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Technology and the boardroom: A CIO's guide to engaging the board

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TECHNOLOGY IS A strategic imperative in nearly every organization, regardless of industry, sector, or geography. Few companies are immune to the influence of technology-driven disruption, innovation, or value creation. Business strategy is now largely technology strategy, and high-performing CIOs are both leading technology deployments and helping the business develop and implement technology-enabled business strategies. "There isn't a single strategy in any business that isn't enabled by technology," affirms Sheila Jordan, SVP and CIO of Symantec. "Technology is the common denominator in every single key strategic imperative in every company."[1]

Many board members agree. "As the pace of change quickens, technology now leads and influences business strategy in almost all companies and industries," says Scott Bonham, board director at Magna, Scotiabank, and Loblaw Companies Limited. "It is imperative for board members to understand these disruptive changes as they relate to technology, guide the organization to go beyond traditional IT conversations, and leverage technology to grow the business."[2]

Few companies are immune to the influence of technology-driven disruption, innovation, or value creation.

Yet CIOs—ostensibly the stewards of the organization's technology agenda—infrequently appear in the boardroom, and when they do, they often find it difficult to engage directors in a strategic dialogue. This *CIO Insider* aims to help CIOs be more effective in positioning technology on the board's agenda, providing education and awareness for the board, and communicating strategic concerns. Based on multiple interviews with both CIOs and board members, it presents CIOs with recommendations for engaging with the board on preserving and growing shareholder value.

Technology acumen in boards

A 2017 Deloitte study found that high-performing S&P 500 companies were more likely (31 percent) to have a tech-savvy board director than other companies (17 percent). The study also found that less than 10 percent of S&P 500 companies had a technology subcommittee and less than 5 percent had appointed a technologist to newly opened board seats.[3]

Over time, more boards are seeking to appoint directors with technology acumen—but open board seats are few and far between. There are many reasons for this, including board member age, tenure, and board refreshment. Among S&P 500 companies, the average age of an independent director is 63,[4] and 44 percent of boards with a mandatory retirement age have set that age at 75 or older.[5]

Historically, board interactions with technology topics often focused on operational performance or cyber risk. The Deloitte study found that 48 percent of board technology conversations centered on cyber risk and privacy topics, while less than a third (32 percent) were concerned with technology-enabled digital transformation.[6]

The power of ongoing conversation

Interactions between management and boards have historically been episodic, typically occurring only at quarterly board meetings. The rapidly changing technology and business landscape suggests perhaps that boards and technology leaders should stay connected and engaged outside of board meetings; yet, our interviews showed that when it comes to technology, many boards emphasize "protecting and preserving" at the expense of topics related to technology-enabled business growth and expansion, such as developing new capabilities, business models, and revenue streams.

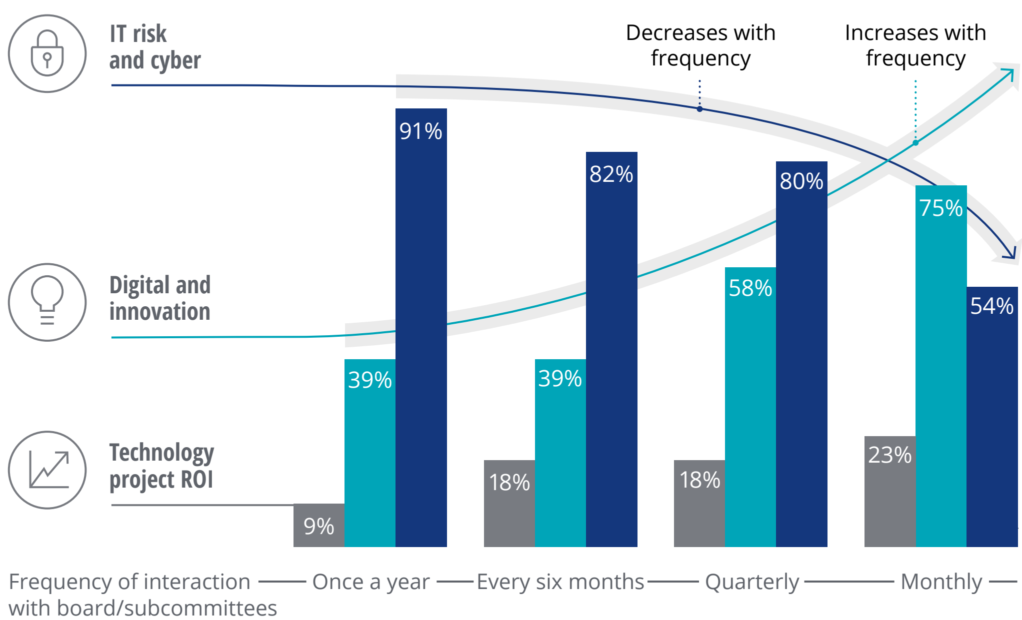
Deloitte's 2018 global CIO survey found that technology investments reflect this imbalance: In the average organization, only 18 percent of the technology budget is spent on developing new business capabilities; the remainder is spent on business operations and incremental business change.[7] "I don't want to dismiss cyber, because of course it's critical. But if you were to ask me what keeps me up at night it's not cyber—it's disruptive technologies," says Mike Toelle, Nationwide board director. "Any company in any industry could be made obsolete very quickly by a small group of people with a computer and a phone."[8]

CIOs can initiate an ongoing technology awareness effort that, over time, could help them make strides in communicating with and educating directors. Deloitte's global CIO survey found that an increase in interactions between CIOs and the board can lead to a more balanced mix of conversations about both risk and strategic opportunities[9] (see figure 1).

FIGURE 1

An increase in the frequency of interaction with the board and subcommittees often leads to more strategic technology discussions

What topics were discussed in your board meetings? How often do you interact with your organization's board or its subcommittees?



Note: CIO N=978 and 877 respectively.
Source: 2018 Deloitte global CIO survey.

Another important topic for board discussions is the allocation of technology investments. It can be tempting to continue investing in areas with a proven return; CIOs can help boards resist complacency by having an ongoing dialogue on the allocation of technology investments, the appropriate balance of investments in preserving and growing the business, and the value of sustained technology-enabled business innovation capability that can shape the organization's future.

Metrics presented in dashboard or scorecard format can be invaluable. To provide clear and consistent messaging and show progress in board conversations, David Markwell, SVP of information technology at Canadian food retailer Loblaw Companies Limited, says his team created a framework for a balanced scorecard across certain key indicators. "We aligned the scorecard with tolerance levels of enterprise risk, which align to the board's appetite for risk," he explains. "We include the scorecard in the pre-read, and in the meeting, we talk about anything that's out of tolerance around our risk indicators."[10]

Three avenues for having strategic technology conversations

Management teams can engage in ongoing strategic technology conversations via three primary avenues: tech-fluent board members, board subcommittees, and management-level technology committees.

Tech-fluent board members. Based on their experience, age, tenure, and other factors, directors typically have varying levels of tech fluency, defined as the ability to broadly understand and confidently discuss technology concepts.[11]

Like language fluency, the need for technology fluency will be different for each board member, depending on their roles. CIOs can aim to increase the overall tech fluency of all board members and build trusted relationships with key directors. They can also orchestrate training and awareness based on the different needs of board members by providing succinct, high-level educational materials about key strategic technology issues and their impact on the business and industry. In interviews, many directors said they do not know where to start and that it can be difficult to find educational resources when they need them (see sidebar, "Sparking ongoing conversations about tech trends").

Many directors rely on the judgment of their more tech-fluent colleagues who may serve as the board's resident technology experts. CIOs can cultivate these board members to be technology advocates. "CIOs need an advocate for technology sitting on the board who can continue to emphasize that technology strategy is not distinct from business strategy," notes Owen Williams, insurance CIO at Everest Reinsurance. "And directors need technology leaders to provide elevator pitches that very succinctly describe the value that technology investment will deliver to the business."[12]

Conventional wisdom would suggest that younger directors are more tech fluent. However, experience or age is not a proxy for being tech savvy, says Jessica Blume, board director at Centene Corporation and Publix Super Markets. "Many older board members bring relevant experiences in technology to the boardroom through past leadership roles as well as current board positions," she says. "They are eager to accelerate their understanding of new technology trends and apply insights based on past experiences to help CIOs navigate opportunities and risks."

Board committee or subcommittee. Boards tend to have a high level of awareness of cybersecurity and cyber risk issues specific to their companies: Cybersecurity is the top risk that boards focus on and the No. 1 topic of education for audit committees.[13] As a result, many companies delegate all or part of technology oversight to either the audit or risk committee. Some are forming technology committees or subcommittees, but this is still rare.[14] "Not every company needs to have a tech subcommittee," says Nationwide director Toelle. "But there does need to be some venue or mechanism within the board for a deeper conversation about technology."

SPARKING ONGOING CONVERSATIONS ABOUT TECH TRENDS

For the last decade, Deloitte's annual *Tech Trends* report[15] has identified the trends that are likely to disrupt businesses during the next 18–24 months (see figure 2). Using such research as a basis for discussing business implications can lead to robust conversations between boards and technology leaders.

CIOs can use interactions with directors to spark conversations on how technology trends can enhance business value and reduce costs, leading to a broader dialogue about how these emerging innovations are being used in different industries. CIOs can also raise directors' awareness of technology risks and challenges, help them assess their organizations' readiness for these technologies, and educate them on how to provide effective oversight of technology adoption.

For example, CIOs can leverage *Tech Trends* to help engage boards on how the convergence of new technologies and foundational technology forces are enabling organizations to drive disruption while maintaining operational integrity. The report can also help them make a case to the board for developing a systematic approach for identifying and harnessing digital transformation opportunities to replace the traditional model of anchoring digital transformation to a specific technology advancement.

FIGURE 2

How have technology trends evolved in the last 10 years?

Source: Deloitte, *Tech Trends 2019*.

Regardless of board structure, technology discussions should likely be a formal charter for one of the board's committees. It is important to have in-depth discussions on topics that have to do with protection and preservation of assets with one or more committees (such as the audit or risk committee) but consider lobbying for opportunity- and growth-related technology discussions to be held with the full board.

Vetting technology topics in committees can make presentations to the full board flow more smoothly. When members of the full board ask questions, committee members can give informed answers in alignment with the CIO and management.

Management-level technology committee. To help manage the supply and demand of IT resources, one CIO holds several review sessions with key members of the management team. A management-level technology committee can help business leaders align on strategy, priorities, and investments before interacting with the board or its subcommittees.

It is important that discussions in such management structures not become mired in operational details. Management-level technology committees should not stifle direct engagement between the board and technology leaders; rather, they should bridge any gaps between technology leadership and the board and help align technology and business strategy.

These three avenues are not mutually exclusive. Many companies employ all three to better engage the board on technology topics. These approaches do not lessen the need for independent advice. Because technology is changing so fast, many boards and management teams rely on periodic advice from independent advisors who can help boards assess technology-related factors that affect company performance and educate them on technology topics, strategies, and risks.

Balancing defense and offense

Interactions between management and boards can be categorized as either defensive—focused on protecting, preserving, and enhancing corporate assets—or offensive—focused on ways to increase shareholder value through business growth and expansion, such as developing new capabilities, business models, and revenue streams. However, interviews revealed that boardroom discussions often are not balanced across both safeguarding the company and using technology to achieve growth.

CIOs can support board oversight of technology issues and investments by balancing engagement across both the protection and growth aspects of technology.

"Boards expect CIOs to do more than provide operational excellence in managing risk and security," says Peggy Foran, chief governance officer, SVP, and corporate secretary of Prudential Financial Inc. "Boards tend to look at technology from the perspective of risks rather than opportunity, but they also expect CIOs to focus on innovation, products, solutions, and trends that transform businesses. If I were CIO, I would make it my mission to play not only defense but offense."[16]

CIOs can support board oversight of technology issues and investments by balancing engagement across both the protection and growth aspects of technology. To cover the broad scope of technology and board engagement, technology leaders and boards can interact across three major domains: **performance**, **risk**, and **strategy** (see figure 3).

FIGURE 3

The three dimensions of technology–board engagement

PERFORMANCE

Financial performance. Impact of technology investments on financial measures such as earnings per share, profitability, margins, revenue.

Business operations. The role of technology in transformation, automation, and enhancement of current business operations.

Talent. Attracting, curating, and engaging talent from inside and outside the organization to deliver tech-enabled business capabilities.

STRATEGY

Growth and innovation. Technology capabilities (digital) to deliver business growth.

Data and insights. Using data for better business decisions and ability to monetize it.

Customer experience. Enabling better customer experience and engagement.

Ecosystem engagement. Leveraging ecosystems to deliver higher business value.

RISK

Cyber risk. Clarity on risk appetite; protection and preservation of information assets; capability to respond to threats and incidents; and resilience.

Regulatory matters. Use of technology to stay ahead of regulations and compliance and implications of current and future regulations on data and information.

Industry disruption. Technologies, platforms, and strategies disrupting existing businesses and industries.

Source: Deloitte US CIO Program.

PERFORMANCE

Boards can benefit from understanding how technology can improve or detract from business performance. CIOs can help by gaining consensus and tracking and reporting key performance metrics. Key performance dimensions are:

- **Financial performance.** Many CIOs hesitate to link technology investments to financial performance metrics such as EBITDA (earnings before interest, tax, depreciation, and amortization); earnings per share; profitability; margins; and revenue. Articulating the positive impact of technology—even if it can't be quantitatively attributable—on financial performance can help the board view technology as more than an operational cost. More importantly, CIOs can help boards address how capital is allocated for technology. In the past, many companies spent most of their technology budgets on business operations.[17] Today, the tide is shifting: Some companies now invest more than a quarter of their IT budgets on business innovation and expect to make significant increases in the next few years.[18] With the average investment in technology reaching 3.5 percent of corporate revenues,[19] it helps for boards and technology leaders to be aligned on investment value and risks and invest across different horizons. Currently, 40 percent of technology leaders think that investments in emerging technologies will impact their business significantly in the next three years.[20] Do boards have visibility into these emerging technology investments? Are they helping technology leaders support and fund business transformations? Are they overseeing ROI and holding technology leaders accountable to investment value and returns?

- **Business operations.** Given that the cost of running day-to-day business operations is typically more than half (56 percent) of IT budgets,[21] improving the efficiency of business operations can result in savings that can be spent on innovation and business transformation. Transforming and automating existing business operations, replacing legacy systems, and replacing and augmenting current business capabilities with cloud services all contribute to business agility, efficiency, and scalability. Boards and CIOs should align on how these changes can create competitive advantage and deliver ongoing value, especially as automation evolves the workplace and workforce. CIOs can help by measuring, reporting, and discussing the value and impact of technology-driven business transformation.
- **Talent.** Nearly all directors we interviewed say their organizations are challenged to acquire the talent needed to support business mandates for innovation, growth, and business transformation. CIOs understand talent shortages all too well—in the global CIO survey, respondents cited talent issues such as hiring the right skills (60 percent), training (52 percent), and motivating employees (48 percent) among their top challenges.[22] As technology becomes more embedded in the business, other functions could begin to feel the effects of the technology talent crunch. Technology leaders and directors should align on talent strategy and discuss how such factors as diversity and culture impact hiring and retention and how technology can increase productivity and engagement for the workforce.

RISK

Boards should keep up to speed on how to manage multiple risks, including new disruptive technologies, cyber incidents, ecosystem partners in the extended business enterprise, brand or reputation risk, and unhealthy organizational cultures.[23] "Risk management conversations are sometimes happening in a fragmented way because various committees and subcommittees will tend to focus on specific pieces or risk and at different levels of detail or using different risk models," says Vivek Khindria, VP of cybersecurity and technology risk at Loblaw Companies. "Progressive boards will encourage and engage in holistic risk conversations that include risks, risk trends, risk appetites, and mitigation strategies with the full board."[24]

Key risk dimensions are:

- **Cyber risk.** The organization's ability to protect its data, intellectual property, and technology assets from cyberattacks protects the existing business environment. CIOs can help align board and management's respective risk appetites, establish risk thresholds, and develop guardrails that help prevent the organization from taking unnecessary risks. Without this agreement, technology leaders could make risk management decisions that are misaligned with the organization's cyber risk appetite. The board should also have the knowledge to evaluate the organization's ability to detect and respond to security incidents.
- **Regulatory matters.** Technology is both a means to enable compliance with business regulations generally and the subject of regulation itself. This means, for instance, that boards should be aware of and understand how technology can help drive the efficiency and effectiveness of meeting regulatory and compliance mandates and policies, as well as how specific data regulations could require additional investments and potentially change company priorities. This is especially critical for global and multinational operating entities, which may have varying requirements at the country, state, and local levels. For example, many organizations made a mad dash for the finish line in their attempt to meet the European Union's General Data Protection Rule. Board members and CIOs can discuss regulation's potential efficiencies, negative implications, opportunities for rationalization, and other business impacts.
- **Industry disruption.** Artificial intelligence (AI), blockchain, cloud, and other technologies can upend not only industries but also a

company's competitive position and business model. Boards can benefit when CIOs help them understand the risks and potential impact of technology-driven industry disruption. One director says, "As a board member, you're in a position where you are asking yourself the question, are we going to be disrupted or should we be disrupting someone else? And what new technology development is going to be driving it?"[25]

STRATEGY

Technology leaders can help board members guide business strategy by helping them understand technology's strategic potential. One board director told us that members are often invited to full board meetings one or two hours early to attend education sessions on strategic topics such as use models for emerging technologies. These sessions are sometimes conducted by in-house technology experts, but often the board brings in outside consultants to lead the discussions.

Key strategy dimensions are:

- **Growth and innovation.** Disruptive technology innovation—either within IT or through mergers and acquisitions (M&A)—can lead to growth, but CIOs may need to help boards cultivate a bolder mindset and an appetite for risk. Successful and ongoing innovation requires a systematic, industrialized process that allows IT teams to test, experiment, and demonstrate value. Boards should feel confident that the technology organization has the flexibility and agility to serve changing business needs and identify the integration risks and challenges of M&A targets.
- **Data and insights.** Cognitive technologies—machine learning, natural language engines, autonomics, and broader AI—are poised to reinvent the way businesses work through automation and better decision support. CIOs can help boards understand the organization's ability to collect, aggregate, and monetize data from customers, products, and services—and how to employ it for improved decision-making.
- **Customer experience.** Businesses will continue to be challenged to leverage technology to proactively anticipate and address customer needs and improve customer experience and satisfaction. Ensuring that the pace of technology change is aligned with customer readiness can be challenging. "It can be difficult to know when your customers are ready for new tech-driven capabilities to be integrated into the business model," says one board member. "The board has to engage with the CIO and figure out how to oversee that process."[26]
- **Ecosystem engagement.** Engaging with business ecosystems—dynamic and coevolving communities of diverse organizations that can create and capture value through both collaboration and competition—are critical for driving sustained profitability.[27] Technology helps ensure that business ecosystems serve markets in ways that can go beyond the abilities of a single organization, and technology-enabled platforms can increasingly provide efficient ways to connect customers with the products and services, cutting out the middleman. Boards and technology leaders should discuss and enable connections across traditional ecosystem partners, such as platform providers and suppliers—and nontraditional ecosystem partners,

Technology leaders can help board members guide business strategy by helping them understand technology's strategic potential.

including venture capital firms, startups, innovation hubs, and universities.

Key recommendations: Advice from the boardroom

Rapidly changing business and technology environments require boards and CIOs to evolve their engagement with each other. CIOs can support boards' oversight of technology issues and investments by engaging them in continuous dialogue about using technology to address the key board mandates of protecting the business and driving shareholder value.

Through "the art of ongoing engagement," CIOs can help boards elevate their technology expertise and partner with them to provide more informed oversight of technology-driven strategy and initiatives in areas related to performance, risk, and strategy. Here are some specific suggestions compiled from our interviews.

CIOs can support boards' oversight of technology issues and investments by engaging them in continuous dialogue.

- **Present a unified front.** It's important for management to present a unified front to the board in terms of technology messaging and content. A management-level technology committee can help align business leaders so that the board and its committees and subcommittees only review materials that have been vetted internally.
- **Metrics are good, discussions are better, and elevator pitches are a plus.** Include balanced scorecards and consistent operational metrics with established thresholds and risk markers in meeting pre-reads to allow for more discussion time. Some board members suggest creating a slide, handout, or chart to boil down a complex idea when discussing it. To help keep conversations at the highest level, consider developing elevator pitches for key issues. An elevator pitch can condense a large amount of technical information into a few succinct, salient points.
- **Boards cannot afford to be risk-averse, and neither can CIOs.** Many board members acknowledge that the rapidly changing technology and business landscape mean that every organization will need to make some calculated technology bets on the future. Avoiding large technology investments for the fear of failure can lead to obsolescence. CIOs can engage with the board to discuss potential large investments and their impact on the business.
- **Stay ahead of the talent game.** "A-players" will not work for "B-leaders." Many directors describe using detailed talent-related conversations with technology leaders as a barometer for leadership capabilities. A technology leader's ability—or inability—to attract top talent could be viewed as an indication of his or her leadership skills.
- **Seek the board's counsel on growth strategy.** Many board members are current or former high-level executives who are comfortable with strategy conversations and can provide valuable feedback and suggestions. Many have industry experience and a good understanding of the customer and can be the conduit to industry and ecosystem partners. When shaping the organization's technology-driven growth strategy, leverage their knowledge and experience. To give board members this opportunity, one CIO says he and his team schedule offensive and defensive technology discussions at different times and deliberately keep the two conversations separate.
- **Provide ongoing board development opportunities.** Many board members have access to basic training and awareness around

technology topics but lack an understanding of their practical application to the business and industry. Many appreciate the topical technology-related board development activities they get from management, especially in the context of an existing technology experiment. Also popular with directors is the three- to five-year outlook for technology trends and their business implications.

- **Communicate consistently and achieve balance between protection and growth.** Some directors complained about the ad hoc nature of the interactions with the technology leadership. Having a consistent presentation framework or scorecards and showing quarterly progress on agreed-upon key metrics can allow the board to quickly digest and react to technology topics and changes, especially during a jam-packed board meeting.
- **Build a narrative using the "zoom out, zoom in" approach.** This approach[28] challenges the conventional strategic planning horizon of one to five years and instead focuses on two very different horizons: 10 to 20 years (zoom out) and six to 12 months (zoom in). The zoom-out horizon focuses on powerful and predictable trends likely to affect the business and industry, allowing CIOs to engage board members on long-term opportunities and the future business trajectory. The zoom-in perspective focuses on two to three business initiatives that could drive significant short-term business impact. CIOs and boards can work together on an ongoing strategy for balancing the business objectives and resources across both dimensions.

In many companies, technology leaders and board members have rarely had ongoing conversations about key technology dimensions, metrics, or thresholds or discussed the target allocation of technology investments in defensive vs. offensive areas. The leaders we interviewed suggest it is time to start. A CIO's best ally in this effort can be an open mind and a willingness to be inclusive of all viewpoints. "CIOs can help by not being too protective and controlling of the technology domain, which could allow bias to taint or influence decision-making," says one board member. "It's better to think about tech in a more inclusive way. No one has a monopoly on good ideas, and board members have a lot of valuable expertise and insights they can bring to the mix."[29]

Endnotes

1. Phone interview with Sheila Jordan, conducted December 7, 2018.
2. Phone interview with Scott Bonham, conducted on January 18, 2019.
3. Khalid Kark, Jason Lewris, and Caroline Brown, *Bridging the boardroom's technology gap*, Deloitte Insights, June 29, 2017.
4. Spencer Stuart, *2018 United States Spencer Stuart Board Index*, p. 18, 2018.
5. Ibid., p. 4.
6. Kark, Lewris, and Brown, *Bridging the boardroom's technology gap*.
7. Bill Briggs et al., *Manifesting legacy: Looking beyond the digital era*, Deloitte Insights, August 8, 2018.
8. Phone interview with Michael Toelle, conducted on January 8, 2019.
9. Bill Briggs et al., *"We need to talk,"* Deloitte Insights, August 8, 2018.
10. Phone interview with David Markwell and Vivek Khindria, conducted on January 18, 2019.
11. Anthony Stephan, Martin Kamen, and Catherine Bannister, "Tech fluency: A foundation of future careers," *Deloitte Review* 21, July 31, 2017.
12. Phone interview with Owen Williams, conducted on December 20, 2018.
13. Deloitte, *2016 Board Practices Report*, 2017.
14. Kark, Lewris, and Brown, *Bridging the boardroom's technology gap*.
15. Deloitte Insights, *Tech Trends 2019*, January 16, 2019.
16. Briggs et al., *"We need to talk."*
17. Khalid Kark, Bill Briggs, and Mark White, *2015 global CIO survey*, Deloitte University Press, November 3, 2015.
18. Briggs et al., *Manifesting legacy*.
19. Unpublished data from Deloitte's 2018 global CIO survey.
20. Briggs et al., *Manifesting legacy*.
21. Ibid.
22. Ibid.
23. Deloitte, *2018 CEO and board risk management survey*, 2018.
24. Phone interview with David Markwell and Vivek Khindria, conducted on January 18, 2019.
25. Interview with anonymous board director, conducted on January 14, 2018.
26. Interview with anonymous board director, conducted on January 14, 2018.
27. Eamonn Kelly, *Introduction: Business ecosystems come of age*, Deloitte University Press, April 15, 2015.
28. John Hagel, "Crafting corporate narratives: Zoom out, zoom in," *Wall Street Journal*, November 6, 2017.
29. Interview with anonymous board director conducted on January 18, 2019..

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