2017 BDO TECHNOLOGY RISKFACTOR REPORT

Tech's Wild Ride: Can Emerging Risks Burst the Bubble?

Technology revolution and trade regulation. Innovation and immigration. Sky-high valuations and security concerns.

These are just a few of the forces shaping tech industry opportunities and risks in 2017. While the pace and promise of innovation has never been higher, so too is the level of uncertainty and concern around the new administration's impact on policies that have long been essential to U.S. tech industry advancement.

The ***2017 BDO Technology RiskFactor Report*** examines the risk factors listed in the most recent annual shareholder reports of the 100 largest publicly traded U.S. technology companies by revenue. The risk factors were analyzed and ranked in order of frequency cited.

"The speed at which the tech sector is disrupting entire industries and creating new business opportunities has never been greater, fueled by an optimistic investment environment and a constant appetite for innovation. Nevertheless, the regulatory uncertainties introduced by a new U.S. administration, in addition to other global changes, have led many tech companies to step back and reassess their risk mitigation strategy for this year."

Aftab Jamil, assurance partner and leader of BDO's Global Technology practice

Top 25 Risk Factors

for the 100 Largest U.S. Technology Companies

2017 RANK	RISK FACTOR CITED IN 10-K FILING	2017	2016	2015	2014	2013	2012
#1	Federal, state or local regulations	100%	100%	100%	98%	96%	98%
#1t	Breaches of technology security, privacy or theft	100%	100%	96%	91%	81%	71%
#1t	Competition in the tech industry, pricing pressures	100%	98%	100%	99%	95%	99%
#1t	U.S. general economic conditions	100%	95%	94%	95%	92%	98%
#5	Threats to international operations and sales	98%	96%	96%	89%	82%	85%
#6	Management of current and future M&A and divestitures	97%	98%	99%	94%	88%	88%
#7	U.S. and foreign supplier/vendor and distribution concerns	95%	92%	90%	93%	84%	88%
#7t	Legal proceedings, litigation	95%	89%	93%	91%	74%	83%
#7t	Failure to develop or market new products or services	95%	83%	89%	84%	75%	93%
#10	Corporate copyright, IP infringement, trademark violations	94%	89%	93%	88%	79%	80%
#11	Natural disasters, war, conflicts and terrorist attacks	93%	90%	86%	89%	75%	88%
#12	Ability to attract or retain key personnel	92%	91%	95%	81%	80%	82%
#12t	Predicting customer demand and interest, innovation	92%	90%	90%	92%	83%	91%
#12t	Failure to properly execute corporate strategy	92%	84%	95%	91%	87%	88%
#12t	Equipment failure and product liability	92%	81%	86%	82%	69%	80%
#16	Ability to maintain or implement operational infrastructure	88%	81%	87%	79%	71%	73%
#17	Accounting, internal controls and compliance standards	87%	83%	92%	79%	65%	69%
#18	Labor concerns	83%	75%	64%	83%	55%	56%
#19	Indebtedness	82%	75%	72%	74%	65%	50%
#20	Goodwill impairment	80%	73%	67%	57%	39%	31%
#21	Variable revenue and stock fluctuation	79%	76%	69%	70%	62%	76%
#21t	Inability to acquire capital, credit ratings	79%	69%	68%	74%	57%	69%
#23	Failure to comply with FCPA, anti-corruption and anti-bribery laws	74%	58%	58%	48%	29%	N/R
#24	Environmental, health and safety regulations and liability	70%	51%	56%	52%	46%	48%
#25	Introduction into developing and emerging markets and industries; product diversification	65%	50%	36%	47%	35%	41%

** t indicates a tie in the risk factor ranking*
*** N/R indicates not ranked*

SECURITY RISKS SHOW STAYING POWER

Cybersecurity has gone from a blip to a beacon. In 2009, just 30 percent of technology companies disclosed information security risks; now, for the second year running, all companies point to cyber concerns. Looking ahead, it's hard to imagine a reversal of this trend. Tech companies are prime targets for sophisticated attacks and ransomware, given their high value assets and IP, as well as network access to their clients' information systems. All it takes is one user to click on a bad link or fall for a phishing scheme for hackers to infiltrate even the most heavily guarded information. Tech companies need a holistic approach to cyber risk management from the boardroom to the break room.

100% of tech companies cite **cybersecurity and privacy breaches** as a risk

88% note concerns around their ability to maintain their **IT systems and infrastructure**

78% worry about compliance with **cybersecurity and data privacy regulations**

TECH COMPANIES RECOGNIZE NEW REGULATORY RISKS

While the new U.S. administration is eyeing a regulatory overhaul, a host of complex regulations and upcoming compliance deadlines are growing concerns in the tech industry. With the January 1, 2018 public company deadline for the new Financial Accounting Standards Board (FASB) standard on revenue recognition fast approaching, more tech companies are flagging implementation concerns, including change management, the impact on their balance sheets and stakeholder education. These results are consistent with the findings of BDO's Global Risk Landscape Study, which found that 35 percent of global executives identify regulatory risks as the top threat to overcome.

100% cite concerns over **federal, state and local regulations**

87% note **accounting, internal controls and compliance risks**, *up from 83% in 2016*

34% point to **revenue recognition**, *up from 14% in 2016*

INNOVATION DRIVES DEALS, BUT IS A BUBBLE LOOMING?

Industry innovation and growing markets like artificial intelligence (AI), the Internet of Things (IoT) and virtual reality (VR) are continuing to drive both strategic and financial investor interest in the technology industry. And they're willing to pay a premium: Two-thirds of tech CFOs accurately predicted valuations would rise this year in our Technology Outlook Survey. When it comes to key concerns around deals, balance sheets are currently healthy, but tech companies appear somewhat leery of an impending bubble as more cite access to capital and goodwill impairment as risks.

97% cite risks related to **mergers and acquisitions**

80% say **goodwill impairment** is a risk, *up from 73% in 2016*

79% point to **access to capital** as a concern, *up from 69% in 2016*

THE IP IMPERATIVE

With innovation critical to survival in the hyper-competitive tech industry, the number of tech companies citing IP protection as a top risk is at its highest level in our study's history. Tech companies are investing in increased security protections and willing to fight costly legal battles to protect patents and proprietary technology, which can make or break a brand in today's market. We expect the focus on product development and protection will only increase in the coming years.

94% cite risks related to **intellectual property protection**, *up from 89% in 2016*

95% point to **legal concerns**, *up from 89% in 2016*

SPOTLIGHT

Tax, Trump & Tech: Navigating Tax Liabilities Ahead

Where regulations are concerned, tax reigns supreme this year on tech companies' list of risks. Nearly all (97 percent) cite exposure to additional tax liabilities as a risk in their 10-K filings, which may result from changing state and local, national and/or global tax laws.

The other top tax issues cited include differing tax laws in domestic and foreign jurisdictions, potential U.S. tax reform, state and local tax issues, and specific global tax frameworks and regulations, among others.

This is consistent with findings from this year's **Technology Outlook Survey**, in which one-fourth of the tech CFOs (25 percent) cited tax changes as the biggest challenge to their organizations in 2017. It also echoes the substantial amount of political rhetoric around tax reform in both the U.S. and abroad in recent months.

FLUSTERED OVER FOREIGN TAXES

The international nature of tech supply chains and markets have led many tech companies to operate in multiple countries and jurisdictions. While this opens the door to new market opportunities, it also means having to comply with a wide range of foreign regulations and guidelines, including tax policies of varying complexity.

As a result, 69 percent of companies cite compliance with differing tax laws in domestic and foreign jurisdictions as a major risk. These laws often introduce additional compliance costs, as companies prepare for regular audits under foreign tax authorities. Depending on the jurisdiction, economic and political pressures to increase tax revenue may also make favorably resolving tax disputes more difficult.

Tax liabilities introduced by global frameworks are also high on the risk list, with one-fourth (25 percent) of companies citing risks related to the Organisation for Economic Co-operation and Development (OECD)'s base erosion and profit shifting (BEPS) rules specifically. Published in July 2013 and sponsored by the G20 countries, the **OECD's Action Plan on BEPS** seeks to address perceived flaws in international tax rules, including combating tax avoidance strategies often used by companies to artificially shift profits to low- or no-tax locations.

Since the survey, there have been new developments related to BEPS that may affect tax liabilities for U.S. multinationals. On June 7, the U.S. abstained from joining the

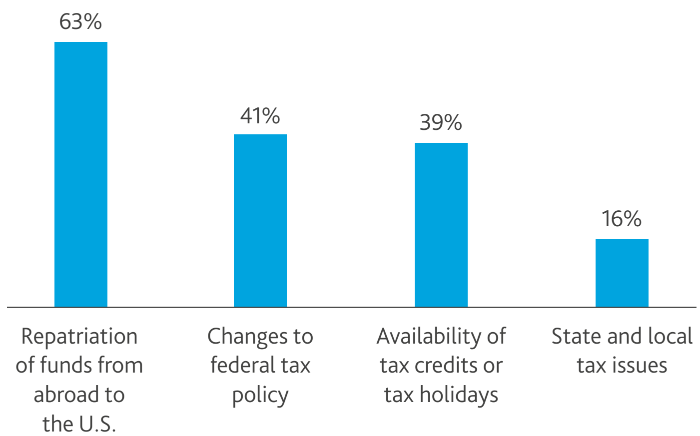
68 countries and jurisdictions that signed the Multilateral Convention to Implement Tax Treaty Related Measures, a multilateral instrument that allows nations to quickly adopt recommendations from the BEPS treaty initiatives.

One of the main reasons for this decision, explained in *Bloomberg* by Henry Louie, deputy international tax counsel at the U.S. Department of Treasury, is that the bulk of the provisions under the current U.S. tax treaty policy is already consistent with the instrument—making signing the treaty less urgent for the U.S. than for other nations. Another factor was the omission of a "robust" limitation-on-benefits provision in the treaty. Nevertheless, U.S. tech multinationals may still be affected by the changes implemented by the other signatories.

worry about **differing tax laws in domestic and foreign jurisdictions**

mention **BEPS** in their 10-Ks

TOP U.S. TAX ISSUES



THE WAITING GAME: WORRIES OVER U.S. TAX REFORM

Prolonged tax talk, both during the 2016 general election and after, led 41 percent of companies to express concerns over potential changes to federal tax policy. Among the tax-related items cited include the repatriation of funds from abroad to the U.S. (63 percent), the availability of tax credits or tax holidays (39 percent), and state and local tax issues (16 percent). According to this year's **Technology Outlook Survey,** 53 percent of tech CFOs worry the most about corporate tax rates as part of tax reform.

Whether these worries come to fruition is another story, with the future of tax reform—currently hinging on President Trump's framework released in April—very much in the air. Should the proposal pass, the changes would include a reduction of the corporate tax rate from 35 percent to 15 percent for businesses; a shift from a worldwide tax system to a territorial tax system, which would tax U.S. businesses only on what they earn within the U.S. rather than on profits earned around the world; and a one-time tax holiday (rate unspecified) on overseas profits.

While these changes would affect all businesses, tech companies, with their global supply chains, will be especially sensitive to the effects. A shift to a territorial tax system, for example, could greatly benefit U.S. multinationals that produce profits overseas. On a similar note, a one-time tax holiday could also benefit companies that keep millions of dollars in cash overseas. According to the *Financial Times*, Apple, Microsoft, Cisco Systems, Oracle and Alphabet alone have added $314 billion to their offshore cash holdings in the past five years, bringing the total to $512 billion. A tax repatriation holiday would enable these companies to bring back billions of dollars to the U.S. and save a substantial amount in taxes.

Nevertheless, if and when these tax changes will be translated into policy is still to be determined, as the proposal continues to undergo debate in Congress. The implications of these changes for each company will vary depending on where its global supply chain and customers are based.

"U.S. tax reform—including potential changes to the current corporate tax rate and available tax credits, the introduction of a tax holiday and more—has major implications for tech companies. As the industry waits to see whether these policies will come to light, it is important for companies to identify possible risks that may emerge and anticipate a potential action plan for each."

David Yasukochi, Tax Office managing partner and partner in BDO's Technology practice

SPOTLIGHT

What Status Quo? Tech's Global Risks Reach an All-Time High

The new administration's policies are also having a significant impact on the risk outlook in global industries. As the international political system hangs in the balance—and waves of protectionism threaten to upend the status quo—tech companies' 10-Ks reveal an industry increasingly concerned with international operational risks. This year, almost all (98 percent) cite threats to international operations and sales, including those stemming from business, political, tax, currency and protectionist variables.

BREXIT AND CHINA PROVIDE NEW WORRIES FOR TECH

Among specific threats to international operations and sales, this ***BDO Technology RiskFactor Report*** tracked the following for the first time: trade restrictions, currency risk and specific concerns around Brexit.

The report also tracked specific mentions of competition from China for the first time, with 10 percent of companies mentioning the country's rapid economic ascension as a risk for business. After a record year for the U.S. solar industry amid already steep competition from China, the industry could face heightened competition stemming from the Trump administration's withdrawal from the historic Paris Agreement.

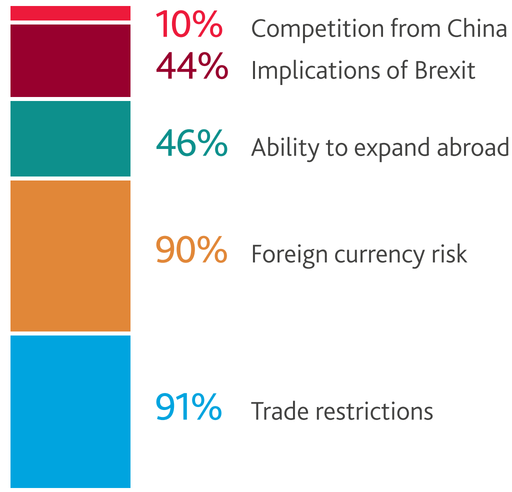
PROTECTIONIST WAVES CRASH INTO THE INDUSTRY

After the United Kingdom's vote to leave the European Union and President Trump's 2016 presidential victory, tech has reason to be weary of a domino populist effect. In fact, 44 percent of tech companies mentioned Brexit specifically as a risk to business this year.

Mirroring this trend, more tech companies than ever before cited the ability to expand abroad as a risk. Nearly half (46 percent) mentioned it in their 10-K filings, compared to 34 percent in 2016, 17 percent in 2015 and 7 percent in 2008.

France eased worries that the protectionist effect would spread across continental Europe in May 2017 when it voted against its far-right leader, Marine Le Pen, in the presidential election. And Germany's Angela Merkel, Europe's leader and a staunch advocate for continued integration and globalization within the 28-member bloc, passed her initial test in May 2017 when her party held strong in a key state election.

TOP INTERNATIONAL CONCERNS



The surprise results of the June 2017 snap election in the U.K., meanwhile, left the future of Brexit negotiations even more uncertain. Voters failed to give the Conservative Party of Prime Minister Theresa May, who promised to negotiate a "hard Brexit" with Brussels, an official Parliament majority. Instead, they gave the Labor Party of Jeremy Corbyn, who is in favor of Brexit but on different terms, the most seats it has had since 2005.

With the German national elections just months away, much is still undecided. But an increase in protectionist trade policies throughout Europe could hinder U.S. tech companies' ability to conduct operations there.

Economists have echoed these concerns, with a majority saying global growth remains under threat from trade protectionism, in *Reuters'* most recent **global economy poll**.

"Because U.S. technology companies depend on foreign markets more than those in other industries, it's no surprise that most companies are worried about risks to their international operations. But with the potential for increased trade barriers on the horizon—especially in the context of how Brexit is negotiated—a continued bullish U.S. dollar and growing competition from China could prove challenging to the U.S. tech industry."

Aftab Jamil, assurance partner and leader of BDO's Global Technology practice

"In 2016, FCPA enforcement resolutions reached nearly $2.5 billion—the highest of all time—with two cases involving technology companies and their activities in China. Now, as the industry faces new obstacles to expansion abroad, especially in its more traditional European markets, pressures to relocate to emerging markets could bring new FCPA-related risks."

Nina Gross, leader of BDO's Washington, D.C. Global Forensics practice

FCPA AND DATA PRIVACY REGULATIONS ON THE MIND

As far as international regulatory concerns go, tech has two growing concerns: evolving cyber and data privacy regulations, and the continued enforcement of the Foreign Corrupt Practices Act (FCPA).

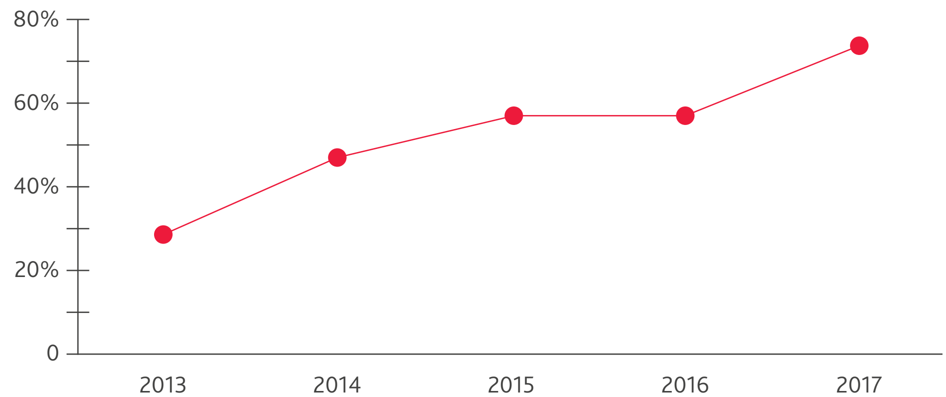
GDPR: Coming May 2018

Less than a year before the European Union (EU)'s Global Data Protection Regulation (GDPR) takes effect, 78 percent of tech companies cite cyber and data privacy regulations as a risk to business. Nineteen percent mention the GDPR specifically, and 15 percent mention the EU-U.S. Privacy Shield by name.

The terms of the Privacy Shield, which provides a legal framework for the transfer of personal data between the EU and the U.S., are based on the 1995 Data Protection Directive. Once enacted in May 2018, the **GDPR** will require stricter data privacy controls from U.S. organizations that handle or process the personal data of EU citizens. In this year's **Technology Outlook Survey**, 44 percent of tech CFOs said data privacy laws were their most serious compliance concern this year.

Making matters more complicated, U.S. organizations may have to comply with separate data protection regulations specific to the U.K. once Brexit becomes official, depending on the terms of the divorce.

FCPA RISKS REACH ALL-TIME HIGH



Anti-corruption Concerns Reach an All-Time High

Despite initial questions around whether enforcement of the FCPA would change under the Trump administration, it appears to be business as usual for now.

The U.S. Department of Justice extended its FCPA guidance, known as the **Pilot Program**, for another year from March 10, 2017. Under the Pilot Program, whose launch corresponded with bolstered resources to prosecute and investigate FCPA cases, enforcement actions have increased.

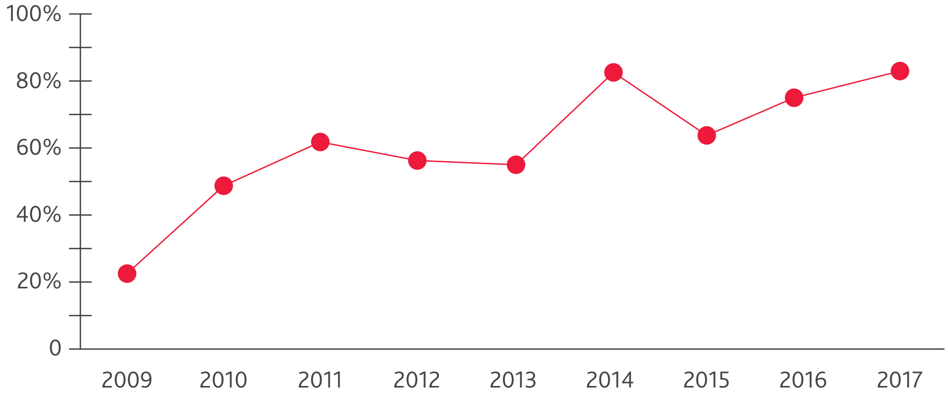
Technology companies' financial filings reflect this as concerns around complying with FCPA and other anti-corruption laws reach an all-time high in 2017.

CUTS TO H-1B PROGRAM COMPOUND LABOR CONCERNS

In this year's **Technology Outlook Survey**, tech CFOs said political uncertainty would have the greatest impact on the U.S. tech IPO market. The concern reflected uneasiness around potential policy decisions—like scaling back the H-1B visa program—and President Trump's public censure of companies that offshore jobs.

Tech companies' 10-Ks mirror these findings, with concerns around labor, including employee retention, immigration and outsourcing, spiking back to an all-time high and underscoring the talent pressure facing the industry. In fact, 83 percent of companies cite labor concerns as a risk, underlining the difficulties the industry would face if some of Trump's immigration proposals came to fruition.

RISING LABOR CONCERNS



Because the tech industry is highly dependent on skilled workers, any barrier to entry is significant. Tech giants such as Google, Apple, Microsoft and Amazon have been among the top recipients of H-1B visas in past years, and a **Goldman Sachs report** revealed that H-1B visa holders comprise about 12 to 13 percent of tech-related jobs.

SPOTLIGHT

Tech Manages Innovation Burnout

In an industry with powerful behemoths and nimble startups all vying for market share, differentiation in the marketplace is a challenge.

The constant pursuit of innovation is tech's holy grail, as the race for the next best thing never abates—and often, success boils down to who can bring innovation to market fastest. Thus, many tech companies are feeling the pressure when it comes to competition and innovation. Can even the biggest companies hang onto their startup mentality as they grow up?

PRODUCT CHALLENGES INTENSIFY

Perhaps unsurprisingly, all U.S. tech companies cite competition as a major challenge this year as emerging technologies open up the playing field for more tech players and market saturation threatens the reign of even the first and the brightest. To remain ahead of the competition, tech companies need to continue coming up with innovative ways to develop and market solutions to their target audiences—starting with diversifying their product offerings.

As a result, 95 percent of companies cite issues with new product management and development this year, a jump from last year's 83 percent. Sixty-five percent of companies list concerns associated with entering emerging markets and product diversification, marking an increase from 50 percent last year.

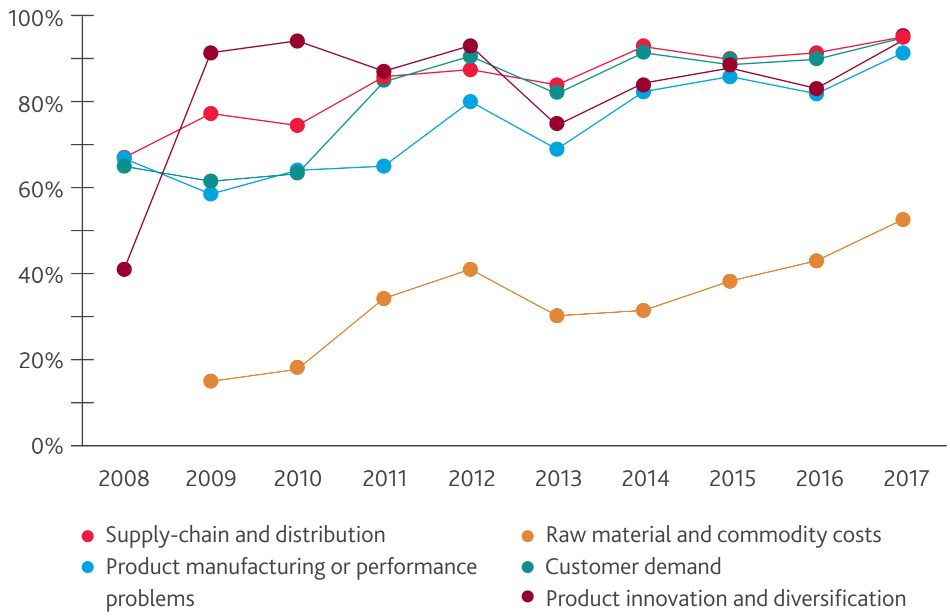
TOP INNOVATION CONCERNS

100%
Industry competition

95%
Product development issues

92%
Increase or decrease in **customer demand**

KEY PRODUCTION RISKS



AUTOMATION NATION

For the first time, the report tracked specific concerns around emerging technologies. Top of mind are challenges related to automation, with tech companies concerned about competing with companies with greater automation capabilities, integrating products into increasingly automated systems and the high cost of automation R&D.

Despite development strains, automation and AI show incredible promise. Analysts see such **great potential** in AI because of its versatility—it can be applied to hardware development, software development, big data solutions and cybersecurity. *MarketsandMarkets* predicts the global AI market will be worth $16.06 billion by 2022, growing at a combined annual growth rate (CAGR) of 62.9 percent from 2016 to 2022.

Nonetheless, while AI introduces ample opportunities, it poses a major threat as well: the replacement of jobs by automation. While robots have enabled goods and services to be produced at several times the speed of those produced by humans, they have already replaced—and are continuing to replace—millions of jobs in major industries, including manufacturing, trucking, consumer business and more. The White House, in a December 2016 report, estimated that between 2.2 to 3.1 million trucking jobs in the U.S. today are threatened by self-driving vehicles.

THE TECH TALENT SEARCH

To create competitive products, there needs to be a strong corporate culture—a fact that many tech companies understand. Tech companies would be nothing without their talent, which helps explain why 92 percent of technology companies cite issues with maintaining their workforce.

To start, many tech companies report that finding applicants with the right set of skills is a huge hiring hurdle. Code.org **estimates** that there will be one million more computing jobs than applicants who can fill them by the year 2020, based on job creation data from the U.S. Bureau of Labor Statistics and estimated college graduation rates from the National Science Foundation.

18%

of companies worry about risks associated with **automation**.

After successfully recruiting skilled workers, keeping them is another issue. Startups and mature tech companies alike need to excel at both technology and people. To retain their employees, tech companies often turn to additional competitive benefits, ranging from pension plans to equity awards programs. While having a happy workforce is only one piece of the puzzle, it is undoubtedly an important factor that can keep companies competitive and innovative.

TOP LABOR CONCERNS

"Automation has already started revolutionizing the way manufacturing and companies in other industries have been doing business for decades. As 'smart' factories become the norm and traditional services are increasingly run by robots and AI software, companies will need to prepare themselves for the risks involved—including cybersecurity threats, operational liabilities and new regulatory requirements."

Eskander Yavar, national leader of BDO's Management Advisory Services

Looking Ahead

For technology companies, the year ahead is an exciting one. Advancements in emerging technologies bring disruption to traditional industries and new market opportunities to tech companies. Tech investors remain optimistic, and tech valuations continue to soar.

Nevertheless, every golden age has its difficulties, and the tech industry is not immune to its challenges. From geopolitical uncertainties to fierce sector competition, tech companies will need to stay abreast of national and global developments to successfully navigate the risks ahead.

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ABOUT THE TECHNOLOGY PRACTICE AT BDO USA, LLP

BDO has been a valued business advisor to technology companies for over 100 years. The firm works with a wide variety of technology and life sciences clients, ranging from multinational Fortune 500 corporations to more entrepreneurial businesses, on myriad accounting, tax and other financial issues.

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