approach, the buyer seeds the competition with a high price. All suppliers willing to accept this price stay in the negotiation. Next, the software decreases the price and all suppliers willing to accept this price remain in the competition. The process repeats until a supplier accepts the current price and is then awarded the buyer's business.

Japanese reverse auctions are a good alternative to English reverse auctions in markets where there is a limited number of bidders. The format ensures that the supplier explicitly opts in, which can support buyer confidence in the offers.

This format is less commonly used, and buyers and suppliers may be less familiar with it. There is a risk that the auction will end early, at a higher price than the buyer desired, because it takes only one incremental bid to secure the win.

One Buyer, One Supplier

Buyers may apply automated negotiations even when there is only a single supplier. Again, there are various processes and tools to consider.

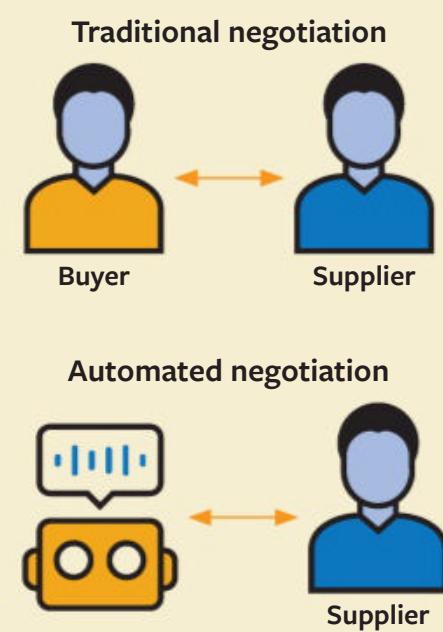
AI-powered chatbots automatically negotiate on terms and conditions, such as payment schedules, termination clauses, and opportunities for growth. The chatbots

are programmed to produce deterministic outcomes and do not negotiate any terms that the buyer has not preapproved.

Dynamic request-for-quote tools mask the buyer's target prices for itemized goods or services, wait for the human supplier to enter a proposed price, and then provide instant feedback regarding the level of agreement.

Tradition Versus Automation With One Supplier

Automated tools can even be used to negotiate with a single supplier.



unit heads and buyers to communicate the potential value and make it clear that buyers could opt out by documenting their rationales.

"By making auctions the preferred default, it forces a better procurement strategy," said Walmart's DeWitt. "It encourages buyers to think outside of the box and to look for more suppliers, which in the end benefits the business whether they do an auction or not."

Executives at companies with smaller procurement operations might find a mandate unnecessary. Walker's Shortbread, for instance, has only five full-time procurement specialists for the entire company, and they all work in the same office, so Bressers was

able to discuss the strategy with them directly. That approach helped him gain buy-in on digital procurement at a company that had been managing the process with telephone calls and emails for decades.

Similarly, Grupo Herdez has not mandated e-auction consideration or use. The economic crisis caused by the COVID-19 pandemic made cost rationalization a requirement for survival. The procurement team communicated the necessity of using automated negotiations to drive down costs to business unit owners, buyers, and suppliers. Business unit owners and suppliers took the most convincing because the company had used some of the same suppliers for 40 years or more. To get incumbent

RFQ events stay open for a few days so that suppliers have time to work with subsuppliers on further discounts.

suppliers to agree to participate in e-auctions, Grupo Herdez's procurement managers went to the suppliers' senior leaders to explain the economic need for competition to cut costs. "Even though many of them have more power in the relationship because they are larger than us, they understand and accept our need," said Felipe Díaz Mojica, manager of strategic supply.

2. Make success visible. While mandating e-auction consideration helps global businesses get started, making early successes visible across the company can generate excitement among business unit heads and buyers — especially when leaders credit the buyers for their role. Google made success visible in staff newsletters and offered employees incentives based on the number of events they conducted through automated negotiations.

In the early stages of Maersk's automation journey, the CPO broadcast live negotiations on big screens and celebrated the business unit heads and buyers who led the e-auctions. Since every e-auction was generating double-digit savings, the successes broke through stakeholder complacency. "The 'push' strategies for automated negotiations soon evolved into demand 'pulls,'" said Nikolaj Jessen-Klixbüll, Maersk's director of procurement.

At Walmart, business unit heads from one country were particularly skeptical about the value of automated negotiations, so procurement leaders invited them to watch a live auction on a big screen in an auditorium. DeWitt recalled that the nonbelievers initially sat in the back with their arms crossed.

"Nobody looked happy," he said. "Then the auction started, and prices started to drop. It was wildly competitive, and you could see the mood in the room change. People started to smile. By the end, they were literally giving high fives to each other and to us. After that, they became our best champions."

Walmart presented monthly awards recognizing the buyers who were using automated negotiations for new spending categories, for large-volume events, or in new geographies. One purpose of the awards was to signal to the entire company that while

software enables automated negotiations, it's the buyers who run them.

At Walker's Shortbread, business unit heads needed to see how suppliers would submit bids before they sanctioned the new procurement model. "Business owners were nervous," said Bressers. "We are a 125-year-old company where deals were done with handshakes and a purchase order." He won them over by demonstrating an e-auction in a sand-box environment before conducting one live. He then invited key business unit heads and the procurement team to the first couple of live auctions, which were displayed on a large screen. After observing the bidding process, business leaders recognized that the process was fair and were very pleased with the lower prices.

These early successes happened only because the companies planned automation events carefully, including vetting the suppliers.

3. Prequalify suppliers. Procurement teams should recruit and preapprove suppliers before automated negotiation events. This practice ensures that only capable suppliers can be awarded the business. Procurement teams may also need to collect initial proposals to increase the pool of qualified suppliers.

Maersk's buyers work with business unit heads to identify their needs. The requirements are converted into supplier scores that are used to prequalify suppliers against minimum requirements and rank them in terms of their comparative position before negotiations start. A supplier with a lower carbon footprint, for example, would be favored over an equivalent supplier with a higher carbon footprint.¹

"For this to be a success, business owners specify their prerequisites," said Jessen-Klixbüll. "They know we're not going to invite any suppliers to participate if the business doesn't trust that the supplier can deliver the service."

Before an e-auction, Maersk uses automated dynamic requests for quotes (RFQs) if there are limited suppliers in the market or when there are large differences between suppliers' prices. The dynamic RFQ process aims to reduce the pricing gap and qualify

more suppliers for e-auctions. Maersk also uses this process to negotiate deals with a single supplier when no other viable suppliers exist in the market.

Business unit heads and buyers agree to a target price based on market assessment, needs, and budgets. During the event, Maersk's software displays a blank line-item price sheet without revealing the company's target prices. After a supplier submits its proposed price, the dynamic RFQ system offers automatic feedback on the competitiveness of the supplier's offer, using a traffic-light metaphor: Green indicates that the bid is competitive, amber indicates that the bid is close to competitive, and red indicates that the bid is not competitive.

Unlike an e-auction with a short time limit, dynamic RFQ events stay open for a few days so that suppliers have time to work with subsuppliers on further discounts and then enter a new, more competitive bid.

Walmart uses a scorecard to assess business unit heads' weighted requirements for quality, service, security, sustainability, costs, and other criteria. Suppliers are prequalified and assigned an initial ranking based on their scorecard. The scorecard is embedded in the interactive bidding software, so suppliers can see where they rank. If business unit heads heavily weigh costs, a supplier will climb in the ranking by bidding a lower price. If nonprice factors are heavily weighted, lowering the price will not improve the supplier's ranking by much.

"It requires prework to get the business and buyer stakeholders to develop the scorecards," said Bayan A. Hariri Sr., director of procurement transformation and center of excellence (COE) at Walmart. "But it makes it so much easier to award the supplier when the event is done."

Before automated negotiations were adopted, buyers from Walker's Shortbread contacted incumbent suppliers and one or two other suppliers to determine market prices and then used that information to renegotiate prices with the incumbent. Now, with automated negotiations implemented, buyers first invite suppliers to respond to RFQs to determine the suppliers' capabilities and get a sense of current market prices. Walker's Shortbread then uses this information to prequalify suppliers for e-auctions. Incumbents now compete for the business. The number of qualified suppliers has doubled for some procurement categories, increasing competition.

4. Treat nonincumbent suppliers fairly. The procurement team must communicate the value, process, and award criteria to suppliers before an

automated negotiation begins. "It is important to communicate to suppliers that, with an e-auction, suppliers get much better and more real-time visibility into their position in the tender," said Lily Han, manager of global procurement at Google. "They also get very direct control of their competitive position; it is much more in their hands." At the same time, suppliers need to be assured that the other suppliers will not know who is competing in the event, said Grupo Herdez's Díaz Mojica.

As most procurement professionals will attest, business unit heads and buyers prefer incumbent suppliers because change creates more work and potential operational risks. Companies should adhere to a strict policy that the supplier that wins the negotiation should be awarded the business. There should be no negotiations after the event; incumbent suppliers should not be able to overturn the results of automated negotiations with offers of big discounts afterward. Maersk, Walmart, and Walker's Shortbread adhere to this golden rule. Walker's Shortbread selects the winner based on a weighted average of technical and cost criteria.

To increase fairness and avoid misunderstandings about process and purpose, Walmart also provides every supplier with personalized training before they participate in automated negotiations. Buyers explain the auction design and award criteria and ensure that suppliers understand how to use the technology.

Supplier feedback on the training has been positive, but a better indicator of supplier value is repeat participation, according to DeWitt: "Suppliers come back again and again."

5. Unleash the power of AI to improve deals with tail-end suppliers. Normally, procurement organizations negotiate only with their major suppliers, which typically represent 20% of a company's suppliers but 80% of its procurement budget. Buyers generally offer tail-end suppliers cookie-cutter deals that are nonnegotiable. Recently, however, companies like Walmart, Maersk, and others have found ways to improve deals with tail-end suppliers using AI-powered chatbots.

Like e-auction technology, an AI chatbot can run 2,000 negotiations simultaneously, 24-7, while allowing suppliers time for bid preparation if needed. "The ability to take on a massive amount of negotiations simultaneously and to be able to scale that across a number of scenarios is of incredible value," said Jessen-Klixbüll.

Scaling the chatbots has increased productivity

The chatbot enables companies to engage with more suppliers than in the past.

for both Maersk and Walmart because the software learns from every negotiation, reducing the setup time for new procurement categories.

When using AI-powered chatbots, business unit heads and buyers start by identifying the suppliers to approach and defining acceptable trade-offs that will become part of the programming. For example, business unit heads might prefer a price discount in exchange for paying the supplier earlier. Or they may favor offering suppliers a 60-day written termination notice rather than a termination-for-convenience clause, or want to offer the supplier opportunities for growth by increasing their product mix and sales volumes.

Unlike the many AI tools that produce probabilistic outcomes, AI-driven automated procurement tools produce deterministic outcomes, thus eliminating the possibility of surprise results. Once the tools are deployed, the buyer steps out of the process and the chatbot presents alternatives to a human representing the supplier.

Maersk began using an AI-powered chatbot predominantly for inland transportation, where volume and traffic are too limited to justify a full-blown auction. Maersk pre-awards a supplier for a specific region, and when the supplier is needed, the AI chatbot leads the negotiation.

Walmart first used its AI chatbot for contract renegotiations with tail-end suppliers in one country and has since expanded to midtier suppliers and multiple countries. Its average savings range from 7% to 10%. In return, suppliers have gained better termination conditions, early payments, and/or growth opportunities.

Most tail-end suppliers welcomed the opportunity to actively negotiate with Walmart for the first time. In follow-up surveys, 67% of suppliers said that they found the system easy to use and 83% liked the ability to counteroffer.²

Smaller companies also can gain benefits from AI chatbots. Genuine Cable Group (GCG), a U.S. company with 1,200 employees, is currently training its chatbot on different scenarios, with plans to launch it in the fourth quarter of 2023. GCG has tens of thousands of suppliers, with some deals as small

as \$10,000 in spending per year. The chatbot will allow GCG to engage with more suppliers than it had been able to in the past, according to CEO Steve Maucieri. The project is low risk because the software provider offers a gain-sharing model in which its fees are paid from the savings generated. Maucieri also anticipates a future in which his many customers will use AI-powered chatbots to negotiate deals with the company.

6. Create a formal support structure. Formal support structures, such as COEs, can help to scale automated negotiations across geographies, business units, and spending categories.

Maersk came to realize that if it wanted to embed mature procurement processes across the globe, it needed to have procurement teams located closer to its businesses. It created a global COE with regional support representatives. Teams in Panama City, Panama; Charlotte, N.C.; Cape Town, South Africa; Rotterdam, The Netherlands; Dubai, United Arab Emirates; and Shanghai support Latin America, North America, Africa, Europe, the Middle East, and Asia, respectively.

The COE representatives don't take negotiations away from buyers. Instead, they provide tool expertise and support buyers' efforts to engage business stakeholders, consider negotiation types, and design automated negotiations using templates. The COE also focuses on supplier experience so that the automated negotiations ease suppliers' burdens too.

"We don't want to make the negotiation too complex, difficult to use, or bureaucratic, because buyers and suppliers will eventually walk away," said Jessen-Klixbüll.

Walmart also has a COE with a dedicated team of super users who support buyers and suppliers. Walmart's procurement leadership views the maturation of the company's procurement strategy and capability as one of the biggest benefits of automating negotiations. The COE continually updates its templates to guide buyers to the optimal sourcing approach. "We always position automated negotiations as a strategy that enhances the negotiation as part of the sourcing process, and not as a replacement of the sourcing process itself," DeWitt said.

For both Maersk and Walmart, buyer and supplier training is ongoing, given that new employees and suppliers are constantly onboarding and automation options and negotiation types are evolving.

Smaller companies can engage the services of an outsourcing provider to create formal structures. Walker's Shortbread, for example, hired an e-auction software provider to manage the infrastructure and e-auctions.

ULTIMATELY, AUTOMATING NEGOTIATIONS is not about the technologies; it's about enabling buyers to be more efficient and effective by focusing on procurement strategy. Suppliers benefit by replacing high-pressure person-to-person negotiations with clearly defined automated negotiation events, and sales cycles no longer languish. Business unit heads benefit from measurable savings and from expanded pools of qualified suppliers. To capture these benefits, executives should focus less on technology and more on effective procurement strategy, deployment, and change management. The good news is that the practices we've described are highly transferable across companies and industries and have the potential to benefit many. ■

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Using Federated Machine Learning to Overcome the AI Scale Disadvantage

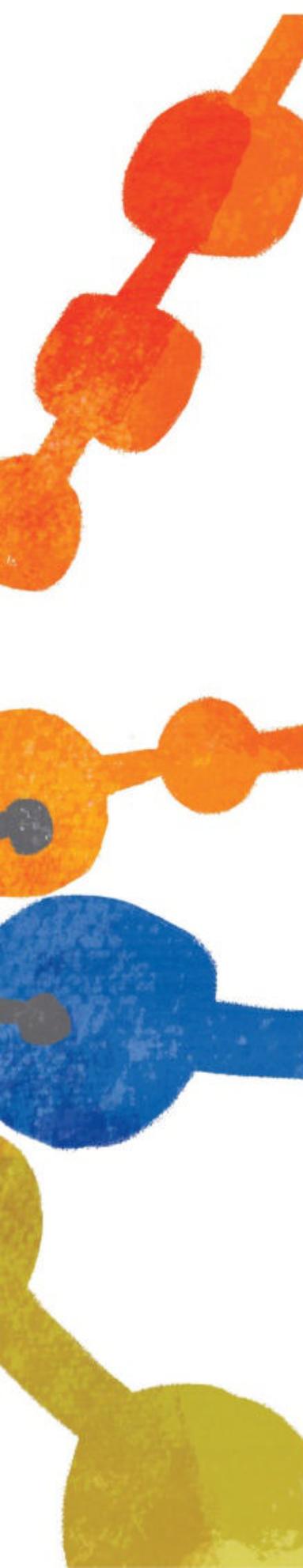
A promising new approach to training AI models lets companies with small data sets collaborate while safeguarding proprietary information.

By Yannick Bammens and Paul Hünermund

DEEP POCKETS, ACCESS TO TALENT, and massive investments in computing infrastructure only partly explain why most major breakthroughs in artificial intelligence have come from a select group of Big Tech companies that includes Amazon, Google, and Microsoft. What sets the tech giants apart from the many other businesses seeking to gain an edge from AI are the vast amounts of data they collect as platform operators. Amazon alone processes millions of transactions each month on its platform. All of that big data is a rich strategic resource that can be used to develop and train complex machine learning algorithms — but it's a resource that is out of reach for most enterprises.

Access to big data allows for more sophisticated and better-performing AI and machine learning models, but many companies must make do with much smaller data sets. For smaller companies and those operating in traditional sectors like health care, manufacturing, or construction, a lack of data is the biggest impediment to





venturing into AI. The digital divide between big and small-data organizations is a serious concern due to self-reinforcing data network effects, where more data leads to better AI tools, which help attract more customers who generate more data, and so forth.¹ This gives bigger companies a strong competitive AI advantage, with small and midsize organizations struggling to keep up.

The idea of multiple small-scale companies pooling their data in a jointly controlled central repository has been around for a while, but concerns about data privacy may quash such initiatives.² Federated machine learning (FedML) is a recent innovative technology that overcomes this problem by means of privacy-preserving collaborative AI that uses decentralized data. FedML might turn out to be a game changer in addressing the digital divide between companies with and without big data and enabling a larger part of the economy to reap the benefits of AI. It's a technology that doesn't just sound promising in theory — it has already been successfully implemented in industry, as we'll detail below. But first, we'll explain how it works.

Small Data and Federated Machine Learning

FedML is an approach that allows small-data organizations to train and use sophisticated machine learning models. The definition of *small data* depends on the complexity of the problem being addressed by AI. In pharma, for example, having access to a million annotated molecules for drug discovery is relatively small in view of the vast chemical space. Other factors to consider include the sophistication of the machine learning technique, ranging from a simple logistic regression to a much more data-hungry neural network, as well as the accuracy needed for an application: For some AI applications (such as making a medical diagnosis), getting things right is simply more critical than for others (such as suggesting emojis when someone is typing). All else being equal, smaller organizations and those operating in traditional nondigital sectors are confronted with more serious data-related scale disadvantages.

A few useful tactics and techniques have already been conceived to help companies struggling with this problem, such as cross-firm data pooling, transfer learning (repurposing previously trained models), and self-supervised learning (training a model on an artificial data set).³ Yet the centralized approach of data pooling may not be suitable in several situations, such as when there are legal constraints prohibiting data transfers or strategic concerns regarding sensitive data that should be kept private. Likewise, transfer learning and self-supervised learning are viable approaches only when a company can build on

earlier insights from machine learning models performing tasks in related domains, which may not always be feasible. FedML can be a powerful extra instrument in a small-data company's AI toolkit and serve as a critical complement to other small-data techniques.

In a federated learning setup, a machine learning model is trained on multiple decentralized servers controlled by different organizations, each with its own local data. They communicate with a central orchestrator that aggregates the individual model updates and coordinates the training process. (See “An Overview of Federated Machine Learning,” p. 56.) In the simplest case, the learning objective would be to obtain basic descriptive facts of the data distribution, such as means or variances. Each company could, for example, compute the average failure rate of a certain manufacturing process at one of its plants and submit it to the orchestrator, which would then combine those individual contributions to form a more accurate joint estimate.

FedML is a distributed machine learning technique that can be used for a variety of algorithms. For example, the weights or gradients of a neural network can be averaged across organizations in a similar manner. The orchestrator is responsible for setting up the initial model architecture and coordinating the training process, which typically takes place over multiple iterations. As a result, companies can train complex machine learning models with a large number of parameters that would otherwise be beyond their reach, given that the constraints of their local data would lead to suboptimal model accuracy.

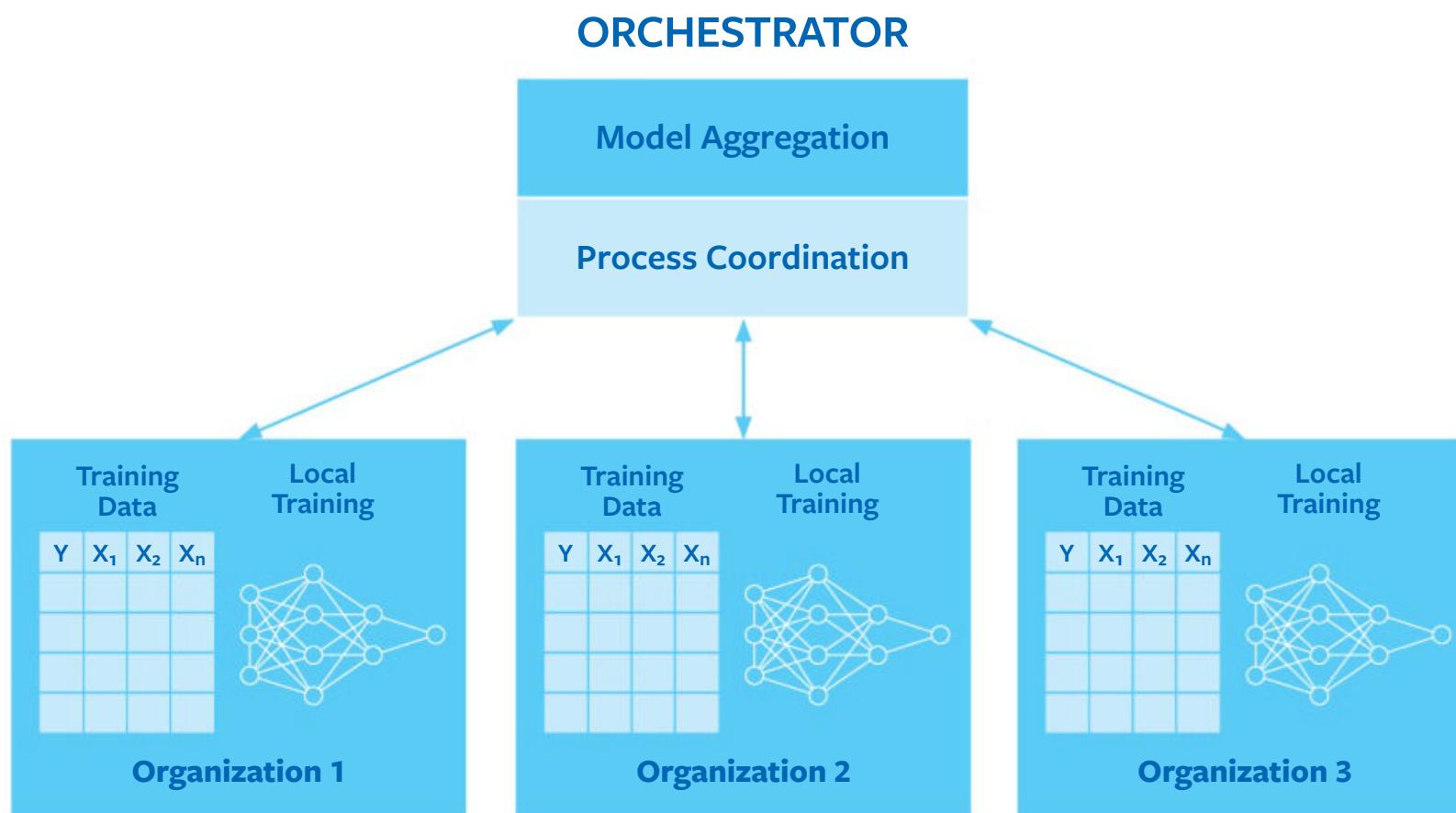
Importantly, raw company data stays private, and only statistical data, like estimated weights and other parameters, are shared and aggregated when FedML is applied. This way, 10 collaborating small-data companies that each have access to x data points could achieve roughly similar predictive power with their AI/machine learning applications as one much bigger company with access to 10 times x data points, without compromising data privacy.

FedML in Pharma

Innovation in pharma is very expensive and time consuming. The average cost to bring a new drug to market is around \$2.3 billion as of 2022, and the process can take more than 10 years. One of the key difficulties in drug discovery involves the extremely high number of possible molecules (an order of magnitude of 10^{60}) and the associated challenge of finding molecules with promising qualities in that vast chemical space. Against the backdrop of such steep costs and the sheer number of molecular possibilities, high-performing predictive machine learning models are the keystone of pharma's AI-driven

An Overview of Federated Machine Learning

In a federated learning setup, a machine learning model is trained on multiple decentralized servers controlled by different organizations, each with its own local data. They communicate with a central orchestrator that aggregates the individual model updates and coordinates the training process.



drug-discovery agenda. Pharma companies are also facing pressure as Big Tech players like Alphabet use their profound expertise in AI and machine learning to venture into drug discovery.

Cognizant of the reluctance to share drug discovery data, but also of the great potential of collaborative AI to boost efficiencies in drug discovery, Hugo Ceulemans, the scientific director at Janssen Pharmaceutica, began floating the FedML idea and initiating talks with peers around 2016. His efforts eventually contributed to the formation of the Melloddy consortium by 10 pharma companies in 2019. In a blog post, Ceulemans noted that while pharmaceutical companies had previously pooled data to support predictive efforts, the scope of collaboration had been limited, given that data is an expensive competitive asset.⁴ Because the new FedML consortium would allow the underlying data contributions to remain under the control of the respective data owners and not be shared, a much more ambitious scope would be possible, he explained.

Melloddy, a term named for *machine learning ledger orchestration for drug discovery*, was a three-year pilot project aimed at testing FedML for feasibility and

effectiveness. The project was cofunded by the European Union; the European Commission considered Melloddy to be a test case for generating insights for business sectors beyond pharma. Participating companies included AstraZeneca, Bayer, GSK, Janssen Pharmaceutica, Merck, and Novartis, among others. These companies were supported by technology and academic partners, including Owkin (an AI biotech venture) and KU Leuven (a university with expertise in AI-driven drug discovery).

By leveraging one another's data without actually sharing it, the participating pharma companies could train their machine learning models on the world's largest drug-discovery data set, which enabled more accurate predictions on promising molecules and boosted efficiencies in the drug discovery process. In a blog post, Mathieu Galtier, chief product officer at Owkin, explained that thanks to Melloddy's use of federated learning, data never left the infrastructure of any pharma partner. The machine learning process occurred locally at each participating pharmaceutical company, and only the models were shared. "An important research effort is devoted to guaranteeing that only statistical information is shared between partners," he wrote.⁵

The results of the Melloddy pilot project, which concluded in 2022, revealed that creating a secure multiparty platform for collaborative AI using decentralized data is feasible and that the performance of machine learning models is indeed enhanced by using a FedML approach.

Strategic Considerations for FedML Consortia

When setting up a FedML consortium, those involved in the planning process must carefully consider the optimal approach for orchestrating the technology and incentivizing partners. The selected orchestrator assumes a pivotal role in effectively managing the FedML process. Leaders of small-data organizations are sometimes reluctant to team up with Big Tech companies because they can maintain greater strategic control and build closer ties with smaller tech partners that operate on an equal footing. And some even fear that Big Tech companies will themselves move into their sector, as is happening in pharma.

In the case of Melloddy, pharma companies chose Owkin, a startup, to take on the responsibility of orchestrating the consortium's FedML platform. This may be a good approach for many FedML initiatives, but it can be risky, given the high failure rate of startups: A consortium might crumble if the startup fails. There is also a potential risk that the startup might raise funding from a competitor that is not participating in the consortium; it's an awkward situation, but not unlikely. Therefore, if a startup venture is chosen as the prime technology orchestrator, the consortium partners should seriously consider the option of investing corporate venture capital (CVC).⁶ When the partners have a sizable joint CVC stake in the startup, with rights of first refusal, they have much stronger control over the length of the tech startup's runway and its future trajectory.

FedML can give rise to an incentive problem, wherein some participants fail to use all relevant local data or neglect to invest in the necessary data infrastructure to improve the accuracy of their local models. They may choose not to put in the effort while relying on the data contributions made by other consortium partners. This free-riding behavior then undermines the motivation and participation of well-intentioned participants. To preempt this problem, the FedML consortium can agree on appropriate partner commitments in terms of the quantity and coverage of data contributed and specify them upfront in a contractual agreement. Local model updates can also be monitored by the orchestrator in terms of their contribution to the overall accuracy of the joint model, and the payment of a FedML service fee can be made proportionate to each partner's contribution to the federated learning process.

When taking first steps toward assembling a FedML consortium, securing partner buy-in is vital. Partners should therefore be involved in defining the consortium's objectives in exchange for their data commitments. The AI Canvas is a decision-making tool that can be useful in identifying and discussing machine learning use cases and required training data.⁷ When approaching partners, keep in mind that effective model updates in most FedML applications require access to local data on all relevant model variables. As a result, suitable partners are often found within the same industry, sharing similar business processes and data. Working with indirect competitors, such as those serving other geographic markets, instead of with direct competitors could be advantageous here to minimize potential conflicts. For small-data organizations venturing into FedML, it's advisable to start with achievable machine learning projects to establish momentum and build trust among partners before embarking on more ambitious projects.

FedML is still a young AI approach, developed in 2016 by a group of Google engineers.⁸ But progress in this field is fast paced, and we can expect a surge in its adoption across a range of business sectors. Forward-thinking leaders of small-data organizations who incorporate FedML into their strategic visions are better positioned to harness the transformative power of AI to shape their future success. ■

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Identify Critical Roles to Improve Performance

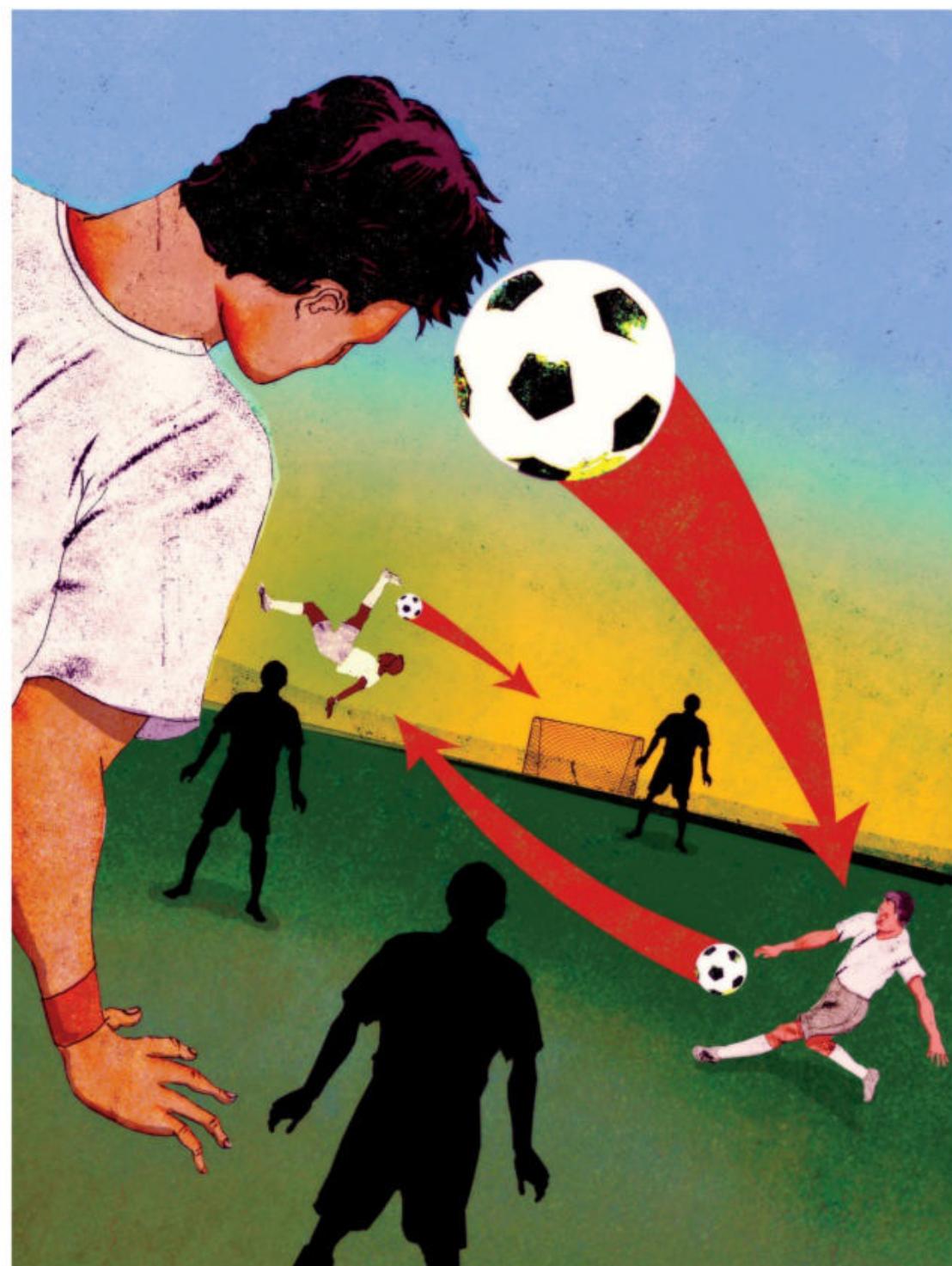
Putting strategy into play requires knowing your organization's crucial roles and making sure your best talent occupies them.

By Boris Groysberg, Eric Lin, Abhijit Naik, and Sascha L. Schmidt

LEADERS LIKE TO SHOW THAT THEY value employees. They proclaim that everyone on the team is critical to the organization's success. As uplifting as that sentiment is, it simply isn't true. Talent can be a source of competitive advantage only if great people are in the most critical roles. Having stars in jobs that aren't critical is just a waste of talent.

It's accepted wisdom in strategy execution that focused application of concentrated strength — identifying, developing, and leveraging critical capabilities — is required for success. Yet until these capabilities are translated into specific roles, with systems in place to ensure that high-quality employees occupy such positions, a strategy is just an intention. Unfortunately, too many organizations build strategy around the people they have at the time and current skill sets — when they should instead be devising the most promising strategy, developing a better understanding of the roles that will be most critical in executing it, and then staffing those roles with the best available talent. As we'll demonstrate, applying data and analytics to that problem can help you determine exactly where your top talent needs to be placed.

There are two ways to figure out which roles have the most influence on key results: using data to deduce this from the bottom up and inferring it from the top down. Where the context is appropriate and the data available, taking the bottom-up approach can yield answers that may be surprising. In such cases, leaders must be prepared to let the insights guide their decisions.



Data Reveals the Difference Makers

Data can be used to help tease out both who your current stars are and what positions have the greatest influence on organizational outcomes. It can help identify hidden talent in situations where performance is a team effort and point out roles that may be much more important to success than leadership has realized.

Take soccer: There is much debate around which positions on the field are the most valuable. Forwards, including strikers, are the primary scorers — they capture the limelight as well as the largest salaries by producing goals. The top 50 highest-paid athletes worldwide include six soccer players — and they are all forwards — according to a 2023 *Forbes* report.

Since soccer is a low-scoring game, every goal matters — so preventing an opponent's goal is an equally crucial contribution. Thus, some argue that defenders are the most valuable players. Central defenders play a critical role in coordinating the counteroffensive, as failure to stop the ball at key moments can create big opportunities for the opponent to score. It's no surprise that central defenders have been team captains more often than other position players.

Of course, goalkeepers are the last defenders on the line: Their judgment and skills in the face of extreme pressure can mean the difference between victory and defeat. Still others contend that midfielders drive the tempo of the game. Just as controlling the center of the board is critical to winning chess matches, midfielders can magnify the impact of everyone's contributions by shutting down opponent passing lanes or by initiating drives through well-timed distributions from the defensive players to the offensive strikers. Finally, the grandmaster might be the coach, who makes decisions on rosters, positions, and general strategy.

To determine each role's relative contribution, we collected and analyzed five years' worth of data from the Bundesliga, Germany's top soccer league, and evaluated the importance of individual positions on the soccer field between 2014 and 2019.

By analyzing the changes in outcomes as players moved among different roles and teams, we isolated contributions by position while observing how fortunes rose and fell following such switches. Building a model of how each position contributes to the outcome, we weighted the importance of positions by measuring how much the model's win prediction deteriorated when we omitted each role from the model in turn.

Our analysis indicated that defenders and goalkeepers are the most critical for winning matches; they occupy the top three slots in two different models we developed. Four positions are always present among the top five: left

fullback, right fullback, goalkeeper, and offensive left midfielder. Although defenders may not get as much fan adoration, the numbers indicate that they are the biggest difference makers for winning.

This kind of analysis works regardless of industry. Every organization or function is similarly likely to have its own underappreciated roles. While the sales team may land the account, it could be the service department that keeps that account renewing each year.

Talent scarcity matters, too. Comparing the left versus right positions for fullback, midfielder, and center defender, the roles on the left side contribute disproportionately more. Why? While left-footed soccer players are naturally advantaged for these roles, the number of world-class left-footed players is considerably smaller than right-footed players. In critical roles where exceptional talent is scarce, having performers in such roles is doubly important.

Organizational leadership and structure also matter. When included in the models, coaches are the third-most-important factor, behind only the fullback positions. Team organization, systems of play, and staffing govern how critical roles are deployed. In the Bundesliga, the 4-5-1 team formation — four defenders, five midfielders, and one striker — is the most successful configuration. It favors the strategy of prioritizing defense positions and is a good example of congruence between strategy and how organizations configure themselves around critical roles.

Use Data to Fill Critical Roles

A similar analytical approach can be applied to businesses by combining performance and HR data. For companies with multiunit structures (such as multiple stores, distribution centers, or service teams), the good news is that you don't need a soccer league's worth of data — you can do this yourself. Multiunit organizations with common roles offer the opportunity to capture data across the units and isolate difference-making roles.

First, gather the data that identifies your workers by location, role, and timing. Second, be sure to gain an understanding of contextual factors that influence outcomes but are unrelated to staffing (for example, stores may perform differently due to location, age, format, or season). This allows you to separate an individual's impact on outcomes from circumstantial factors. Third, collect performance outcome data for the unit; it's best to obtain multiple types of metrics, since outcomes are multidimensional.

In work we did with a national retailer, we gathered such data from hundreds of stores over five years. We measured monthly store performance by revenue, profit,

growth, employee turnover, and breakage. We found that store managers matter a great deal: Twenty-one percent of revenue performance could be attributed to store managers — over three times more significant than store attributes — and they had an outsize impact on margins. Regional and district managers also produced measurable effects, but they were less influential than store managers. As expected, the impact of district and regional managers differed depending on the metric. While store managers had the strongest influence on revenues, margin performance was more strongly influenced by district and regional managers, who had significant input into purchasing decisions.

Just as in soccer, structure and systems matter. Our research found that stores that were closer to headquarters performed better, motivating the further exploration of how stores farther afield could be supported. There is also valuable insight to be gained from employee mobility. When people stay in their roles and locations, it is impossible to use data to disentangle the impact of people from their surrounding circumstances. Moving people through different settings not only gives them a chance to develop and grow, it also enhances the data, allowing more precise measurements of the impact of roles and the people performing them.

For the retailer we worked with, these insights changed the talent strategy. Originally, the leaders were moving toward creating a training academy program for district and regional managers, having assumed that higher-status managers with a broader scope of responsibilities would matter more to performance. After considering the results of our analysis, they pivoted to explore what behaviors and practices mattered in the critical role of the store manager. They launched a companywide effort to find out, modeling their approach on Google's internal research called Project Oxygen, to distill the attributes of managers who positively influenced company performance.¹ Once they had identified the details of this critical role, they were able to apply focused investment in developing and replicating capabilities for the job at scale.

Talent Insights and Sustainable Competitive Advantage

Billy Beane of the Oakland Athletics used data to build a high-performing team at a surprisingly low cost. His strategy as a general manager was to use different performance metrics to find undervalued players who contributed more to winning games than players who performed well on traditional measures. The success of this approach was quickly copied throughout the league, dissipating the A's strategic advantage. Could an

A winning strategy requires focus and a keen awareness of what roles are disproportionately critical — and investing appropriately.

advantage from data-driven talent decisions on crucial roles also be so short-lived?

There is a key difference to note. The Athletics studied measures that identified great players — but these players could be great on any team. The hallmark of a good strategy is one where the sources of competitive advantage are interlocked with other strategic commitments, making it difficult to copy. Finding key roles and building an organization around those roles may be more defensible than finding hidden stars, since the strategic advantage is tied to how organizations support these roles and develop pipelines to fill them.

The Bundesliga is known not only for its defense game but also for how it sources talent. It lacks the financial muscle of leagues such as the Premier League, with its billionaire owners. However, the German soccer system's commitment to developing young talent over relying on high-priced transfers of proven stars makes it an attractive option for young players who need to prove themselves with time on the field — including young players from outside Germany. Because other leagues that have paid dearly for high-priced transfers are obligated to play such talent for more minutes, they have diminished value propositions for younger, emerging talent.² Like Beane's winning Athletics team, there is an advantage in arbitraging on the undervalued, be it defensive players or younger players. However, unlike this Major League Baseball case, imitating the Bundesliga advantage will require a substantial adjustment to strategy — one that many teams and even leagues are not prepared to make.

Execute Based on Differentiating Capabilities

Strategy is about defining how to win — it requires committing to capabilities that are unambiguously the best in class. But no company can be the best at everything; a winning strategy requires focus and a keen awareness of what roles are disproportionately critical — and investing appropriately. Failing to acknowledge this puts the entire

strategy at risk. By translating abstract capabilities into concrete jobs, organizations are much better positioned to make their strategies a reality.

Leaders can take a page from the soccer playbook and consider the following lessons for their own organizations:

Know your critical roles and where you need to invest. Despite being a less visible role, defenders matter more than other positions for winning soccer games. Insight into where difference-making roles exist should guide attention and investment when it comes to recruiting, developing, and retaining talent. While it is important to know your key contributors, it is just as important to know where you have deficits in critical roles.

Additionally, critical roles may change over time. As the competitive landscape evolves, difference-making positions can also change. Winning consistently requires monitoring not only what the critical roles are but how they might be shifting.

Investing in critical roles is not just about finding amazing talent — it is also about creating the required systems and practices that focus on positions first, and the people who fill them second. It's tempting to be blinded by the brightness of stars and give in to eagerly absorbing them regardless of what position they take.³ Building a system around such stars makes organizations fragile: They become overdependent on them and distracted from the goal of aligning strategy with talent deployment.

Use data where you can, and invest in making it informative. When you have multiunit structures in your organization, you can exploit that to study roles systematically. Many companies have invested in systems that measure the performance of business units, products, regions, or stores. It takes additional investment to connect this information to personnel data, since most organizations do not explicitly link organizational performance and human resource information. Additionally, it's common to opt for the ease of keeping people in fixed locations instead of rotating them through different settings. But the practice of introducing some variance in how and where people work can create incredible insights into what roles drive performance. Such insights can highlight the contributions of unsung heroes and highlight where investments in training and recruiting can yield the most substantial gains in performance.

Hire for and develop based on key skills. Today, seniority and pedigree are too influential in talent markets; moreover, they have the effect of entrenching common wisdom about what matters within a role. Just as leaders can be misguided about what roles matter most, they can also be led astray about what skills and behaviors within those roles make the difference. By identifying critical capabilities within critical roles, organizations

can both reward what matters and develop the blueprint for hiring, retaining, and developing employees with such skills in mind.

Align systems and structure. Talented employees in critical roles need to be supported with systems and structures that play to their strengths. Similar to the way Bundesliga teams have found that prioritizing the defense roles in field positioning increases the odds of success, organizations need to think creatively about what structure frees those in critical jobs to do their best work. These investments both enable more contributions from your critical roles and make your strategy less vulnerable to replication.

Recognize leadership's critical role. On soccer teams, coaches are the third-most-important factor to winning games. Leaders set strategy and then build and motivate the team that supports it. Because alignment across the organization is so critical, any meaningful step to identify, invest in, and develop critical roles needs support from the top. This is especially important when a change in strategy requires building up talent in a critical role that has historically been weak. Leaders need to reinforce their commitment to supporting new key roles with their teams and with potential hires.

IN SOCCER, WINNING CAN HINGE ON VERY small differences. While good teamwork is critical, the highly integrated nature of the sport obscures what the critical roles are. The thoughtful use of data can shed light on the critical roles within your team and uncover surprising results that challenge conventional wisdom. Having insight on critical roles may not only inform your strategy — it may be a source of competitive advantage in itself. ■

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Who Should Price a Gig?

Successful platforms must balance economic considerations and power dynamics with providers and customers as they determine who sets prices.

By Jovana Karanovic, Elizabeth J. Altman, and Carmelo Cennamo

ARRIVING AT BOSTON'S LOGAN International Airport after a tiring journey, Mia opened the Uber app to find a ride home. Her relief at seeing the message "Your Uber driver is arriving in 3 minutes" was short-lived because the driver canceled. In the next 30 minutes, half a dozen Uber drivers accepted her ride request, then canceled, before one eventually arrived. What was happening?

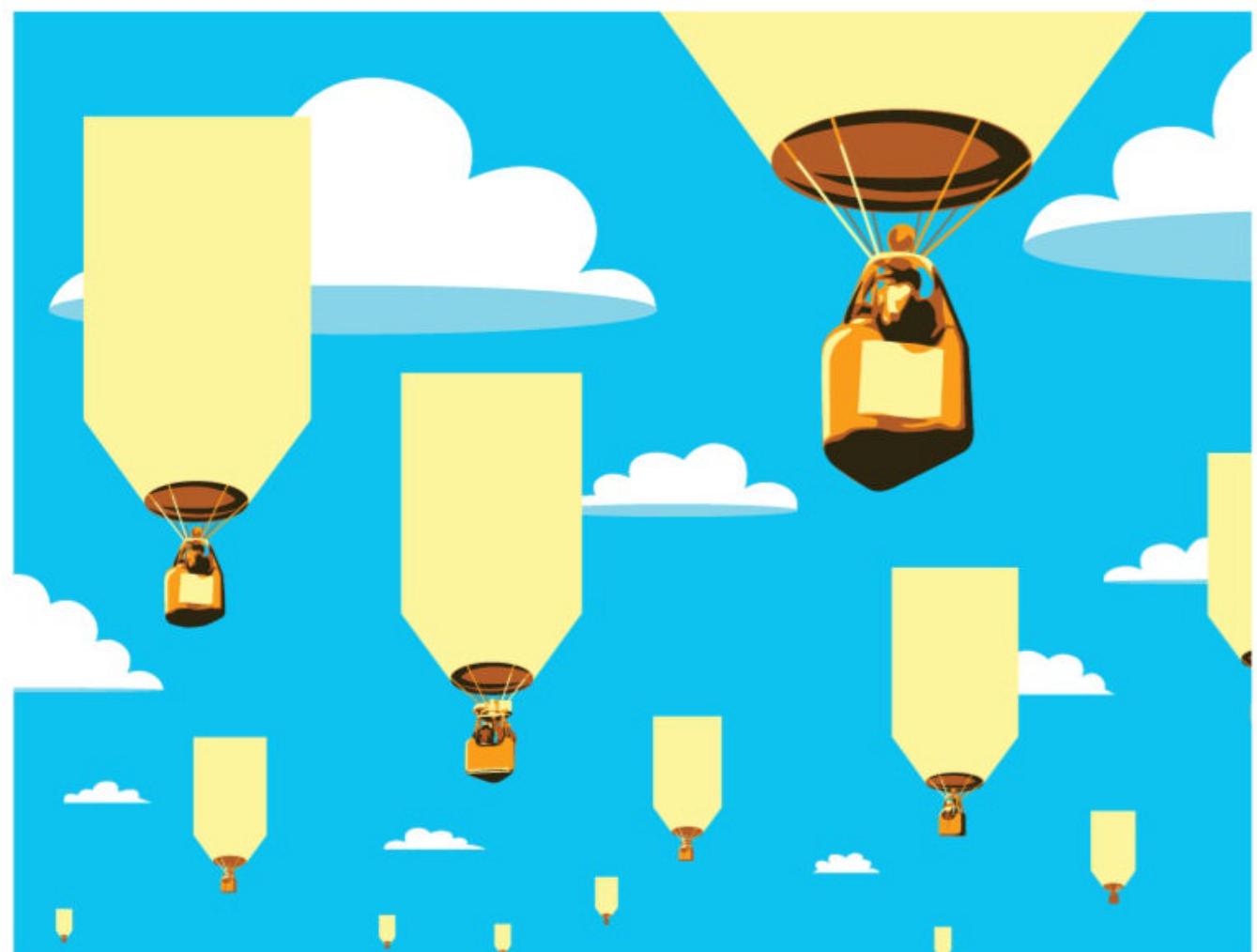
Uber, like many platform companies, needs to efficiently match service providers (drivers) and customers (riders). To do so, it must ensure that pricing is competitive enough for riders to choose the service and for drivers to have the incentive to deliver it. Mia struggled to get a ride because Uber had started providing more earnings transparency for drivers by allowing them to see their expected compensation and route destinations before picking up riders. A change intended to benefit drivers had a significant downside for riders: More drivers began canceling rides they deemed unprofitable.

The question of who sets prices, and what discretion other parties in the transaction have to alter them in order to achieve mutually beneficial outcomes, is complex and nuanced for platform operators. In the case of Uber, the platform sets the price for the ride, and though drivers can opt out if their earning potential is unattractive, both drivers and riders have no flexibility for proposing different pricing. It's one of the drawbacks to having the locus of control primarily in the hands of the platform provider.

While algorithmically determined prices set by the platform

operator are common among ride-hailing and food delivery services, other kinds of platform businesses allow service providers or customers to set prices. Fiverr, an online marketplace that matches high-skilled service providers with customers for tasks such as programming or graphic design, lets freelancers name their rates. In contrast, Temper, a Dutch platform for shift work in hospitality, retail, and logistics, lets customers (such as restaurants and shops) determine what the gig pays.

Controlling all pricing can lead to unintended consequences for a platform, as the Uber example shows, but allowing other stakeholders to set prices can also have drawbacks. For example, Ring Twice, a Belgian platform business that offers a variety of household services, such as gardening and babysitting, assigned pricing control to



customers. It turned out that customers knew what they wanted — but not necessarily how much time and effort a specific task would take. Allowing customers to set prices resulted in fewer matches because many customers offered lower payments than service providers were willing to accept. Fewer successful job matches meant lost revenue for the platform.

Granting price-setting control is a major strategic decision that ultimately determines value creation and capture and establishes the power dynamics between the platforms themselves, service providers, and customers. Creating a scenario where all three stakeholders find the pricing model sustainable and beneficial is the key challenge that platform leaders face. To help leaders work through this decision, we offer a framework for understanding the key trade-offs of different platform price-setting approaches. Beyond economic considerations, we emphasize the need for managers to anticipate power dynamics and adopt hybrid approaches to mitigate them. (See “Pricing Dynamics on Gig Platforms,” p. 64.)

When Platforms Call the Shots

A platform can benefit from numerous advantages by retaining price-setting control, especially in certain segments. The practice is prevalent in ride-hailing, food delivery, and parcel delivery, where services are fairly standardized, volume is high, and logistics rapidly gain complexity with scale.

By retaining control, platforms can optimize for efficiency, particularly when they serve a large number of customers with similar needs. To set optimal prices, platforms leverage the large amount of transaction data they collect. Consider the Finnish platform Wolt, recently acquired by DoorDash, which offers food delivery, among other services. Wolt relies on parameters such as a courier's distance from the restaurant, food preparation time, and distance from the customer. Using this information, it advises couriers on the best routes to take and provides relevant extra information (for example, building entrance locations) to ensure swift delivery — and time savings. As a Wolt manager explained to us, the platform's interest in efficiency aligns with the couriers' desire to take the optimal route, hence standardizing the delivery process as well as prices makes sense.

Controlling prices also allows the platform to maximize revenue by making quick adjustments based on market conditions: When demand is high, ride-hailing and delivery platforms commonly increase prices in real time. Platforms can also experiment with different pricing strategies.

Finally, by controlling the price, a platform provider can offer discounts and promotions to attract and retain

THE RESEARCH

- The authors conducted interviews with platform executives at four platform businesses — Malt, Ring Twice, Temper, and Wolt — that represent different industry sectors and price-setting models.
- They also conducted archival web-based research studying platform-based businesses in various regions of the world and evaluated their pricing models.
- They were provided with and analyzed data from a service platform that switched from a platform-controlled price setting to allowing service providers to set prices. This data is part of an ongoing research project by Jovana Karanovic, Hakan Özalp, Carmelo Cennamo, and Mark Boons.

customers. It may choose to offer personalized pricing based on customer behavior, preferences, and purchase history. Amazon, for example, utilizes such data to set dynamic pricing for certain items. When a customer views a product on Amazon, they may see a price that is different from what another customer might see for the same product. This is because Amazon's pricing algorithms take into account the customer's browsing and purchasing history, their location, and other variables to determine an individualized price that maximizes the likelihood of a purchase.

However, there are trade-offs to platforms retaining pricing control, particularly when it comes to the impact on power dynamics between stakeholders. In particular, service providers may decline to accept jobs if prices are set too low by the platform, or they may struggle to attract customers if their prices are set too high. In both cases, the service provider has less incentive to engage with the platform. A study examining posts to a forum for Uber drivers in U.S. cities found that they discussed intentionally turning off their apps to appear unavailable in order to get the algorithm to implement higher surge pricing designed to incentivize drivers to get on the road.¹ The drivers essentially had to game the system to get the prices they wanted, reflecting — and exacerbating — a lack of trust between providers and the platform.

Platform-controlled pricing also goes hand in hand with a standardized menu of services that might not adequately meet some customers' needs. They may use the platform for finding a service provider and then arrange subsequent interactions off the platform. A recent study indeed found that providers' dissatisfaction with platform rules and fees, as well as customers' desires for more

Platforms

personalized services, are among the main factors contributing to disintermediation.² When customers and providers are dissatisfied with platform-imposed rules, they are less likely to transact on the platform (lowering revenues), and the platform's reputation may suffer among all disaffected stakeholder groups.

Putting Service Providers in Control

There are also advantages when service providers are in control of price setting — common practice on freelance marketplaces such as Upwork, Toptal, and Malt. Granting this autonomy provides a competitive and flexible pricing environment, which is particularly advantageous for customers seeking specific capabilities for unique project needs. Similarly, providers can more effectively monetize their skills or unusual talents.

When providers set prices for a project, they can account for their costs, the effort they are willing to exert, and the service quality they can offer — information that the platform doesn't have but needs in order to set an adequate price. Price setting also lets service providers exercise their entrepreneurial freedom and adjust prices based on intangible factors such as their personal interest in a particular project. For example, they might charge less to land an assignment that will help them build valuable expertise, according to a manager at Malt, a European platform for services such as consulting and software development.

When service providers are able to set their own pricing and offer differentiated services, the platform can meet long-tail demand for niche offerings. Helpling, a platform for housecleaning services in Germany, France, Switzerland, England, Ireland, Italy, and Singapore, provides a case in point. The platform initially had a model where, within a given market, it set a standard price per hour for recurring cleaning jobs. (The slightly higher price for one-off jobs was also standardized within markets.) However, after a few years, Helpling changed its approach to let providers set their own prices. Our research shows that prices for some jobs subsequently increased as providers became willing to do different kinds of jobs (for example, after-party cleanups) for a higher fee.³ The platform's policy change apparently revealed unmet demand for additional services.

Allowing service providers to set prices also improves the customer experience in categories where the quality of service is more likely to vary by provider. Different quality levels for comparable services can create uncertainty and diminish satisfaction. Lower quality is often due to providers lacking incentive to exert the required effort when customers pay a standard price set by the platform business. If providers get to set their own prices that reflect their true value, they can reap the rewards of their greater efforts and deliver higher customer satisfaction.

This approach does have downsides. When platform

Pricing Dynamics on Gig Platforms

Platform operators must understand the key trade-offs of handing pricing power to different stakeholders; sharing that power through hybrid approaches is often the most sustainable option.

WHO CONTROLS PRICING	BENEFITS	RISKS	HYBRID SOLUTION
PLATFORM	Algorithmic pricing based on capturing market data can maximize efficiency in markets for standardized services.	Real-time price adjustments can disadvantage either providers or customers. Lack of predictability can damage trust.	<ul style="list-style-type: none">Set a base rate and enable providers to adjust prices upward or customers to make offers.Provide price guarantees in line with living wages.
PROVIDER	The service provider's ability to set prices incentivizes high-quality providers to join. More variability on a platform serves long-tail demand.	Underpricing can drive down the perceived value of services across the platform. Overpricing can drive away customers and limit platform growth.	<ul style="list-style-type: none">Allow for price and contractual negotiations between customers and providers.Give price recommendations and share market data with providers.
CUSTOMER	Customers can control their own costs, which may increase engagement with and perceived value of the platform to customers.	Offering pay rates that are too low can drive away providers, thus limiting platform growth.	<ul style="list-style-type: none">Set minimum price thresholds in line with living wages.Assist customers by sharing market data and/or giving price recommendations.

operators relinquish price-setting control and providers overcharge, that can lower overall matching and transaction volumes; if providers undercharge, that can leave money on the table. At Malt, where service providers have full control of price setting, they tend to underprice themselves despite deep knowledge of what's required to perform tasks and their level of expertise. But that can be a vicious circle, according to the Malt manager we interviewed: Clients who are attracted to low-cost providers may be less discerning. Without a way for customers to differentiate between high- and low-quality providers listed on the platform, there's a risk that low prices will increasingly attract clients looking for more basic, lower-quality services. This drives out high-quality providers and potentially downgrades the brand equity and reputation of the platform. It might also lead to a race to the bottom, with providers consistently lowering prices to outcompete one another, reducing the platform's margins and providers' earnings (and their willingness to remain on the platform).

For customers, provider pricing puts other dynamics into play. Providers that choose to focus on lucrative niches may leave some demand unmet. And the greater variability in provider-set pricing makes it more difficult for customers to fairly compare prices and find the best value for their money. If selecting a service provider becomes too time-consuming, customers may abandon the platform altogether.

Customers Name Their Price

Temper, the Dutch shift-work platform, allows customers to decide what they are willing to pay and matches skilled workers, such as baristas, with venues, such as restaurants. This approach is most appropriate when customers are businesses that have precise requirements for the services they need and the amount they are willing to pay.

Under this model, customers can set prices that reflect their budget and desired level of service, and service providers can choose to accept or reject offers based on their own pricing policies and cost structures. At Temper, restaurants looking for shift workers have different cost structures — for example, those in a city center pay higher rents. They also vary by service quality (for example, fine dining versus fast-casual), which affects the skills profiles they need and therefore the pay they will offer to attract workers. Customers can control their costs but also have flexibility to adapt to the competitive environment — for example, by offering higher compensation for weekend shifts. The platform exposes the going rate that other businesses are offering for the same services, which can also inform pricing decisions.

Finally, customers may be more motivated to use a

platform if they have greater control over the pricing process. If they are given the power to determine the value they place on the service, they may feel more satisfied as well as invested in the transaction. Being more in control on the platform may deepen a sense of ownership and increase engagement and loyalty.

Naturally, customer-set pricing has trade-offs that can affect platform operators and providers. If customers set prices too low, service providers may be unwilling to take the task or they may be incentivized to cut corners to maintain profitability. This in turn could lead to a decline in the overall quality of products or services, reducing the platform's attractiveness and growth potential. Similarly, customers may not have access to complete information about the market dynamics, costs, and competitive landscape, leading to suboptimal outcomes for both providers and customers.

Strike a Balance With Hybrid Approaches

Whether pricing is controlled by the platform, service provider, or customer, under appropriate circumstances each choice has the potential to maximize value creation and efficiency. Nonetheless, dynamics that unfold among platforms' different stakeholders may outweigh some of these benefits and lead to unintended consequences. To ensure long-term sustainability and enhance a platform business's financial performance, platform managers may want to share some control over pricing.

Platform providers can consider hybrid approaches to do this. For instance, TaskRabbit sets standard prices for different types of tasks based on factors such as complexity, duration, and market rates. These standard prices are initially determined by the platform to provide consistency and guidance to both customers and gig workers. However, TaskRabbit also allows service providers to adjust prices based on their own preferences and circumstances, and set a price that can be higher or lower than the platform's standard prices. The European Union has a proposed platform work directive that considers the right to set one's own rate a distinguishing factor between freelancers and employees; if adopted, it may push ride-hailing and food delivery platforms, which currently determine prices, to share this control with providers.

Platforms that control pricing can mitigate the power imbalance by being transparent with service providers about how prices are determined and whether they can do anything to increase earnings. They should also provide a mechanism for hearing providers' concerns and enable them to appeal algorithmically determined decisions that affect their earnings on the platform.

While allowing service providers to set prices makes sense in some cases, it does not always lead to optimal

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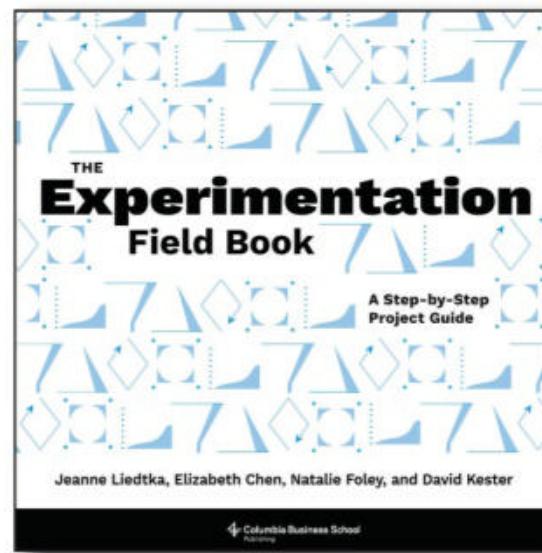
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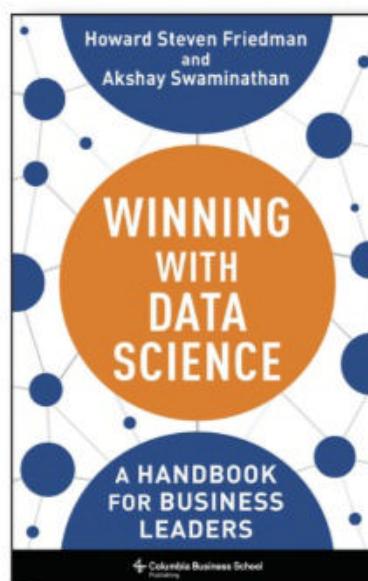
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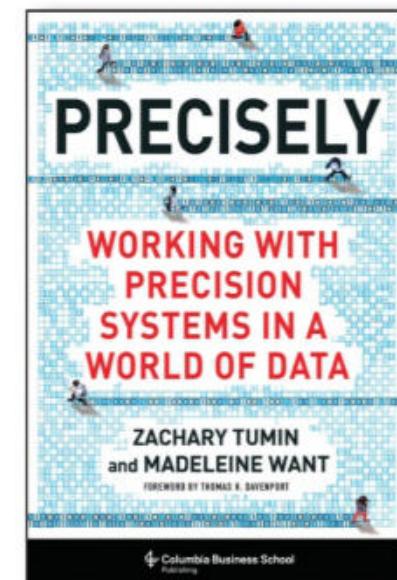
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pricing for them or the platform. For example, providers who have established high ratings and show a high number of completed tasks may have more pricing power compared with new providers. This is not beneficial for platforms, because new service providers quickly disengage if it takes too long to acquire work, limiting platform growth. Malt handles this discrepancy by boosting new providers' visibility in search results.

Platforms can also assist providers with price setting, especially for offerings that are prone to demand fluctuations. A study of Airbnb found that only professional hosts (those with multiple properties) set prices skillfully; most others set suboptimal prices.⁴ Airbnb introduced price recommendations, alerting hosts to events and time periods when demand is high and prompting them to increase prices.⁵ Moreover, it lets hosts opt for automatic price adjustments, which essentially brings the price-setting power back to the platform, even in this service provider-controlled model.

When customers set prices, as we have seen, they may make lowball offers to service providers, especially during unfavorable market conditions. Platforms can prevent exploitation of service providers by setting minimum price thresholds that, for example, correspond to minimum or living wages. For instance, Temper sets a minimum price threshold for each service category that is in line with minimum wages, although it is not required to do so under Dutch law. In addition, it allows providers to negotiate. In 2022, 10% of all transactions on Temper were negotiated upward compared with initial prices set by customers, one of the company's cofounders told us. Such proactive initiatives from platforms may anticipate increasing regulations aimed at curtailing their power. New York City already has imposed a minimum wage for Uber and Lyft drivers and recently announced the same for workers on food delivery apps. The European Union is going a step further: Its proposed directive will presume gig workers are employees of platforms if certain criteria do not apply, such as a worker's right to adjust platform-determined rates as they see fit. In other words, if a platform sets upper limits for pay, it may be viewed as an employer.

As we have noted, customers may not always be fully informed, or they may have very specific preferences, in which case platforms can assist them with making provider selections. For example, on freelance marketplace Upwork, customers post desired tasks they need accomplished such as "logo design" or "report writing," with detailed descriptions of what they are looking for and the price they are willing to pay. This price-setting model works well when customers have specific preferences and need a specific kind of provider for the job. However,

Upwork eventually realized that not all customers have clear preferences; some just want the service done and would rather select it from a menu of offerings. This led to the launch of Upwork's Project Catalog, a website offering predefined projects that customers can browse and select, such as "A 500-word SEO-optimized blog article in under 24 hours" for \$50. Instead of customers detailing the job, providers post what they can offer for a set price. This makes it easier for customers to find the right provider for their needs and gives providers more opportunities to win work.

A PLATFORM'S NEED TO CONTROL ITS MARKETPLACE to maximize returns isn't going away, but the approach it takes will determine its long-term sustainability. Platform leaders must realize that a platform is not a unilateral, hierarchically managed entity but rather a web of economic and social relationships. To manage it successfully and ensure satisfaction for all parties, they must share some aspects of control with other stakeholders, allow for compromise, and step in to support their workforce when needed. When control is shared more equitably among all parties in the platform relationship, the platform model can cater more beneficially to all. ■

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[Supply Chain]

Taming the Counterfeiting Epidemic

A multilayered approach is essential to effectively combat counterfeiting and unauthorized sales.

By Robert Handfield, Anand Nair, and Thomas Y. Choi

WHETHER THEIR LEADERS know it or not, many companies are losing significant revenue to counterfeiters and unscrupulous supply chain partners. Anyone perusing handbags at a street market knows how common it is to find fake products that look identical to the real thing but might not function the same way. In some cases, this can put consumers at risk: A pharmaceutical company, for instance, discovered counterfeit versions of its product on the black market that contained no active pharmaceutical ingredients. As well, a company's legitimate

product may be diverted for unauthorized sales, as when a global electronics company discovered that distributors in its network, who had ordered components supposedly for customer repairs, were selling them on the gray market.

High-demand products in every industry are lucrative targets for fraudulent criminal activity. Unfortunately, counterfeit products are a problem that many companies do not want to acknowledge or raise to their boards or shareholders. Senior executives often try to explain away the problem, rationalizing that counterfeiters will always find a way to copy products or that piracy represents only a small percentage

of sales and is not worth going after. That plays right into the hands of what counterfeiters want businesses to do: ignore them.

When companies do begin to quantify the level to which counterfeiters are affecting their bottom lines, they may attack the problem with piecemeal approaches to try to prevent it from growing. But that's not enough.

Our research suggests that successfully combating counterfeits requires the attention of a broad collection of organizational functions. It works best with a multilayered strategy encompassing diverse methods and engaging the entire organization and its partners.

We recommend that organizations tackle counterfeiting with a cohesive plan for identifying, containing, and preventing it. This comprehensive process means routinely keeping tabs on contract manufacturers and charting how products move through the supply chain. It includes scoping out what is for sale in consumer markets, deploying covert markings, reviewing warranty claims, educating customers, and partnering with key agencies and competitors.

Conventional Tactics Aren't Working

Companies that pay any attention to counterfeiting have traditionally relied on a brand security function to track down criminal activity. These teams often detect counterfeiting using tactics such as applying covert and overt markings on legitimate products, attaching RFID tags that track product locations, and using serialization combined with blockchain to create transaction records that are resistant to tampering. For example, barcodes compliant with the GS1 Global Traceability Standard are used to track COVID-19 vaccines.¹ For many organizations, though, these tactics are not enough.

Counterfeiting and illegal diversion of product remains pervasive: Our 2018 survey of 21 supply chain executives revealed that nearly half had an issue that was ongoing or had experienced an incident in the previous year. More than 70% said they'd had an incident in the previous five years. (See "The Research.") One executive told us that his company discovered that the equivalent of an entire factory's monthly production of its products was being sent into black markets, largely due to diversion from one of its own suppliers.

Counterfeiting has grown into a problem that the Organization for Economic Cooperation and Development says was worth \$464 billion in 2019, or 2.5% of world trade.² It was once thought that counterfeiters went after only high-value or luxury items such as pharmaceuticals, designer handbags, or perfume. But now the marketplace is full of fake footwear, pesticides, cosmetics, toys, automotive parts, and medical

THE RESEARCH

- The authors conducted research into the state of counterfeiting from 2017 through early 2020. Funding was provided by CAPS Research, a joint venture of Arizona State University and the Institute for Supply Management.
- During the discovery phase, they ran an in-person workshop and attended the October 2017 annual strategic summit of the Center for Anti-Counterfeiting and Product Protection of Michigan State University.
- The authors conducted individual interviews with more than 20 subject matter experts in 2017 and 2018.
- The authors also conducted in-depth surveys with 21 supply chain executives in June and August of 2018.

equipment. Counterfeiters are targeting any industry and any product line where there is an easy profit to be made.

While companies may never completely eliminate bad actors from copying products or diverting goods from authorized channels, they can significantly reduce counterfeiters' market penetration and restore lost revenue. Successful approaches may involve cutting off counterfeiters' access to markets, eliminating their supply of unauthorized goods, or making a product more difficult to copy. Here, we'll go into detail on the three activities that a robust action plan comprises: identification, containment, and prevention.

Identification: Gain Insight Into the Extent and Nature of the Problem

Getting a baseline on the severity of the counterfeiting problem is a critical first step. As the size of the issue becomes clear, the potential return on investment in shutting it down also comes into view. This can help establish performance metrics for the anti-counterfeiting team that can be aligned with business objectives and outcomes. Examples of metrics include the dollar amount or percentage of revenue lost annually due to illegal product trade, total top-line revenues recovered (dollars that were previously unknowingly lost to counterfeit sales), and the number of confirmed incidents of illicit trade, counterfeiting, diversion, and tampering.

Create a cross-functional brand security team.

Developing realistic measures of the current problem often requires an intensive investigation that involves applying market channel analyses that explore multiple sources of sales data and other information from both inside and outside the organization. To be effective, a

Many business leaders are unaware of the extent to which their revenue and reputation are in jeopardy.

brand security team should include participants from sales, marketing, operations, purchasing, logistics, finance, and accounting, as well as core brand security functions. Such teams are typically led by a global brand protection officer who in many cases has a law enforcement background and usually reports to the chief operating officer.

Examine internal and market data to flush out suspicious activity. Companies can struggle to find, much less measure, counterfeiting activity, given that clues are usually buried in data about sales, warranties, returns, and other product metrics. Unless someone is looking for it, unusual activity can easily go unnoticed.

A good first step is to start by looking at what's being sold online. E-commerce has emerged as a perfect channel to fuel the counterfeit goods industry. Consumers may unwittingly buy products from online retailers that don't verify the source of the products on their platform and whether they are legitimate. Despite counterfeit sites being shut down regularly by Amazon (and, in China, Alibaba), operators trading in fake goods regularly open up again under a different name the next day. Amazon reported that it blocked 10 billion fake listings and destroyed 2 million counterfeit products in 2020 alone.³

Since e-commerce sites are frequently a counterfeiter's primary source of sales, companies can begin by investigating where their products — either genuine or fake — are being sold online. Looking for common attributes of counterfeiter websites can narrow down the pool of suspicious activity. For instance, a company might find four different sellers on Amazon offering an exact copy of its handbag, listing the same details and even photos. An indicator of potential counterfeiters might include spelling or grammatical errors, blurry photos, or other details that don't look quite right.

Another important data source is warranty returns. When a consumer sends a product back because it is defective (and counterfeits often are), detective work can track down where it was purchased and how. This can lead to the origin of market entry for counterfeit goods and a starting point to find their downstream source. A global medical products company we looked at hired a global brand protection officer who examined warranty and returns data, field service requests, and sales data. In his first 100 days, he found 1,000 confirmed incidents

of illicit trade, counterfeiting, diversion, and tampering. This amounted to \$1.4 billion — 2% of revenue — lost annually to illegal product trade.

Estimating counterfeit sales is a difficult but essential task: Companies must establish a baseline against which to gauge the effects of anti-counterfeit measures. Having an accurate understanding of the scope of the problem is a prerequisite for deciding how much to invest and what ROI to expect from anti-counterfeiting measures. In many cases, business decision makers are unaware of the extent to which their revenue and reputation are in jeopardy.

Map the supply and distribution chain. Many companies are surprised to learn that bad actors are active within their own supply chains. Overproduction, black-market sales, and unauthorized distribution are common sources of leakage that may result in a product, or copies of it, being sold through channels that a company knows nothing about. That's why an important early step is to identify the manufacturing and distribution channels through which the company's products travel.

The brand owner at a large global apparel company told us that he had heard through his distributor network that the brand was being sold in Mexico even though the company had no authorized retail presence there. To track where these products were coming from, the director hunted down bills of lading and shipping records for the ocean freight shipments that were going to Mexico. The paper trail showed that the goods were shipped from a port in Israel — by the same authorized manufacturer that was producing the company's branded product in the United States. The apparel company eventually tracked down the clothes, which were genuine products, made under the same specifications and from the same materials, but were being illicitly distributed outside of the contractual agreement between the parties. When the apparel company set up a global brand security function and mapped its entire supply network, it found that similar cases of product diversion were occurring all over the world.

Analyzing how much is being spent on raw materials in the upstream supply chains is a good place to start mapping a supply base. Procurement can reach out to the accounting team to track all third-party purchases

being made on the company's behalf (a document generally known as a *spend analysis*). If a supplier is buying more raw materials and is operating at a higher production level than what the company is ordering, this is a telltale sign that the additional product may be moving into the black market. This requires full visibility into the supply chain, beyond just Tier 1 suppliers (which is increasingly important for other reasons, in particular to manage risk related to labor or environmental violations). Some suppliers may be reluctant to disclose their upstream suppliers for competitive reasons but can be reassured that the query is for security purposes and not an attempt to cut them out of the chain.

Containment: Limit the Problem's Spread

With a dedicated team in place, an initial sense of the problem's scope, and an understanding of the particular counterfeiting and diversion risks that it's most vulnerable to, a company can begin to manage the problem systematically in order to contain it.

Analyze product segments. One of the key tasks for the investigation team is segmenting products by channel, margin, volume, and risk of counterfeit activity. This ensures that the team's attention is being directed toward the most vulnerable market channels first.

In many cases, a current-state analysis of a company's supply and distribution processes helps reveal a common set of product segments that counterfeiters go after. In particular, our research found that product lines with high complexity based on the variety of finished products, level of finished-product customization, geographical span of suppliers, number of tiers in the supply chain, predictability of demand, and variation in manufacturing volumes. Examples of items in this category include aircraft and automotive replacement parts, toys, high-end apparel, branded pharmaceutical products, and consumer electronics. Counterfeiters are more likely to opportunistically target product segments characterized by a greater level of complexity and exploit this complexity to their advantage.

We interviewed executives at a biotech manufacturer who knew that counterfeit products were showing up in the market but did not know the source. The brand protection team started by segmenting products

into those that were big targets for counterfeiters (in this case, high-margin items) and analyzing data to estimate the number of incidents per brand. The team — formed through a close collaboration among franchises, brand owners, and regional sales managers — then rolled out a plan to franchise partners and country business units. This established brand protection priorities by product line and provided a system to track customer-reported incidents by brand and conduct data reviews every six months.

At the same time, analysts began collecting market intelligence on supply chain vulnerabilities, including potential logistics disruptions and the threat of regulatory intervention, that posed significant risks for business plans and growth targets by region. Cumulatively, these efforts helped the manufacturer prioritize those businesses and regions where brand protection could best safeguard market revenue from sudden disruptions. In the process, the team identified a significant counterfeit and diversion activity affecting a blockbuster infusion drug that was putting many patients at risk. The company said it was able to eventually reduce the number of incidents from 100 per year to zero. This required persistent efforts to deduce the source of each incident through detailed analysis and the introduction of countermeasures — including sending a message to counterfeiters warning that they would be pursued, in hopes of convincing them to go look for an easier target.

This kind of analysis begins with identifying an initial clue and following the thread of activity. The initial problem may manifest itself as a minor issue such as a customer warranty problem, a dealer who seems to be ordering too many replacement parts, or a spate of customer returns on a particular brand of product. Any of these issues may be a hint that leads to a channel of counterfeiting activity.

Start with e-commerce sites, and reach out to customs and other authorities. A team of analysts should be hunting down in-the-open counterfeit operations on e-commerce sites on an ongoing basis and reporting them to the platform operator, such as Amazon, and to law enforcement. At the very least, this introduces more friction into some bad actors' businesses to slow them down.

Research found that product lines with high complexity all had higher incidents of counterfeiting.

Supply Chain

Counterfeit products almost always have to cross borders and pass through transshipment points and customs inspections overseen by law enforcement entities. These are critical players in the supply chain, and organizations must think of them as partners in the battle against revenue loss and intellectual property theft. These relationships are particularly important in highly regulated environments, such as pharmaceuticals, food, aerospace, and automotive manufacturing, where counterfeit products can endanger their users.

An official with U.S. Customs and Border Protection (CBP) told us that it can be challenging to get brand owners to understand the CBP's process and play their part in helping the agency fight the problem. "We are in the field, inspecting containers," he said. "If a CBP officer opens a container and sees something that looks suspicious, they will first look in our internal database of registered brands. If the officer doesn't see anything, there is nothing they can do." Registering brands with the CBP and U.S. Patent and Trademark Office is a critical step in containing counterfeiting.

Educate (and warn) customers. It is imperative that consumers are educated about the possibility and risks of buying fake goods. Companies should make customers aware, through brand marketing, that if they buy from an unverified online third-party seller, they bear the risk of not having the product covered by warranty — or, worse yet, having it fail with dire consequences. One company we know of began adding a statement on its Amazon website warning that products returned to it that were not licensed would not be under warranty. Companies should also emphasize to customers the importance of registering the product serial number for warranty purposes, which protects them if a legitimate product they've purchased turns out to be flawed or faulty. If a customer tries to register the serial number for a counterfeit product, it will show up as an error and alert the brand security team to a problem.

Prevention: Stop Future Counterfeit Ops Before They Start

Once an organization discovers how the spread of counterfeit products in its market channels works and has taken initial steps to contain the problem, it must

continue to monitor criminal activity and establish strong preventive measures. There are important roles for numerous functions in the company to play at this stage.

Product packaging experts should explore digital tracing technology. Features in current tracing technologies offer positive product authentication, can indicate tampering, can increase the difficulty of replication, and permit product tracking and tracing. Secure markings — which use a variety of packaging, blockchain, and serial marking technologies — are one method for tracking products. Many industries are working with standards organizations like ASTM International or GS1 to develop common methods for verifying products. This can help avoid the problem where counterfeiters try to copy not just the product but the digital marking, too.

In the biotech example mentioned previously, the brand protection team worked with the business to identify covert and overt authentication capabilities, which created automatic alerts when counterfeit products were being sold through market channels. The team also created a comprehensive customer communication plan using web advertisements, targeted email and Twitter campaigns, and retailer alerts about the dangers of buying from unauthorized sources. The campaign created awareness in the company's sales partner network and set the stage to identify where new counterfeit sales were occurring.

Quality assurance should review data to track down instances of product problems and returns. QA can create triggers in its data collection processes that flag potential illegitimate activities. We know of a company that noticed an uptick in its product returns, discovered that the products were not legitimate, and tracked them down to the point of sale — which revealed the source of the counterfeiting.

Supply management should step up efforts to audit suppliers. It can be particularly fruitful to track overproduction by suppliers, as well as how they dispose of products that don't conform to quality standards — products that can end up moving through black market channels and thus avoiding trade compliance policies. One large apparel company began monitoring the inventory levels within its supplier's facilities and noticed that the supplier's inbound raw-material inventories were much

A spate of customer returns on a particular product may point to a channel of counterfeiting activity.

It can be particularly fruitful to track overproduction by suppliers.

greater than the volume of finished goods it was shipping to the company. This was an indication that product was being produced and sold elsewhere through other channels.

Logistics should map supply routes to document compliance on the part of transportation providers. This can help ensure chain of custody along global supply chains, particularly at handoff points such as ports, warehouses, and distribution centers. Companies with multitier distributor channels should document every logistics handoff and conduct random audits to determine whether there are proper security personnel and locked gates at all distribution centers.

Human resources might want to consider monitoring employees who are dealing directly with targeted products. This may include conducting background checks, as well as increasing training to enhance staff awareness. If there is a high level of missing inventory or a sudden increase or drop in product sales, investigations may be required.

Aftermarket sales should track warranty claims and parts sales to identify product-quality problems. As with the quality assurance team, those at the front line of aftermarket sales are in a position to learn that products aren't performing as expected, which, again, may indicate that counterfeits are entering market channels. For example, a large retailer made the decision to limit its distribution channels and authorized resellers, recognizing the high potential for counterfeit products in these particular sales channels, especially e-commerce.

COUNTERFEITING AND PRODUCT diversion are not crimes that a single organization can combat. They require the diligence of brands, retailers, packaging

companies, and logistics businesses. This is a rare instance where joining with competitors can yield important insights. Companies should consider joining a consortium and partnering with industry counterparts. Industry-specific groups include the Automotive Anti-Counterfeiting Council for vehicle manufacturers and Rx-360 for pharmaceutical companies. Members of React, a large anti-counterfeiting network, include Marvel Entertainment, Mattel, Pfizer, Philips, Prada, and Timberland.

Counterfeiting is also not just a private-sector supply chain problem. Labor and human rights advocates, consumer education agencies, customs agents, federal and state law enforcement agencies, local police, and consumers of counterfeit products all have an interest and role in ferreting out unauthorized activity. While counterfeiting and product diversion cannot be eliminated, dedicated efforts can curtail both significantly. ■

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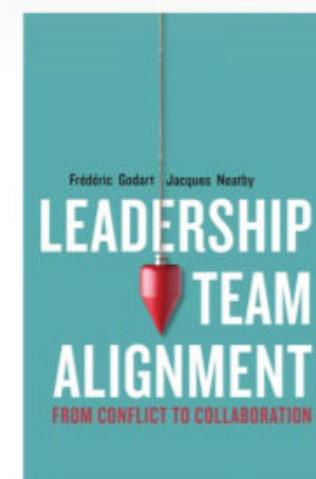
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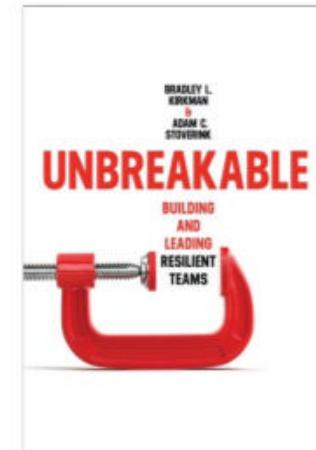
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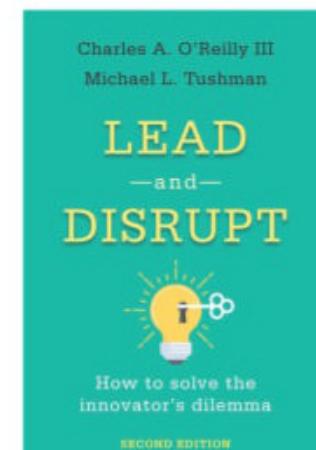
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Harnessing Grassroots Automation

With a modest amount of training, nontechnical employees can automate complex processes and generate significant value for their organizations.

By Ian Barkin and Thomas H. Davenport

COMPANIES ARE INCREASINGLY embracing the idea of helping nontechnical staff members — those who have deep business-area expertise — learn to directly automate processes that give them headaches and eat up their time. For instance, human resources employees are uniquely qualified to identify the mundane and repetitive parts of their jobs, such as candidate-tracking tasks, and then, with some training, build automations that will relieve them of chores such as duplicative data entry and data cleaning.

While the development of such applications by so-called citizens within organizations requires careful planning and governance to be effective, low-code and no-code technologies have become commonplace and made such ventures possible.¹ Specifically, robotic process automation (RPA) and a broader intelligent automation (IA) suite that allows for the redesign and automation of workflows are now straightforward enough that functional experts can design, develop, and deploy IT applications and analytical models themselves. No longer do all projects require mediation by IT employees, who might not fully understand end users' pain points. These tools of citizen-led automation are allowing less-technical people to build complex systems that improve their work experience, and they are already



generating considerable value for many businesses.

In this article, we draw on interviews with six companies — AT&T, Dentsu, Johnson & Johnson (J&J), PwC, Voya Financial, and Wesco — to describe their efforts to join the citizen automation movement. We also detail how other organizations can best develop these capabilities and the benefits and challenges of doing so.

What's Driving Citizen Automation

At its core, encouraging non-IT professionals to participate in designing their own work tools is not new. Enterprises have long tapped into teams across their businesses for process improvement ideas. Six Sigma belt wearers, for instance, have been trained in improving small processes. What's new is that today's citizens can actually sketch out and then run the future state they were once only able to describe to IT development teams.

Harnessing citizenry is partly necessary because there are simply not enough people with the professional IT skills needed to accomplish the torrent of digital initiatives on companies' agendas. Even conservative estimates project a dramatic shortage of tech workers by 2030.² Tasks such as moving information between transactional systems, updating spreadsheets, and even composing standard-format emails are ripe for automation, but that often doesn't happen because people with the skills to do that work aren't available.

At accounting consultancy PwC, the citizen automation effort arose out of an initiative to train employees who would be known as "digital accelerators" to help grow the business without adding a proportional number of staff members.³ Data, automation, and AI were identified as the three pillars of the initiative. Employees who volunteered to learn new skills and technologies, and were selected for the program were asked to focus on one of the three pillars. Participants were given time off from their regular client service jobs to pursue a variety of upskilling options. Employees who focused on automation were trained in the tools (including RPA, data prep and blending, and simple machine learning models) and in Six Sigma process improvement methods and were asked to identify processes that would benefit from automation. One audit-focused digital accelerator created an automation to scope needed tasks on a client audit by automatically extracting and aggregating data from many different spreadsheets. It saved 40 hours from the audit engagement and was adopted as a standard tool for auditors to employ with other clients.

Of course, a primary driver of the rise in citizen-led automation is the corresponding dramatic rise in the relative simplicity of some automation programming.

Necessary Tools and Training

The citizen automation movement is enabled by the rapid evolution and democratization of automation tools. Compared with other forms of artificial intelligence, RPA and IA tend to be easier to implement and less expensive. RPA is being widely adopted to access data from multiple systems and to automate structured, information-intensive tasks, such as routing incoming customer emails or updating order status in a transaction system. When combined with IA tools such as machine learning and character recognition, they can also make data-driven decisions and extract important information from documents such as handwritten customer forms or key provisions in a contract.

There are several technology options. First are standard RPA tools from vendors such as UiPath, Blue Prism, and Automation Anywhere. These can be complex to learn and use — not because they require coding but because they may need to be integrated with transaction systems. With proper training, many nontech employees can build simple automations with them. Second is technology that is specifically developed for citizens and thus involves little or no coding. Some mainstream RPA software comes in simpler versions intended for citizen automation. Microsoft, for instance, has made easy-to-use RPA capabilities available as part of its Office productivity suite.

Most of the organizations we've spoken with in our research offer citizen automation training programs that are between 40 and 80 hours long, and many supplement their programs with instruction provided by the leading automation tool vendors. Training programs can also include hackathons in which trainees apply their skills to quickly build RPA applications.

Because RPA systems typically link to and extract data from existing transactional systems, citizen automators often need to have an awareness of corporate IT architectures in order to safely access and use data. However, if citizen-developed RPA applications are certified by IT professionals and address any issues around integration with other systems, this knowledge might not be necessary. Some organizations we've studied have established automation centers of excellence (COEs) that handle all such integrations and compliance, allowing citizens to focus on applying automation to the processes they understand without requiring them to become familiar with the complexities of the underlying architectures.⁴

The recent appearance of generative AI on the enterprise scene is already beginning to make RPA design and implementation easier. Since OpenAI's ChatGPT was announced in late 2022, for example, several RPA

vendors have announced interfaces between their RPA systems and the language capabilities ChatGPT offers. Before long, it should be very easy for a user to specify the desired attributes of the automation system in virtually any natural language and have a working prototype of the system automatically produced. The generative AI system should also be able to automatically create an easily understood description of the workflow and decision rules, if prompted to do so.

Companies pursuing intelligent automation may make machine learning capabilities available so that they can be combined with RPA. In most cases, this will involve automated machine learning, or AutoML systems.⁵ These systems automatically perform many of the tasks involved in data science, including minor data cleaning, feature engineering, alternative algorithm modeling, and code/API generation for deployment. Some AutoML systems are technically complex, but others are more suited for use by citizen data scientists who have only some quantitative training or background knowledge. At AT&T, for example, citizen data scientists can work with predefined customer attrition data and features to identify which mobile phone customers should be targeted with a promotion or some other intervention to prevent churn. An RPA bot can then automatically notify those customers about the promotion.

It is almost always a good idea to improve processes before automating them, and training citizens in incremental process improvement techniques such as Six Sigma or Lean can be beneficial.⁶ A centralized group of process improvement specialists can also provide a quick process analysis before the automation is rolled out. However, there is a case to be made that automating existing “messy” processes still provides value. It might also be the most likely scenario in early citizen-owned efforts, given that they are prone to focusing on digitizing what they do and how they do it — albeit with new tools and technology, in this case.

There are a variety of approaches that companies can take to selecting employees to participate in automation activities. Some, like electrical and communications technology distributor Wesco, happily enroll all interested citizen automators in training. The leader of Wesco’s program told us that the company is willing to train anyone who expresses interest and that he believes the organization even benefits from program dropouts, who can still act as “automation ambassadors.”

Other companies, like PwC, have a formal application process for evaluating and “admitting” volunteers. The pharmaceutical and consumer goods company J&J requires that citizens working with RPA complete a formal training curriculum and be certified in the technology.

Citizen automation needs to be guided with policies and guardrails.

Leaders there say that, in general, the company sees people with a logical mindset, technical competency, and an aptitude to learn as good candidates for becoming citizen developers. J&J also seeks a fit relative to the work that the employee is involved in, with rules-based work being particularly desirable.

How Leading Organizations Support Citizen Automation

Some companies support citizen automation from the very top of the enterprise and coordinate the activity centrally; others are content to let a thousand flowers bloom more autonomously. Most, however, employ some degree of centralized coordination, technology standards, and training.

In order to magnify the impact of citizen automators, several companies have established accessible collections of automation programs developed by employees for use by their peers. PwC has created one of the most extensive libraries, with several thousand automation and digital assets aligned to client service maps. Before an asset is added to the marketplace, the solution and its underlying code are reviewed in terms of its technical capabilities, its potential business value, and its compliance with policy guidelines. It is then “checked in” to a library for others to withdraw and use.

Global ad agency Dentsu, which was one of the earliest developers of a citizen automation program, established an automation hub where its citizen automators can contribute the solutions they have created. The company now has more than 1,000 actively contributing participants, with 350 solutions in its marketplace. Popular citizen-led submissions in the hub include automations for preparing and manipulating spreadsheet-based reports, exporting and filing invoices, and handling timesheet reporting and email reminders, along with various approaches to extracting data and moving it between systems.

Wesco’s approximately 200 citizens work with the support of a dedicated COE that supplements their automation efforts by handling more technical tasks,

reviewing and signing off on automation designs, and ensuring compliance with corporate governance and security protocols. In one program, the COE built a framework for citizen developers to configure the pulling of data from supplier portals and websites to enable better real-time shipment and order-fulfillment tracking. With over 50,000 suppliers, all with unique interfaces, this task would have taken hundreds of IT staff members. Instead, citizens are able to slowly chip away at digitizing the supplier input — a task that is low risk and lower complexity. The COE is then able to build on this by interfacing with the company’s core systems to provide timely information to its customers. As the project sponsor put it, “The beauty is that everyone is doing what they’re good at.”

At telecommunications company AT&T, both citizen automation and citizen data science are broadly encouraged, and there are active communities in both areas.⁷ Citizen automation developers who want to engage in more sophisticated machine learning-based decision-making can employ a variety of AutoML tools. AT&T also has a variety of reusable data sets that can be used in machine learning, and a “feature store” with pre-defined features for machine learning models. For example, users can easily execute searches to find all of the features that involve “churn” or “network performance.” They can also access already computed scores for common predicted outcomes, like churn, via APIs.

The most successful citizen automators are celebrated and financially rewarded at some companies. J&J holds an annual showcase in which citizen developers receive recognition for the impact their solutions have had on business outcomes. At PwC, those who succeed in creating an automation asset for use by the overall organization are rewarded financially if it is widely used. It’s important that employers recognize citizens — financially or otherwise — for the benefits their work has generated, or they may try to take it elsewhere. (For instance, in online discussion boards for individuals who have multiple remote full-time jobs, we’ve come across several participants who have been able to produce sufficient work outputs by automating their own tasks.)

Strategies for Managing Citizen Automation Programs

Effective citizen automation on a broad scale doesn’t just emerge spontaneously. It needs to be facilitated by support functions, encouraged through community development efforts, and guided with policies and guardrails. Citizen efforts should also be monitored and their results tracked in order to understand whether they are valuable and growing. And, perhaps most importantly, citizen

automation efforts must be valued and sponsored by the organization’s leaders.

At J&J, to better coordinate automation initiatives, a partnership was formed among the company’s IT organization, its Global Services function, and a few of the citizen developer practitioners. The partners developed a framework to strengthen the support for citizen developers through curated technical training curricula, a set of technology standards, and criteria for assessing use cases.

AT&T has developed an active citizen automation community, supported by a central data science and automation organization. Automation began in a business operations group and rapidly grew to about 300 RPA bots. After a year of bottom-up activity, a corporate COE was formed. Now A&T has more than 3,000 bots, with 92% of the automation use cases built by citizens. The central group develops automation technology standards and holds regular meetings and training sessions for those who wish to join the community.

The PwC digital accelerator initiative was strongly supported by Tim Ryan, U.S. chair and senior partner. Citizen automators in that program have broad discretion about which automation activities they pursue, but only the most successful products are promoted by the firm’s centralized Products & Technology group. That group’s leaders decide which citizen initiatives become enterprise assets for the organization overall.

The Wesco citizen initiative has no single executive sponsor; rather, it is supported by the entire leadership team and coordinated by Maxim Ioffe, the global intelligent automation leader. Ioffe is also responsible for the automation COE, thereby providing a single point of contact for collaboration with IT, advanced analytics, IA, and citizens from among the business teams.

Our research shows that most companies that are taking citizen development seriously invest in the creation of automation COEs that are staffed by professionals with RPA and IA development backgrounds, to accelerate citizen participation. A subset of these businesses, like investment company Voya Financial, have combined automation and process improvement capabilities in one support organization.⁸ These centralized resources are important for large or strategic business processes that demand deep automation and process improvement skills. They can also offer training (in both citizen-oriented tools and process improvement), certification, and automation project review for citizen activity.

Dentsu started its automation approach with top-down oversight. The initial intent was to automate large-scale enterprise processes, but an analysis found that there weren’t enough of them to make them the primary focus. Instead, the company’s first chief automation

officer (one of the first such officers at any company), Max Cheprasov, concluded that there were many more opportunities to automate smaller, local workflows and that the work could largely be done by citizens. Cheprasov's group developed training, conducted hackathons, and developed a centralized hub for citizen automation projects. He was so convinced of the efficacy of the bottom-up approach that he brought it over to the mid-size marketing services company where he now works.

Weighing the Risks and Rewards

There are risks to citizen development. Citizens may automate bad process workflows, fail to document their efforts and leave the company, make mistakes in developing automations, or integrate their bots poorly with enterprise transaction systems. Of course, professional developers can make such errors too, but there are usually other professionals around to back them up.

A key step, then, is to certify citizen-developed automations for ongoing use by the entire department or company in an automation hub or marketplace. That certification can help ensure that the automations were well constructed with state-of-the-art tools and that their function and risks are well understood. PwC, for example, has a governance process that vets citizen automation submissions to ensure that they comply with legal and regulatory requirements. AT&T also has professionals review citizen efforts before they are put into production deployment.

But one leader told us that his governance concerns extend more broadly, into business continuity and change management. "Have we appropriately prepared for 30% of finance being run on citizen-developed applications?" he asked. "We realize a tipping point is coming and wonder if we have the appropriate controls in place for that event. We're not sure we do."

While companies hope that citizen-led transformation will create significant value, in most companies the scope of automations to date has been small and focused. Scaling these pilot efforts to address end-to-end enterprise business processes will be uncharted territory. Will citizen automation smoothly enable new efforts in digital transformation, or create a chaotic landscape of shadow IT (applications developed without the knowledge or expertise of the IT function) and technical debt (applications that rely on obsolete technologies)? Even the early adopters we spoke with aren't sure. At the moment, the movement toward citizen automation seems generally positive, but problematic issues may appear over time and with greater adoption.

These risks are offset by rewards. The most common objective of automation programs, according to a Deloitte

Global Intelligent Automation survey, is cost reduction: Companies expected an average of over 30% reductions in costs for automated tasks.⁹ Companies also highlight the benefits of freeing up people to perform higher-value tasks rather than automating away jobs. Some companies measure employee work hours saved. Dentsu, for example, counted more than 400,000 employee hours saved from its citizen initiatives. AT&T computes that its automations, the great majority of which are created by citizens, save about 270,000 hours per year, yielding a 20-times return on investment overall. In addition to benefiting from these time savings, organizations typically find that employees are more invested in improving and digitally transforming their work.

There are distinct nonmonetary benefits to citizen automation as well. Employees gain new skills and spend less time on drudgery. Task digitization happens faster than it would otherwise, and more employees get engaged in making change happen.

What's clear is that user-friendly digital tools are driving the creation of a new class of hybrid business/technology developer. These employees are now able to dream up and deploy solutions more quickly and easily than at any time in the history of modern enterprise. ■

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CEOs Can Make (or Break) an Organization Redesign

Changing processes and structures requires full-on CEO engagement, but many CEOs have difficulty staying in control throughout the process.

By Herman Vantrappen and Frederic Wirtz

ONE OF A CEO'S ESSENTIAL RESPONSIBILITIES IS LEADING the effort to reconfigure their organization after recognizing that its structure is no longer optimal for creating and delivering value. Some redesigns are major companywide overhauls, such as Procter & Gamble's creation of six industry-based sector business units in 2019, which its CEO described as "the most significant organization change we've made in the last 20 years."¹ Other redesign efforts have a narrower scope, focusing on a particular division, function, or issue.

For a CEO, organization redesign is different from other large-scale change initiatives. In a corporate strategic reorientation, for instance, the CEO is bound by the decisions of the board of directors and follows a strongly analytical approach. In a functional initiative, such as setting the company's digital strategy, the CEO can delegate the lead to someone on the management team and assume a supervisory role. But in a corporate organization redesign initiative, the CEO must actively take the lead, both because of the profound impact that the resulting changes will have on the culture and employees and because only the CEO has the all-encompassing view required to reduce the risk of serious unintended and undesirable consequences from any particular redesign choice.

We have witnessed many redesign initiatives in our work with organizations over the years and have confirmed that the CEO's leadership of these efforts is key to their success. But we continue to be surprised by how many CEOs still struggle to get to effective outcomes. We've found that plans frequently go astray or run into dead ends despite the abundant and often sensible advice in the management literature. Here are some examples:

- The new CEO of a business services provider wants to reconsider the role of the corporate center and the organization more broadly. Each member of the management team has their own pet idea for restructuring: One is under the spell of self-organizing teams, another is adamant about a framework used at their previous employer, and a third thinks the company should simply be a holding of small regional enterprises. It takes a long time to build even minimal alignment.
- The CEO of a multilateral agency launches an exercise to make the organization less siloed. Heated debate and a couple of offsites with the management team lead to a number of major decisions, including plans for sharing resources and broadening the CEO's span of control. But after some back-room maneuvering, decisions are undone.
- The founder-CEO of a family-owned engineering and construction company retires, handing over the reins to one of his children. The new leader has plans to professionalize the company's business processes and governance, but the retired founder keeps finding ways to short-circuit the CEO,

THE RESEARCH

This article draws on the dozens of major organization redesign exercises the authors have accompanied in the past 30 years across continents in a wide range of sectors, including B2B (such as payroll services) and B2C (such as fast-food retail), products (such as automotive) and services (such as engineering), and for-profit and nonprofit.

undermining any effort to improve the company's functioning.

When we looked back on the major organization redesigns we've accompanied in the past 30 years (see "The Research") and reflected on why some initiatives were less effective than others, we recognized that CEOs can fall into one of two traps: failing to use an appropriate framework, and, quite simply, failing to maintain sufficient leadership throughout the process. In this article, we'll present a systematic approach to organization redesign that CEOs can follow, and address specific behaviors that executives must guard against if they are to

retain full ownership throughout the organization redesign and implementation processes.

A Framework for Tackling Organization Redesign

Many scholars and consultants have developed frameworks that support systematic thinking about organization design.² The framework we are presenting here emphasizes two aspects that are often underexposed.

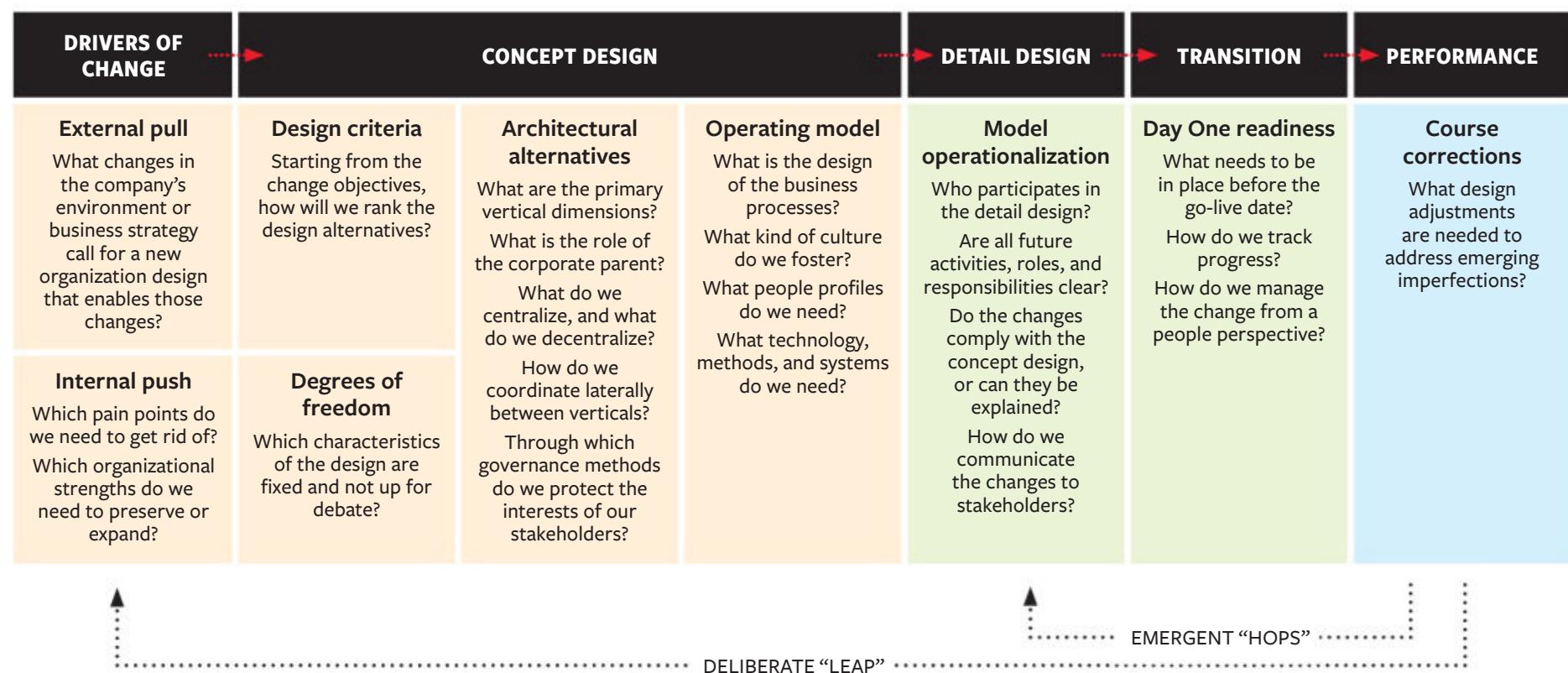
First, the framework recognizes that managers never start with a blank slate when redesigning their organization. There is always an existing organization in place that heavily informs any redesign.³ Even if the existing design has become dysfunctional, there are usually good reasons why it was adopted in the first place, and those reasons shouldn't be ignored. As a consequence, a good framework needs to incorporate a dynamic link between the past and the future.

Second, much of the current advice in the management literature focuses on either upstream aspects of an initiative (for instance, identifying the company's purpose, values, and vision) or downstream aspects (such as execution and change management). Less is said about the midstream core of the discipline — that is, the hard stuff, such as structure, processes, and systems. A good framework should rehabilitate this essential midstream part while integrating it seamlessly with the upstream part (by considering the drivers of change) and the downstream part (by ensuring readiness for the go-live on Day One).

The framework that we have gradually developed through our work aims to overcome those two shortcomings by respecting the dynamic nature of change and focusing on the hard organization design variables. Starting from the first principle, it brings together the

The Organization Redesign Guide

This framework integrates familiar building blocks into a logical process flow to steer reorganization initiatives.



SOURCE: HERMAN VANTRAPPEN AND FREDERIC WIRTZ

building blocks of organization design thinking into a logical flow, from understanding an organization's *drivers of change* to the options for *concept design*, the operationalization in *detail design*, the implementation at the *transition stage*, and the course corrections necessary during the reorganization's actual *performance*. (See "The Organization Redesign Guide.")

CEOs at the front end of an organization redesign need to be aware of five overarching principles that stand out in this framework:

1. Organization is a means to an end. Managers change an organization design with the expectation that the new design will better enable the company to achieve its business goals. That expectation is based on the assumption that those goals will be made explicit, embraced by the management team, endorsed by stakeholders, and remain reasonably stable. A company whose goals are vague or fluctuating is likely to cycle through disruptive organizational rearrangements without much improvement in its performance. That's why our design framework starts with identifying both the external and internal drivers of change.

2. The best possible design is unknowable. Making organization design choices is arguably more difficult than making business strategy choices. A strategy choice comes down to selecting the one of various

alternatives that maximizes the defined objective — say, EBITDA growth. With strategy, leaders weigh the available information, the assumptions and uncertainties, resource constraints, and their own appetite for risk. Not so for organizational choices. They do not flow from a mathematical optimization but from a judgment about the weight of the arguments in favor of and against each of a number of design alternatives. That is why the design framework encourages CEOs to consider alternative organizational concepts.

3. Concept design precedes detail design — and only the latter is participative. At the concept stage, the principles for the new design are defined. Those involve fundamental organizational variables, in particular the architecture (for example, what to centralize and what to decentralize).⁴ After considering alternative design concepts, one is selected and taken forward for detail design (for example, the roles of various functions in an end-to-end business process). The detail design can and should be done with the broad involvement of the managers and people directly concerned: They know best what works, will have to operate within the design outcome, and can act as change ambassadors. However, such a participative approach is rarely advised for concept design, which tends to require familiarity with the company's (often still confidential) vision and strategic

options, freedom from conflicts of interest concerning the fate of various company functions, and speed.

4. An organization design evolves through a pattern of deliberate leaps and emergent hops. The notions of deliberate and emergent strategy are well entrenched in the discipline of strategy formulation: Guided by the company's deliberate strategy, managers at all levels in the organization make myriad decisions every day that gradually alter the exact form of that strategy.⁵ A similar pattern is observed in organization design: Senior management deliberately decides on a major rearrangement (leap) of the organization, after which a series of adjustments (hops) are made to compensate for the inevitable imperfections of the original design. This leap-and-hops pattern is totally normal and even desirable, since the perfect design is elusive and a company's environment changes all the time.⁶ That is why the design framework shows loops that feed imperfections back into the design so that they can be addressed.

5. The proof of the design is revealed only after Day One. Day One refers to the moment at which the approved detail design goes live and the redesign starts to have a direct impact on the daily functioning of a large number of people: what they do, how they do it, and with whom. As little as possible should go wrong, for the sake of managerial credibility, respect for people, and impact on the business.⁷ That is why it is crucial to start a careful change management process well ahead of Day One.⁸ No employee should be left in the dark about their place in the redesigned organization.

Why the CEO's Continuous Engagement Matters

In strategy formulation exercises, it may be perfectly adequate for the CEO to stay involved through ad hoc interventions spaced over time, such as participating in an executive offsite, leading the steering committee, or presenting to the board of directors. In organization design exercises, on the other hand, we find that the most effective CEOs keep their finger on the pulse of the process on an almost daily basis, from start to finish.

One reason they do this is that it provides them the opportunity to form their own ideas about a fit-for-purpose design and to possibly shift their mental model quite radically. They take their time to allow their thinking to mature, as there is no single best design and the eventual choice is a largely qualitative judgment about a number of valid alternatives.

They also consistently engage because they realize that the organization design process is quite unforgiving. Each phase builds on the choices made in the previous phase, gradually involving more and more people.

The number of explicit or implicit micro-commitments made along the way — about roles, borders, lines, people, head count, and other factors — keeps growing. Having to backtrack is painful, in part because it is widely visible. If strategy formulation is like planting trees, organization design is like sowing grass: Its effect is immediate, all over the place, and in need of attention.

A third reason for daily engagement is to help build buy-in for the new design within the organization. Effective CEOs insist on participating fully in communications about the outcomes of the design exercise, not so much through the proverbial "memo to all staff" as by talking with people in the field. They can only do so credibly and convincingly if they have immersed themselves in the actual design work.

Most importantly, CEOs involve themselves in the process daily because they recognize that people and interactions will eventually make (or break) the organization. Fully participating in the design process gives CEOs a unique opportunity to observe and influence the people side of the business beyond their direct reports.

How Leadership Weakness Can Derail Redesign

In situations where we've observed a leader's inability to remain fully in control of the redesign process as laid out above, their weaknesses have tended to reflect one of four characteristics: half-heartedness, appeasement, indecisiveness, or incapacitation. We've distilled the following four archetypes from our observations of organization redesign efforts that have faltered:

The half-hearted CEO. Whereas the trigger of a strategy formulation exercise tends to be clear, an organization design exercise may be prompted by lobbying by certain stakeholders rather than a clear business need. In some cases, a member of the management team or the board of directors may raise a concern. The CEO might not initially find that concern important or be inclined to initiate change, but they might want to satisfy that stakeholder to end the debate and thus agree to consider organization redesign — with the private thought that the plans will go nowhere. Or the CEO may be confused, unclear, or cagey about the motivation for a redesign, leaving it to the project team to fill in the blanks. In still other cases, the CEO might be on their way out, voluntarily or involuntarily. In all of those situations, the CEO lacks a full-throated commitment at the inception of the project, getting it off to a bad start.

The appeasing CEO. Every transformation requires careful change management, with deliberate activities to move the company from its present state to the desired future state and help people adopt the changes.⁹

How CEOs Can Diminish Their Vulnerability

CEOs who tend toward any of the four behavioral archetypes that can undermine organization redesign can take action at each stage of the process to strengthen their leadership.

Phase		Behavioral Archetype			
		Half-hearted	Appeasing	Indecisive	Incapacitated
	Drivers of Change	Decide to take ownership of the drivers, make them explicit, and share them.	Be clear about scope, goals, and no-gos.	Get a sponsor and/or coach for the design process.	Understand people's concerns, and get endorsement from stakeholders.
	Concept Design	Agree on and share the design criteria and degrees of freedom.	Limit the process to a small circle, and decide on and freeze the design.	Go public internally about the choices to ensure forward momentum.	Agree on roles and rules for the design process.
	Detail Design	Delegate, but monitor the effort closely.	Be strict about the comply-or-explain process.	Involve people broadly to create traction.	Maintain structured upward communication.
	Transition	Get actively involved in communication, and lead by example.	Move on, yet be clear about room for optimization "hops."	Keep it short, commit to dates, and don't prolong the process.	Stay in charge of the nitty-gritty of the planning for Day One.

SOURCE: HERMAN VANTRAPPEN AND FREDERIC WIRTZ

However, CEOs can go overboard when it comes to inviting people's involvement, which can result in an excessively complex process with too many steps, participants, and approval points. For example, inviting more comments instead of deciding and freezing the process can drag out the design phase. Appeasing behavior aimed at demonstrating a willingness to listen is often well intentioned and meant to function as stakeholder management — but it can also reflect the CEO's own uncertainty about the design concept.

The indecisive CEO. The decision-inert CEO who fails to make decisions or stick to firm decisions is rare but not extinct. A typical symptom is the CEO giving in to a late-stage “over my dead body” threat by a manager who disagrees with a well-thought-out executive team decision. CEOs will sometimes compromise in the final stretch out of a fear of negative fallout. In such organizations, things happen in spite of the CEO.

The incapacitated CEO. Defective governance can make it hard for the CEO to keep a grip on the redesign throughout the entire process. In companies where the CEO is not also the chair of the board of directors, the board might interfere with the CEO's handling of the organization redesign. In privately owned companies, powerful board members such as retired founders can

meddle in the design and short-circuit the CEO, protecting old favorites or otherwise disrupting an orderly process. Such impairing of the CEO — whether during the concept design, detail design, or transition phase — is often visible at lower levels and highly damaging.

CEOs planning an organization redesign would be well advised to consider these patterns of weak leadership. They should assess their own vulnerability in terms of both their own traits and the contextual factors that hamstring their leadership, and then consider how to overcome them.

They can begin by asking themselves four questions:

1. Do I fully believe in this initiative?
2. Will I listen to the right people without letting the process go off track?
3. Am I prepared to make tough decisions where needed and stick to them?
4. Am I in control of all the levers I will need to pull?

Such soul-searching is important because once CEOs understand where their leadership of this critical change effort may be weak, they can work to mitigate those weaknesses. (See “How CEOs Can Diminish Their Vulnerability.”) Imagine a CEO who knows they tend to be appeasing. They might recognize that during the concept phase, they should consult with a restricted group of

senior managers, and during the transition phase, they should adopt a kind of comply-or-explain process (when any deviation from the concept design must be explained and can only be accepted after approval by the governance body that had approved the concept) and freeze the design, reassuring employees that the company will make course corrections after launch as needed.

We worked with the CEO of an industrial company who acknowledged that he had some elements of the incapacitated and indecisive archetypes. He was able to compensate for the tendencies that might have otherwise derailed the process, in a few smart, specific ways:

- Because the CEO traveled almost constantly, he appointed a chief change officer with complementary skills who worked closely with him and took care of day-to-day project matters at the head office. However, the CEO remained in charge of the effort.
- The CEO proposed having the company's nomination and compensation committee act as a steering committee during the concept design phase. This provided a managed channel to the board chair, whose frequent intervention in operational matters sometimes undermined the CEO.
- After the results of the concept design phase were formally endorsed by the nomination and compensation committee and approved by the board, the CEO was able to more easily implement the comply-or-explain rule during the detail design phase. To avoid concept creep, any deviation from the concept would have to pass through the committee again.
- The CEO encouraged the company's divisions and functions to each appoint an ambassador for the transition phase. These representatives were on the management team of their respective divisions and functions and had participated in the detail design phase. They met with the chief change officer monthly to share progress information in both directions.
- A simple tracker was used to monitor progress toward a range of specific transition targets in advance of the go-live. The percentage-of-completion statistics were regularly reviewed by the CEO and openly published based on division and function. This generated some healthy peer pressure and helped the process maintain traction.

The example demonstrates that it pays for CEOs to do some upfront, explicit, and honest introspection about their visible behavioral tendencies and the actions that can prevent the redesign exercise from derailing.

CEOs can only seek buy-in convincingly if they have immersed themselves in the actual design work.

CONTINUAL ORGANIZATION REDESIGN IS A fact of corporate life. In most cases, there are good business reasons to consider a redesign, despite the significant extra time, resources, and emotional energy it tends to consume. But the CEO's full-on engagement is needed to make the redesign succeed. Even then, however, redesign exercises often go astray. CEOs may lack an appropriate design framework or simply fail to maintain sufficient leadership throughout the process. They should start with an assessment of their vulnerabilities — both their own behavioral tendencies and governance-related constraints. And they should find ways to demonstrate that they are full-hearted, conclusive, decisive, and, ultimately, in control. ■

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Executive Briefings

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Unleash the Unexpected for Radical Innovation

Wenjing Lyu, Gina Colarelli O'Connor, and Neil C. Thompson pp. 22-28

Key Insight: Giving more new ideas the opportunity to develop over time can give rise to unexpected breakthrough innovations.

Top Takeaways: Research shows that innovators have a poor track record of predicting which of their own ideas will result in breakthroughs. This matters because some ideas that appear to be incremental at first eventually prove to be blockbusters. Discovery is a necessary first step, but it is not sufficient for assessing how promising an opportunity might become. Rather, taking more ideas to incubation gives both the company and the broader market a chance to learn about them and their potential. It also allows for unanticipated use cases to emerge.

[REPRINT 65126](#)



Rethinking Governance for Digital Innovation

David L. Rogers pp. 29-33

Key Insight: Organizations must reevaluate their approach to governance and design new models to better support digital transformation efforts.

Top Takeaways: Rapid, iterative, customer-centric innovation is possible in large companies — but not within traditional ways of working. In this excerpt from his new book *The Digital Transformation Roadmap: Rebuild Your Organization for Continuous Change*, the author argues that innovation is often held back by outmoded business rules and inefficient supervisory structures. To battle that, organizations need a new approach to governance for digital innovation initiatives. That includes designing management practices that free innovators to move quickly. It also means giving managers better tools and processes for go/no-go decisions and resource allocation.



Lego Takes Customers' Innovations Further

Michela Beretta, Linus Dahlander, Lars Frederiksen, and Arne Thomas pp. 34-37

Key Insight: Gains from open innovation are more likely to stick if customer collaboration is deeply fused into a company's processes.

Top Takeaways: Lego Group has long been a model for tapping the creative power of crowdsourced idea generation. New research into Lego and BrickLink, a consumer-led channel that Lego acquired in 2019, shows that if open innovation initiatives are going to create value over time, they need to be integrated into an organization's core processes. This strategy should include providing an outlet for external creative contributors whose ideas are rejected, and enabling customers to profit from their innovations.

[REPRINT 65110](#)



The Profound Influence of Small Choices in Digital Collaboration

Wietske Van Osch and Burcu Bulgurcu pp. 38-41

Key Insight: Digital collaboration tools can set innovators on a disruptive or incremental path, depending on how teams choose to use them.

Top Takeaways: Digital collaboration tools, which enable virtual teamwork when employees are physically remote, have an effect on group creativity. These tools can enable teams to build either loose, open networks or tightly controlled, closed groups. Deciding which approach to take depends on the scope of a project's ambition and the stage of the innovation process. Open organizational forums can help workers bridge across groups to find solutions to tricky problems through serendipity or unexpected sources. Private groups, on the other hand, often build a strong sense of community and produce more breakthrough innovations.

[REPRINT 65112](#)



How Outlawing Collegiate Affirmative Action Will Impact Corporate America

Derek R. Avery pp. 42-45

Key Insight: To find high-potential talent and offer equitable opportunities to members of disadvantaged groups, organizations must reconsider their workforce pipelines.

Top Takeaways: The U.S. Supreme Court ruling outlawing the use of race and ethnicity as factors in college admissions will have wide-ranging effects. Research on three decades of state-level affirmative action bans shows that there are likely to be dramatic changes in racial-ethnic diversity in colleges that will lead to more homogeneous college-to-workplace talent pipelines and subsequently less diverse workplaces. Organizations committed to diversity and equity must reconsider their recruitment strategies and the emphasis they may place on hiring from elite universities.

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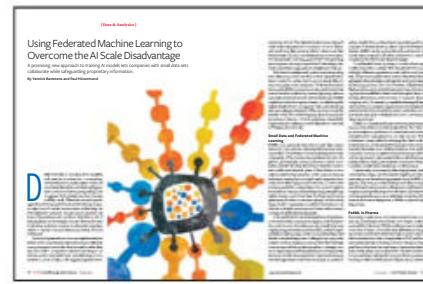
Procurement in the Age of Automation

Remko Van Hoek and Mary Lacity
pp. 46-53

Key Insight: Automating negotiations enables buyers to be more efficient, but the process needs to be carefully managed to address stakeholders' concerns about fairness.

Top Takeaways: Companies that successfully automate their procurement negotiations see a wide range of benefits, including cost savings, increased supply chain resilience, and access to an expanded pool of qualified suppliers. But there is often resistance from business unit leaders, buyers, and suppliers. Six practices can help, including asking (rather than requiring) buyers to try the new process, making success visible, and creating a formal support structure to keep negotiations from becoming too complex, difficult to use, or bureaucratic.

[REPRINT 65120](#)



Using Federated Machine Learning to Overcome the AI Scale Disadvantage

Yannick Bammens and Paul Hünermund pp. 54-57

Key Insight: A promising new technology could help smaller companies train their machine learning models on larger, decentralized data sets.

Top Takeaways: Companies with limited amounts of data are at a disadvantage compared with Big Tech companies: More data leads to better AI tools, which help attract more customers, who generate more data, and so on. Organizations can battle this shortcoming by joining forces in collaborative AI projects. A new technology, federated machine learning, has emerged as a key tool because it keeps proprietary data private. The authors describe the successful use of this approach among pharmaceutical companies and argue that it can be effective across a range of business sectors.

[REPRINT 65111](#)



Identify Critical Roles to Improve Performance

Boris Groysberg, Eric Lin, Abhijit Naik, and Sascha L. Schmidt
pp. 58-61

Key Insight: Leaders can use data analysis to identify their organization's most critical roles and ensure that they're filled by top performers.

Top Takeaways: Rather than building strategy around the people they have, organizations should focus on determining which roles are most valuable to their strategy and getting their top performers into those spots. Data can help identify both the most influential positions and an organization's current stars. The authors demonstrate this with examples from professional soccer, where good teamwork is critical but the highly integrated nature of the sport can obscure what the critical roles are.

[REPRINT 65122](#)



Who Should Price a Gig?

Jovana Karanovic, Elizabeth J. Altman, and Carmelo Cennamo
pp. 62-67

Key Insight: When pricing control is shared among stakeholders on a platform, the marketplace is healthier and better serves all participants.

Top Takeaways: The question of who sets prices and what discretion other parties have to alter them is a complex one for platform operators, from ride-hailing companies such as Uber to freelance marketplaces. Successful platforms balance economic considerations and social dynamics when they decide whether the power is held by the customer, the service provider, or the platform itself. To ensure long-term sustainability and financial performance, platform managers might want to share some pricing control through hybrid approaches.

REPRINT 65115



Taming the Counterfeiting Epidemic

Robert Handfield, Anand Nair, and Thomas Y. Choi pp. 68-73

Key Insight: Businesses must take a multilayered approach to effectively identify, contain, and prevent product counterfeits and illegitimate sales on the gray market.

Top Takeaways: Many companies lose significant revenue to counterfeiters who sell fake copies of products, and to unscrupulous supply chain partners who divert legitimate goods for unauthorized sales. To effectively combat both sources of illicit trade, leaders need to embrace a multilayered approach. In addition to keeping close tabs on the markers of suspicious activity in the supply chain, it requires using traceable packaging and educating consumers about the dangers of buying from the black market.

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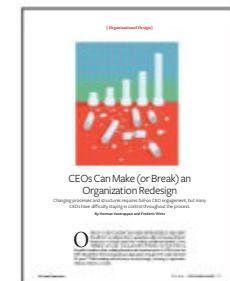
Harnessing Grassroots Automation

Ian Barkin and Thomas H. Davenport pp. 74-78

Key Insight: Teaching nontechnical employees how to automate mundane, repetitive, and time-consuming processes can result in more time for higher-value tasks.

Top Takeaways: Companies are increasingly embracing the idea of helping employees who have deep business-area expertise learn to directly automate their own work processes. With minimal training in low-code and no-code technologies, these employees are automating their most mundane and repetitive tasks. AT&T, Dentsu, Johnson & Johnson, PwC, Voya Financial, and Wesco have all taken steps into this movement, offering structured support, organization recognition, and financial rewards to “citizen automators.”

REPRINT 65124



CEOs Can Make (or Break) an Organization Redesign

Herman Vantrappen and Frederic Wirtz pp. 79-84

Key Insight: Full CEO engagement is needed when a company is going through change, but many CEOs have difficulty staying in control.

Top Takeaways: Continual organization redesign is a fact of corporate life. In most cases, there are good business reasons to consider a redesign, despite the significant extra time, resources, and emotional energy it tends to consume. During the process, the most effective CEOs have near-continuous engagement. Leaders who lose control tend to have one of four weaknesses: half-heartedness, overappeasement, indecisiveness, or incapacitation. The authors present a framework to help leaders first recognize and then overcome their vulnerabilities.

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— Deborah I. Gallagher

Ask Sanyin: Why Can't We Get Meetings Right?

As a senior leader in my company, I find meetings are crucial for keeping tabs on what's going on and making decisions. But we seem to accomplish little, people are frequently unprepared, and they gripe about the time cost. How can I shift people's attitudes and run more effective meetings?

WE'VE ALL BEEN THERE: WE SIT through an hour of conversation, and somehow, there's less clarity at the end of the meeting than there was at the beginning. We walk out, lamenting the wasted time and lack of progress.

In an era of hyperproductivity, an endless list of to-do items, and personal exhaustion, your team probably sees meetings as an obstacle to getting back to their work rather than something purposeful. Shifting that attitude toward one of enthusiastic engagement means rethinking what you're trying to accomplish with meetings. With the widespread move to remote work, opportunities to engage with our teams in real time have become rarer and more valuable. How can we use this time to deepen relationships? What if we make trust-building a key aim of every type of meeting?

The decision-making meeting is usually about a commitment to a course of action. Here, you can also discuss the emotional consequences of the decisions for your people and the best ways to communicate a change. A deep discussion of these questions provides insight into

others' values and approaches.

Brainstorming and problem-solving meetings benefit enormously from explicit consideration of trust-building. Everyone needs to feel comfortable sharing their ideas while resisting the urge to judge. Here, you want to encourage vulnerability, because when we say "I don't know," we acknowledge our limits and interdependencies within the greater team.

There's also an opportunity to transform the sometimes-routine information-sharing meeting into a richer venue for connection. Try setting the expectation that these are opportunities to learn more about one another's challenges and strategies, and encourage questions.



Sanyin Siang is a CEO coach and leads the Fuqua/Coach K Center on Leadership & Ethics (COLE) at Duke University. Need advice? Send an email to Sanyin at asksanyin@mit.edu.

These meetings also provide the opportunity to celebrate wins or invite help from another department. Use the time to help team members build connections with one another — a matrix — instead of hub-and-spoke connections with you at the center as the go-to problem solver.

Finally, try to include a time for collective reflection in a regular team meeting. Tarang Amin, CEO of e.l.f. Beauty, which posted 17 quarters of consecutive growth as of May 2023, begins every executive leadership team meeting with time for open sharing and reflection. "It's where execs can talk about what's going on in their personal lives, ... their state of mind, what are important initiatives, what are things they're hearing in the organization," he says.

Remember, it's typically not a lack of action items that hinders progress. It's more often misinterpretation of intent, misalignment of understanding, and the emotional toll of change that holds us back. And what solves those problems are trusting relationships that enable good communication. So instead of diving into the *what* of the next meeting you plan, begin with the *who* and the relationships among them. Your team just might rediscover the energy and joy that come with engaging with one another — and even begin to look forward to meetings. ■

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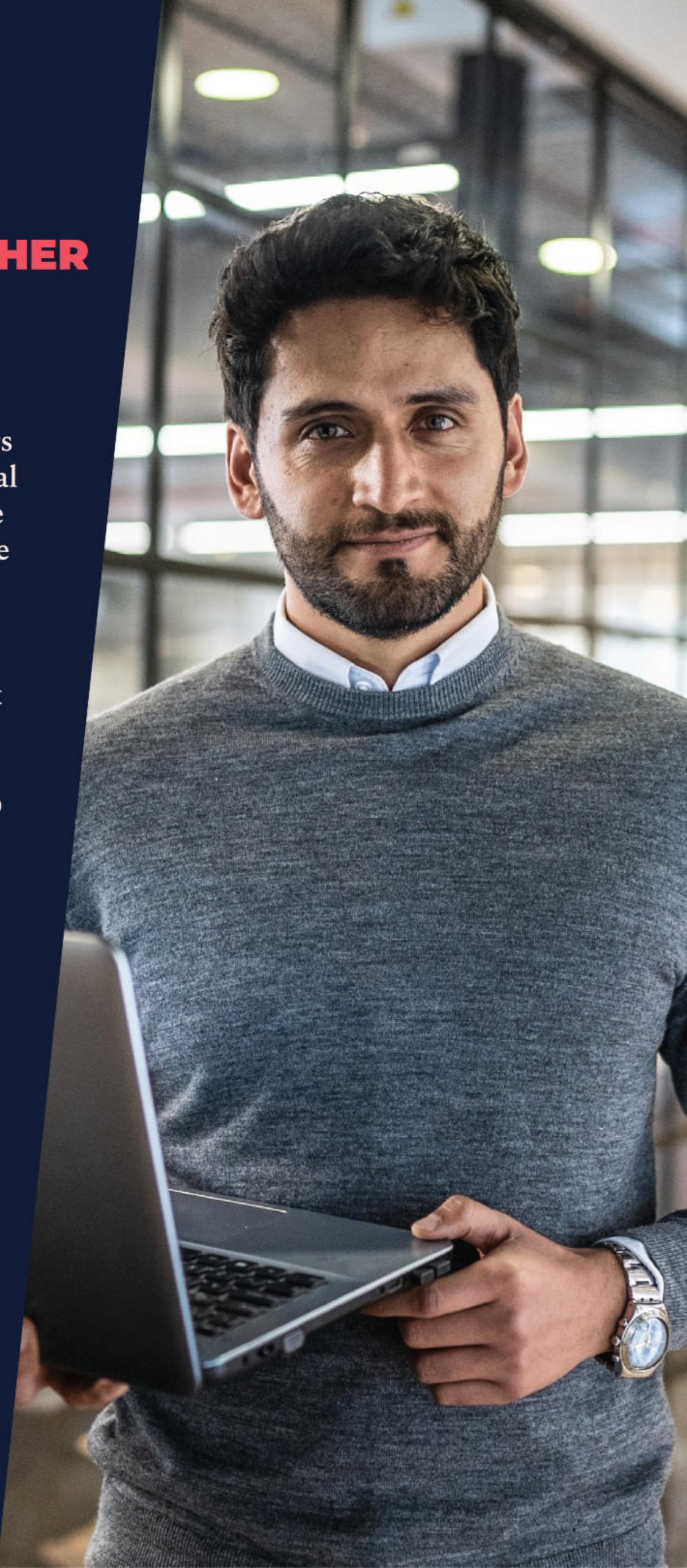
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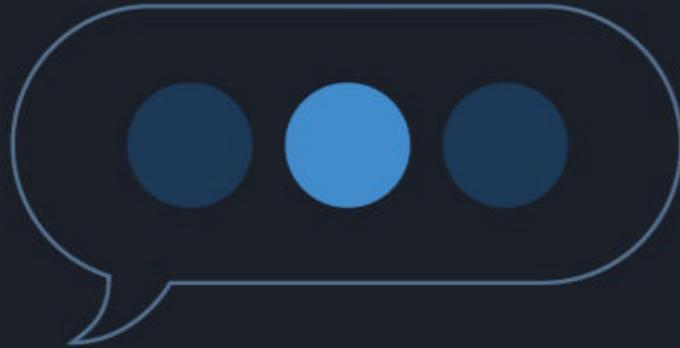
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