

The background of the cover features a vibrant, multi-colored dot matrix pattern. The dots are arranged in a grid that appears to curve and recede into the distance, creating a sense of depth. The colors transition from bright yellow and green on the left side to deep blue and purple on the right side. The overall effect is reminiscent of a digital or data visualization.

SpencerStuart

2020 U.S. Technology  
Spencer Stuart  
Board Index

## ABOUT SPENCER STUART BOARD SERVICES

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At Spencer Stuart, we know how much leadership matters. We are trusted by organizations around the world to help them make the senior-level leadership decisions that have a lasting impact on their enterprises. Through our executive search, board and leadership advisory services, we help build and enhance high-performing teams for select clients ranging from major multinationals to emerging companies to nonprofit institutions.

Privately held since 1956, we focus on delivering knowledge, insight and results through the collaborative efforts of a team of experts — now spanning more than 70 offices, over 30 countries and more than 50 practice specialties. Boards and leaders consistently turn to Spencer Stuart to help address their evolving leadership needs in areas such as senior-level executive search, board recruitment, board effectiveness, succession planning, in-depth senior management assessment, employee engagement and many other facets of organizational effectiveness.

For more than 30 years, our Board Practice has helped boards around the world identify and recruit independent directors and provided advice to board chairs, CEOs and nominating committees on important governance issues. We serve a range of organizations across geographies and scale, from leading multinationals to smaller organizations. In the past year alone, we conducted more than 1,100 director searches worldwide, and in North America almost two-thirds of those assignments were for companies with revenues under \$1 billion.

Our global team of board experts works together to ensure that our clients have unrivaled access to the best existing and potential director talent, and regularly assists boards in increasing the diversity of their composition. We have helped place women in more than 2,600 board director roles and recruited more than 900 minority executives around the world.

In addition to our work with clients, Spencer Stuart has long played an active role in corporate governance by exploring — both on our own and with other prestigious institutions — key concerns of boards and innovative solutions to the challenges facing them. Publishing the *U.S. Spencer Stuart Board Index (SSBI)*, now in its 35<sup>th</sup> edition, is just one of our many ongoing efforts. Each year, we sponsor and participate in several acclaimed director education programs, including:

- » Next-Gen Board Leaders (NGBL), an initiative designed to foster a community of current and aspiring directors to spark discussion around the challenges, opportunities and contributions of a younger generation in today's boardrooms
- » The Global Institutes, sponsored by the WomenCorporateDirectors (WCD) Foundation
- » The Corporate Governance Conference at Northwestern University's Kellogg School of Management
- » The New Directors Program, a unique two-year development program designed to provide first-time, non-executive directors with an exclusive forum for peer dialogue on key issues and "unwritten rules" of corporate boards, produced in partnership with the Boston Consulting Group, Frederic W. Cook & Co., Davis Polk, Lazard and PricewaterhouseCoopers

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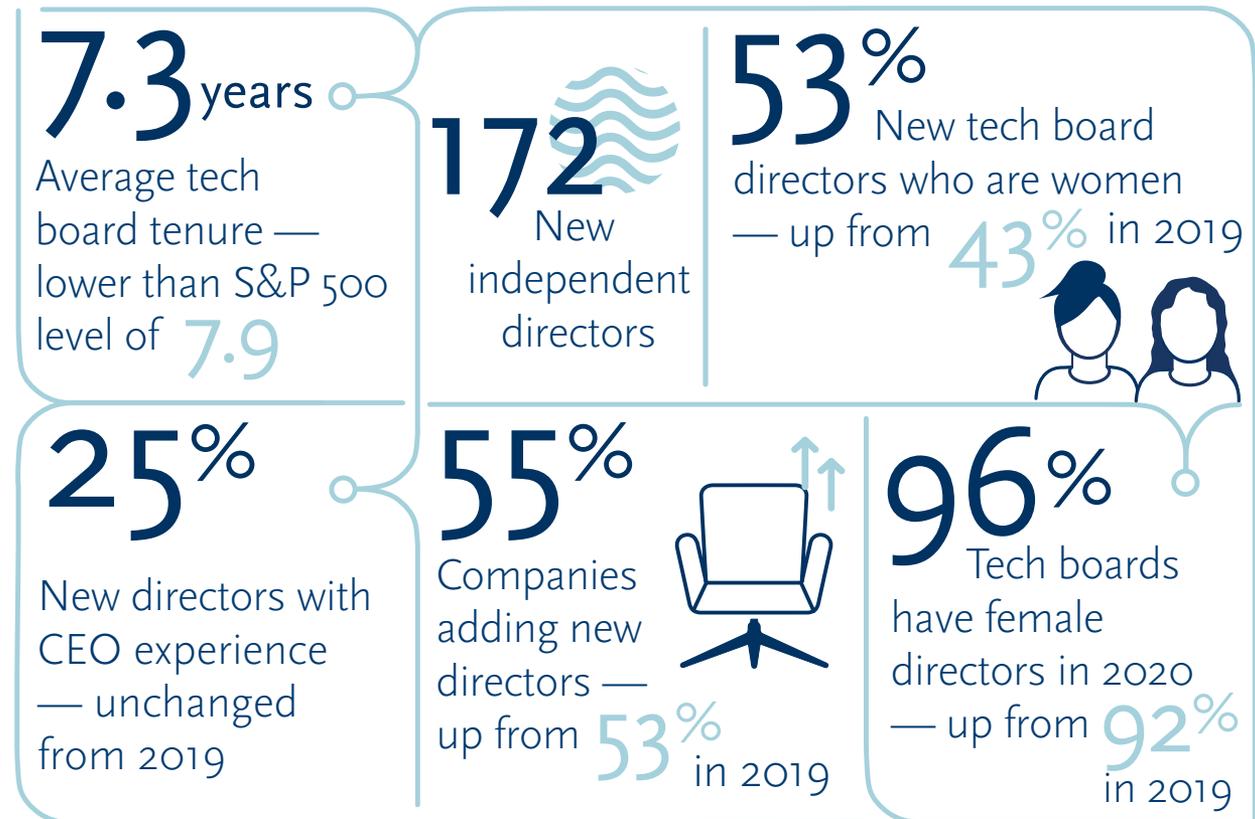
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# Introduction

## 2020 SNAPSHOT



Corporate boards are facing more scrutiny related to diversity — from regulators, legislators and investors — and this is certainly the case in the U.S. technology industry. A California law that requires publicly held companies headquartered there to have two to three female directors by the end of 2021 has already had an impact on tech boards’ gender diversity. And a proposed rule from NASDAQ, if approved by the U.S. Securities and Exchange Commission, could drive even more change: It would require all companies listed on its main exchange to have at least one woman and one “diverse” board director within four years. Less than a quarter of its 3,249 listed companies currently meet this proposed requirement.

The 2020 *U.S. Technology Spencer Stuart Board Index* finds continued steady progress on gender diversity at the 200 largest technology companies (Tech 200), with women comprising 24% of all independent board directors, a 7-percentage point increase from just three years earlier. All but nine of the boards in the index have at least one female director; of the 172 new outside directors tapped for Tech 200 boards in 2020, 91 (53%) are women.

On the other hand, racial and ethnic diversity among Tech 200 boards remains stubbornly low. Only 3% of all directors are Black/African American, and 1.5% are Hispanic/Latinx; by comparison, 10.3% of directors at the 200 largest companies in the S&P 500 are Black/African American, and 4.4% are Hispanic/Latinx. Meanwhile, among new tech board directors in 2020, only five are Black/African American and five are Hispanic/Latinx.<sup>1</sup>

## The number of new directors increases again

In 2020, 172 new independent directors were added, up from 166 in 2019 and 121 in 2017. Of the top 200 technology companies, 110 added a new director in 2020, and 73 of them added a new female director, up from 105 companies adding a director and 66 adding a new female in 2019. However, the total number of independent directors increased by only seven in 2020, and the average board size shrank by a tenth of a percentage point. Coupled with a slight drop in the average tenure of independent board members (7.3 years in 2020 vs. 7.7 years in 2019), it appears that many of these directors may have been filling vacancies rather than additions to the board.

These are just some of the trends in board composition, governance practices and director compensation the 2020 *U.S. Technology Spencer Stuart Board Index* examines for the 200 largest publicly traded technology companies in the United States based on revenue. Based on 2019 revenues, the companies in this index range in size from \$224 million to \$280 billion, and they represent a broad swath of technology companies, including hardware and communications equipment manufacturing, semiconductors and software.

## Editor's note

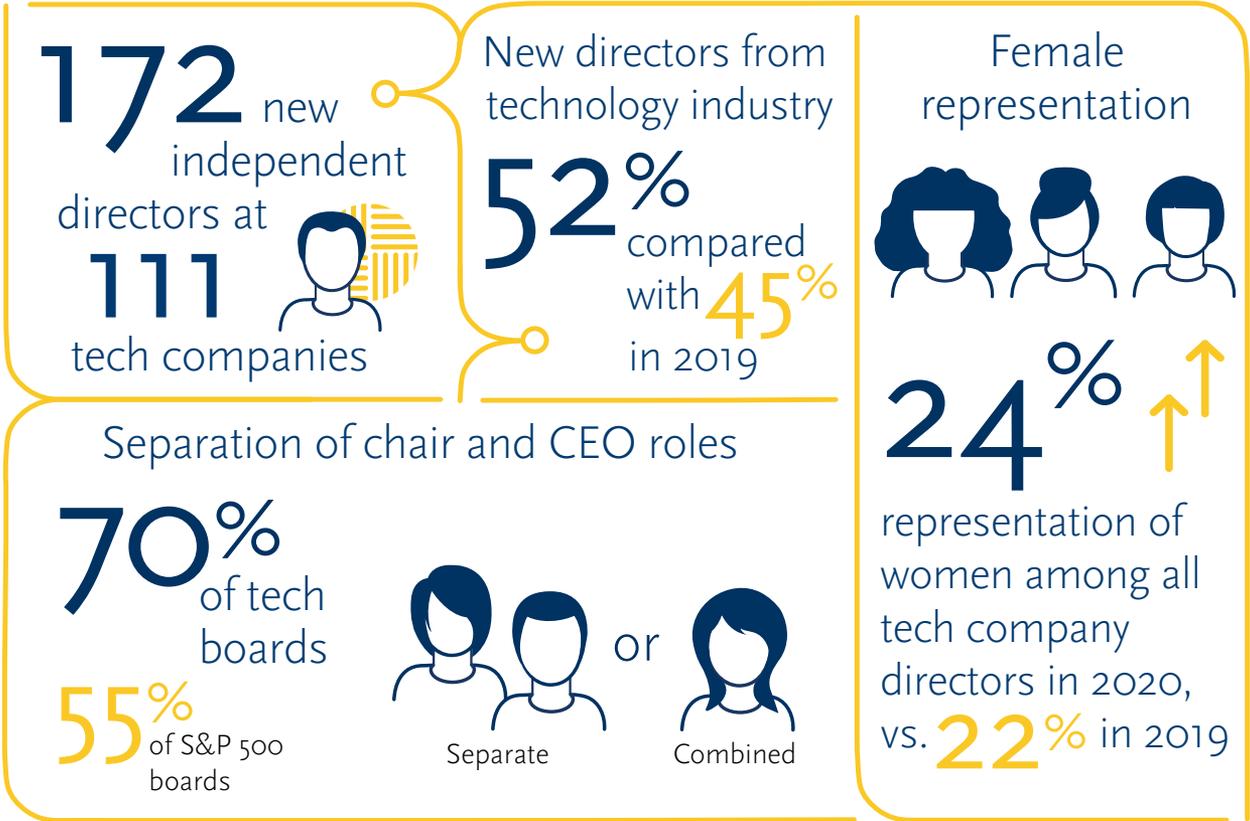
The index examines 200 public technology companies in the United States, sorted into four groups based on revenue. The companies included in the index were publicly traded on one of the major stock exchanges (NYSE or NASDAQ). All data were culled from each company's DEF14A proxy statement most recently filed with the U.S. Securities and Exchange Commission between July 1, 2019, and June 30, 2020, except where noted.

Data in tables and charts may not total 100% due to rounding.

<sup>1</sup> Minority representation on boards is determined using concrete, trusted and validated sources, such as board proxies and public articles where board members have self-identified. Visual identification is not used in any way to determine race or ethnicity.

# Board Composition

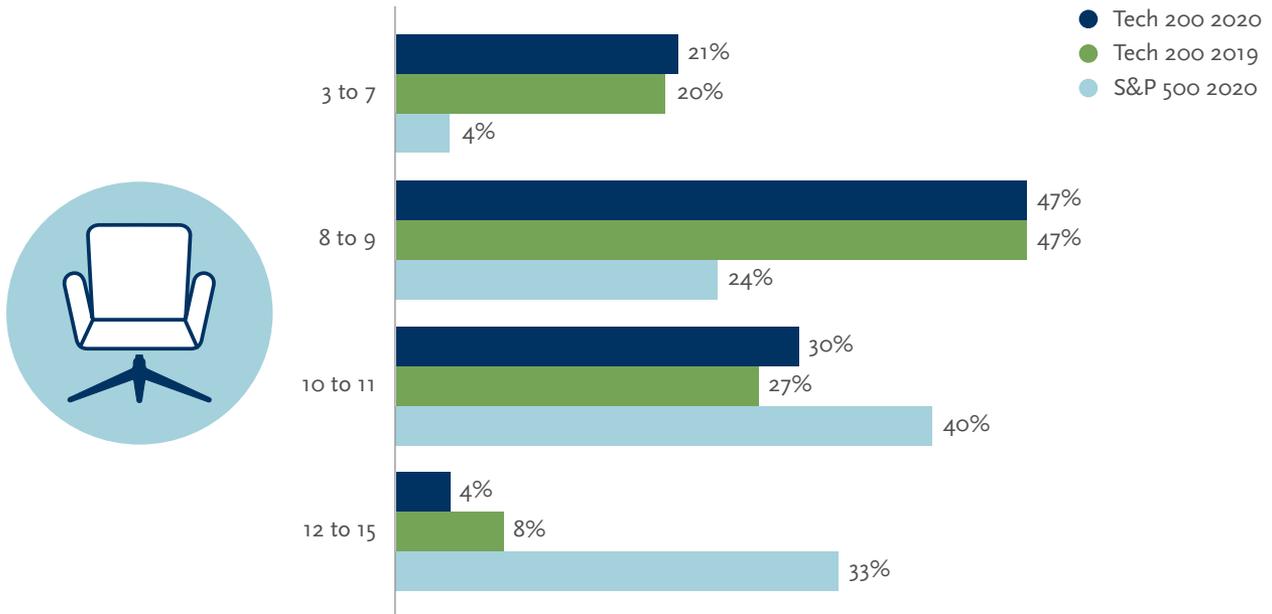
## 2020 SNAPSHOT



### Tech boards average 8.9 members

- » The average technology company board has 8.9 members, down slightly from nine in 2019 and below the S&P average of 10.7. Sixty-three (63) tech boards expanded in size in 2019.
- » The top 200 companies have 1,772 directors in all, a 1% decrease from 1,790 in 2019. The number of inside directors dipped to 297 (from 323), but with 172 new outside directors being added in 2020 and the average board tenure dropping by almost half a year (from 7.7 in 2019 to 7.3 in 2020), many of these new directors appear to be replacing departed board members.
- » More than two-thirds (68%) of tech boards have nine or fewer members this year, compared with just 25% of S&P 500 companies.
- » The highest percentage (24%) of tech boards have nine members, and 23% have eight members.

### Tech 200 Board Size Distribution



### Female representation on tech boards continues to rise

- » Ninety-six percent (96%) of the technology companies in our index have at least one woman on the board, up from 92% in 2019 and 72% in 2014. Representation remains behind the S&P 500 average, where every company has at least one woman on the board.
- » All of the companies with revenue of more than \$5 billion have at least one female director, as do 98% of those with \$1 billion to \$5 billion in revenues (up from 93% in 2019). Ninety percent (90%) of those with \$500 million to \$1 billion in revenue (compared with 83% in 2019), and 88% of companies with less than \$500 million in revenue (compared with 87% in 2019), have at least one female director.
- » Women represent 24% of directors on technology company boards this year, continuing a steady increase from 22% in 2019, 18% in 2018 and 17% in 2017. Women represent 28% of S&P 500 directors.

### Boards with Female Directors



	Technology 200			
	>\$5B	\$1B to \$5B	\$500M to \$1B	< \$500M
2020	100%	98%	90%	88%
2019	100%	93%	82%	87%

### Another rise in new independent directors

- » Technology company boards added 172 new directors in the 2020 proxy year, after adding 166 in 2019 and 136 in 2018.
- » Overall, 110 companies (55%) added new independent directors, compared with 53% last year and 46% the year before.

### More women selected as new independent directors

- » Of the 172 new outside directors added to tech boards in 2019, 91, or 53%, are women; this represents an increase from 43% in 2019 (71 out of 166) and 37% in 2018 (50 out of 136).
- » Of the 110 boards that added at least one new outside director, 73 (66%) added at least one new female director.
- » As in past years, the increased representation is not just about adding one woman to previously all-male boards. The percentage of tech boards with two or more women increased to 72% from 64% in 2019; 36% of boards now have three or more women, compared with 24% in 2019. Of the companies that added a new board member in 2020, 62.5% added at least one female director.

## Black/African American and Hispanic/Latinx representation on boards is low

- » Only 3% of tech board members are Black/African American, and 1.5% are Hispanic/Latinx; by comparison, 10.3% of directors at the top 200 companies in the S&P 500 are Black/African American, and 4.4% are Hispanic/Latinx.
- » The percentage of new directors from minority groups dropped slightly, from 20.5% in 2019 to 19.2% in 2020. Twenty-three (13.4% of total) are Asian, five (2.9%) are Black/African American, and five (2.9%) are Hispanic/Latinx.

### Diversity of Independent Directors

Independent	Tech 200		S&P 500 Top 200	
	Total	% of all directors	Total	% of all directors
Black/African American	55	3.0%	233	10.3%
Hispanic/Latinx	27	1.5%	99	4.4%
Asian	183	10.1%	113	6.0%
Total minority directors	265	14.7%	445	20.0%
Total directors	1,805		2,263	

Note: Minority representation on boards is determined using concrete, trusted and validated sources, such as board proxies and public articles where board members have self-identified. Visual identification is not used in any way to determine race or ethnicity.

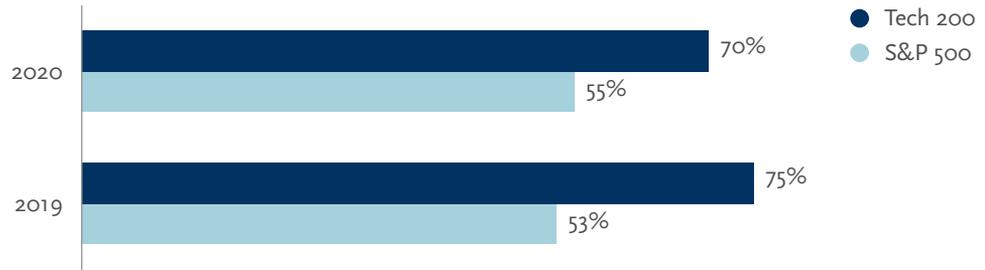
## Most new directors have technology background

- » More than half of the new directors (52%) have a background in the high-tech or telecom industries. Another 19% have a financial industry background (private equity, investment management or financial services).
- » More than one-third of new directors (62 out of 172) are first-time public company board members.
- » CEOs, chairs, presidents and other corporate executives account for 62% of all new board members, up from 56% in 2019.

## Fewer tech boards separate chair and CEO roles, or have an independent chair

- » The share of tech companies that separate the chair and CEO roles dropped to 70%, from 75% in 2019. Fifty-five percent (55%) of S&P 500 companies separate the roles.
- » Among the 200 tech boards, 100 (50%) have an independent chair, down from 108 in 2019 and above 97 in 2018.

### Percentage of Boards Separating the Chair and CEO Roles

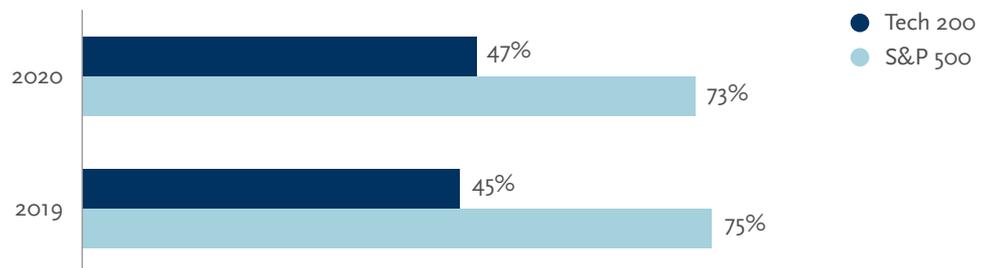


	Technology 200			
	>\$5B	\$1B to \$5B	\$500M to \$1B	< \$500M
2020	76%	76%	50%	73%
2019	72%	78%	68%	80%

### Fewer than half of boards have a lead or presiding director

- » Forty-seven percent (47%) of tech boards have a lead or presiding director, compared with 45% a year ago. By comparison, 73% of S&P 500 companies have a director serving in one of these roles.
- » Sixteen (16) boards do not have independent leadership (neither an independent chair nor a lead/presiding director).

### Companies with a Lead or Presiding Director



	Technology 200 companies with a lead or presiding director by revenue			
	>\$5B	\$1B to \$5B	\$500M to \$1B	< \$500M
2020	56%	45%	48%	35%
2019	70%	40%	34%	27%

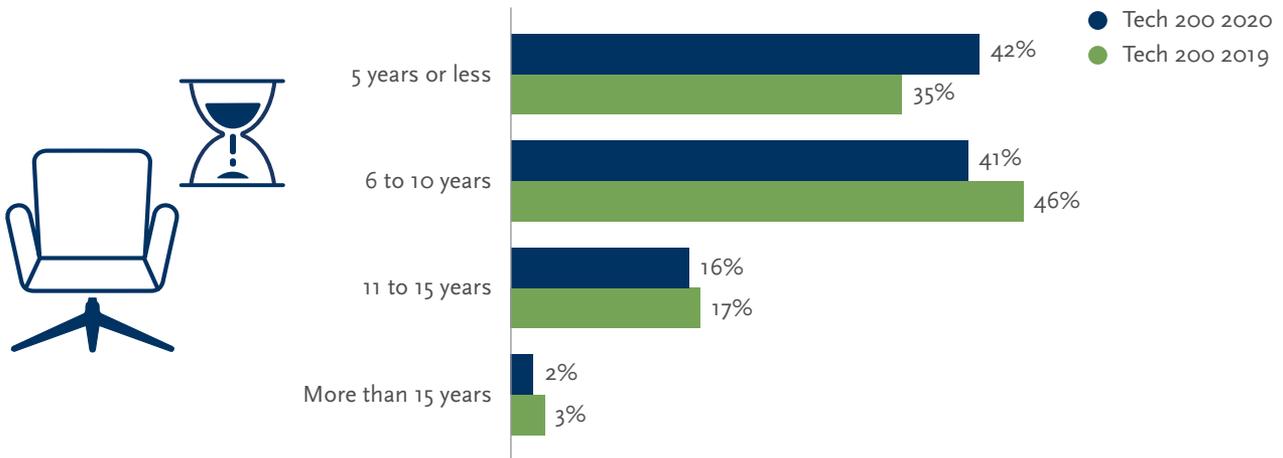
## Average tenure continues to drop

- » The average tenure for technology company board members is now 7.3 years, down from 7.7 a year ago, 8.1 in 2018 and 8.7 in 2017. The average tenure of S&P 500 board members is 7.9 years.
- » The percentage of tech boards with an average tenure of five years or less increased to 42%, from 35% in 2019 and 30% in 2018. It remains behind the 2017 level of 45%.

### Average Tenure (in Years)

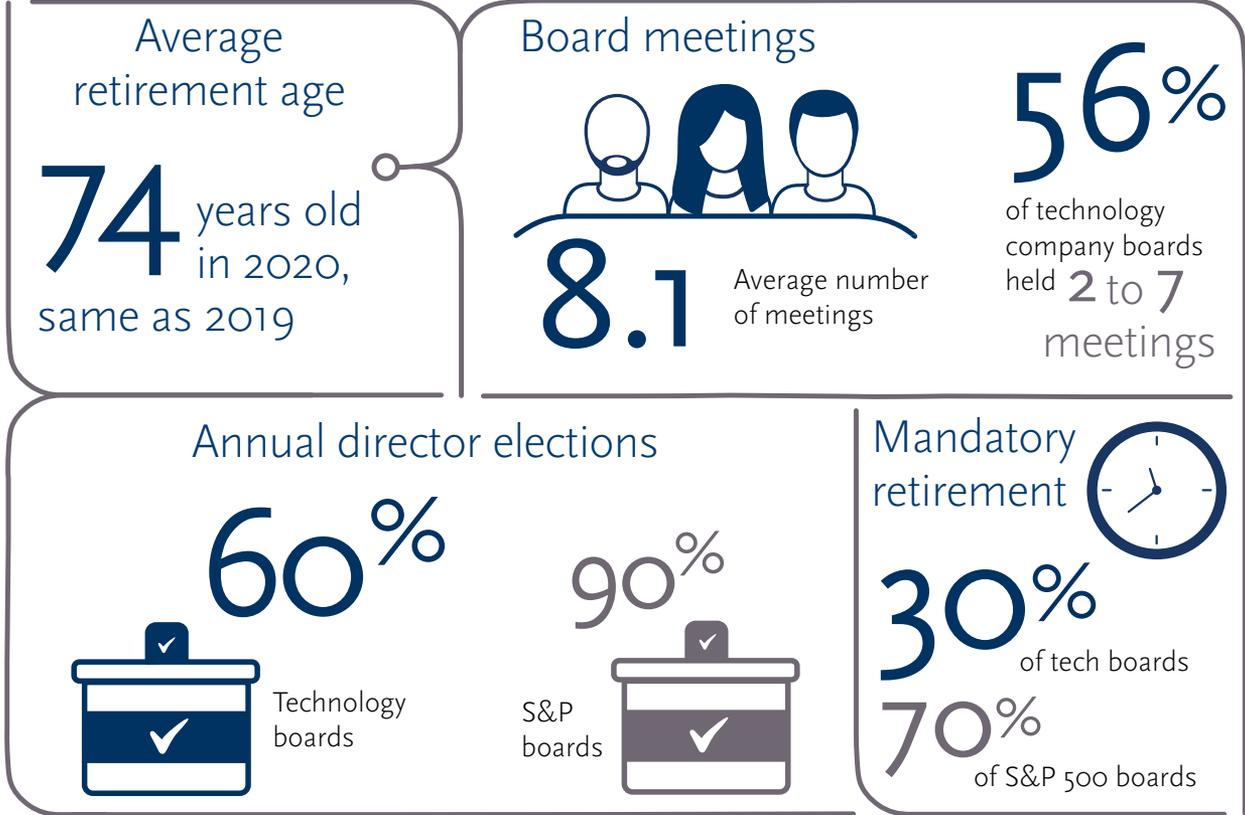
	Technology 200					
	Tech 200	S&P 500	>\$5B	\$1B to \$5B	\$500M to \$1B	< \$500M
2020	7.3	7.9	7.1	7.3	7.9	6.3
2019	7.7	8.0	7.3	7.7	8.6	6.5

### Average Board Tenure



# Board Organization and Process

## 2020 SNAPSHOT



### Tech boards averaged 8.5 meetings

- » Technology company boards held an average of 8.1 annual meetings, compared with 8.5 in 2019, 7.9 in 2018 and 8.3 in 2017. The S&P 500 average was 7.9.
- » The most common numbers of board meetings in 2020 were five and six (17% for each).

### Meeting Distribution

	2020	2019
2 to 7	56%	54%
8 to 10	24%	22%
11 to 13	13%	13%
14 and up	8%	11%

## 65% of boards have annual director elections

- » Fewer technology company boards elect directors annually — 60%, down from 65% in 2020, 64% in 2018 and 63% in 2017. Ninety percent (90%) of S&P 500 companies have annual director elections.

## Average director age is 61.5

- » The average director age ticked down slightly to 61.1 years old, from 61.5 in 2019 and 61.8 in 2018. The average age of S&P 500 directors is 63.
- » The average age of new independent directors is 56, unchanged from 2019.
- » Forty-one percent (41%) of tech boards have an average age of 59 or younger, up from 36% last year. Only 16% of S&P 500 boards have an average age of 59 or younger.

## Almost one-third of boards report a mandatory retirement age<sup>2</sup>

- » Thirty-one percent (31%) of technology company boards disclose a mandatory retirement age, compared to 30% in 2019, 33% in 2018 and 38% in 2017. Among S&P 500 boards, 70% disclose a mandatory retirement age.
- » Among companies with a mandatory retirement policy, the average retirement age is 74, equal with both last year's total and the S&P 500 average.
- » Fifty-two percent (52%) of tech companies have a mandatory retirement age of 75 or older, the same level as 2019 and ahead of the S&P 500 (48%).

### Mandatory Retirement Age\*

	Tech 200	S&P 500
70	11%	3%
71	0%	1%
72	35%	39%
73	0%	3%
74	2%	6%
75 or older	52%	48%

\*Among the 62 tech boards that disclose a mandatory retirement age

<sup>2</sup> Retirement age policies were derived from each company's corporate guidelines.

## Most tech boards conduct an annual evaluation

- » Ninety-one percent (91%) of boards perform some form of evaluation annually, steady from 92% in 2019, but still behind the S&P 500 (98%).
- » Most boards, 55%, evaluate the full board and committees. Almost one-third (31%) evaluate the full board, committees and individual directors, while 9% of evaluations consider the full board only and 5% look at the full board and directors.

## Tech boards average 3.6 committees

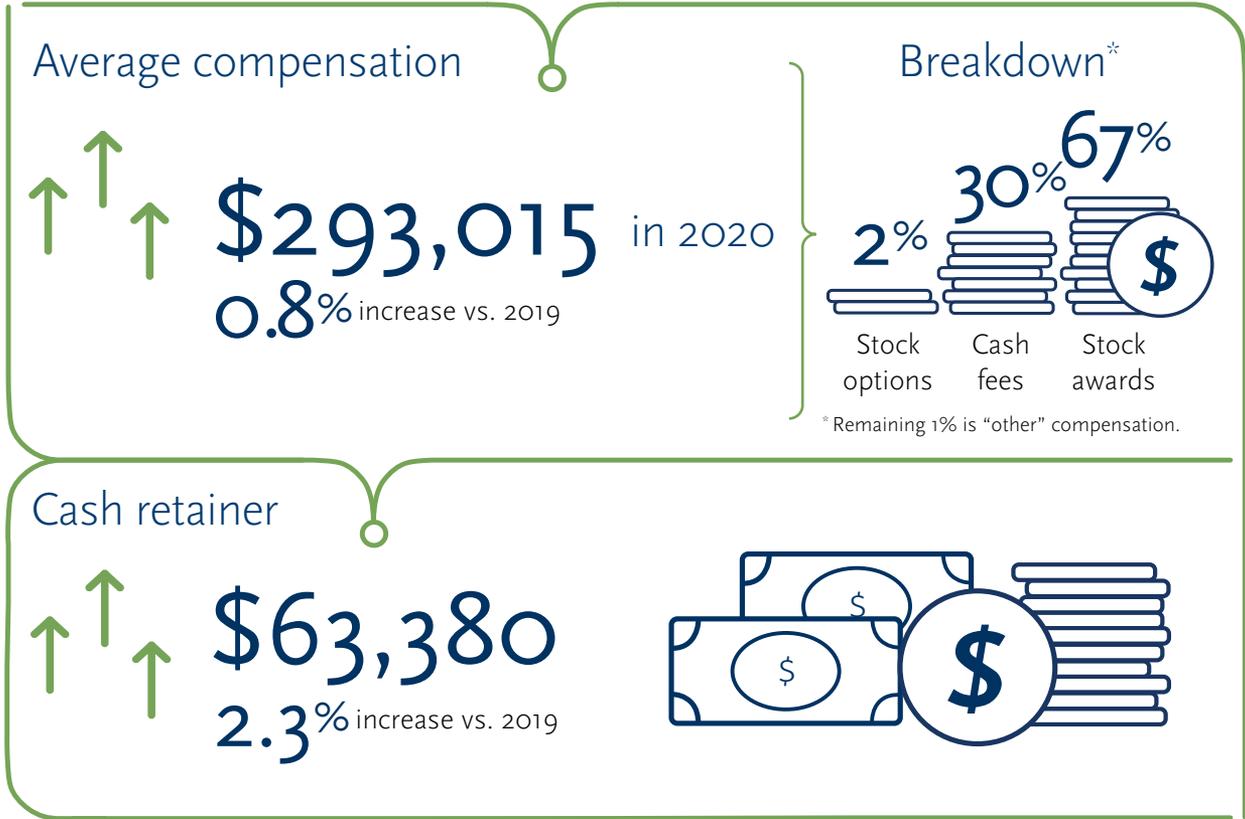
- » Technology company boards in our index average 3.6 committees, compared with an average of 4.2 committees on the S&P 500. More than half of tech company boards (57%) have either two or three standing committees.
- » All 200 companies in our index have audit committees and compensation committees, and 198 have a nominating/governance committee. The next most common board committees are executive (9%), finance (9%), science and technology (8%), strategy (5.5%) and risk (5.5%).

## Committee meeting frequency remains steady

- » Technology company board audit committees met 7.9 times on average, with the number of meetings ranging from three to 32.
- » Compensation committees met an average of 6.4 times, unchanged from 2018. The number of meetings ranged from two to 18.
- » Nominating/governance committees met four times on average, with a range of zero to 12 meetings.

# Director Compensation

## 2020 SNAPSHOT



### Average director compensation grows by less than 1%, trails S&P 500 average

- » Technology company board directors received average compensation of \$293,015, a 0.8% increase from the 2019 average (\$290,751) but 32% higher than 2014 levels (\$222,325). By comparison, S&P 500 director compensation averaged \$308,462.
- » Directors of tech companies with revenues of more than \$5 billion saw average compensation increase to \$371,015 — 2.3% higher than 2019, 20% higher than the S&P 500, and 26% higher than the overall Tech 200.
- » Board members of the smallest tech companies in our index (less than \$500 million revenues) saw average compensation drop significantly in 2020, to \$196,638 from \$232,291 in 2019, an 18% drop. Director compensation increased for all other classes of tech companies.

### Average Total Per-Director Compensation\*



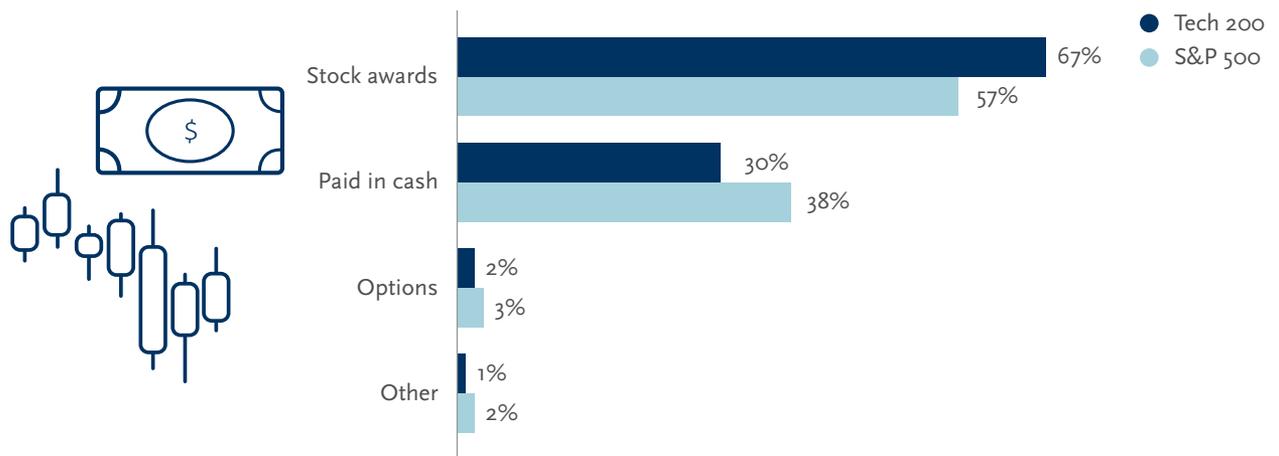
	Technology 200			
	>\$5B	\$1B to \$5B	\$500M to \$1B	< \$500M
2020	\$371,015	\$293,558	\$241,820	\$196,638
2019	\$362,500	\$286,626	\$233,244	\$232,291

\* Average total per-director compensation includes all board and committee retainers and meeting fees, supplemental non-executive chairman and lead/presiding director fees, the value of equity compensation and all other compensation paid in fiscal year 2019. It excludes directors who received compensation for partial-year board service.

### Stock awards worth 2/3 of director compensation

- » Two-thirds (67%) of average director compensation is paid in the form of stock awards. Another 2% of compensation is awarded in stock options. For S&P 500 boards, 57% of compensation is in the form of stock awards.
- » Cash fees represent 30% of director compensation, compared with 38% for S&P 500 companies.

### Percentage of Compensation by Categories



	Technology 200			
	>\$5B	\$1B to \$5B	\$500M to \$1B	< \$500M
Stock awards	67%	67%	68%	65%
Paid in cash	30%	31%	29%	31%
Options	1%	1%	2%	4%
Other	2%	1%	1%	0%

## Average cash retainer falls

- » The average cash retainer for technology company directors was \$63,380 in 2020, compared with \$64,913 in 2019.
- » All but five of the 200 tech boards in our index offer a cash retainer; of those, 57% provide retainers of more than \$50,000.

## Average Annual Cash Retainer

	Technology 200				
	Tech 200	>\$5B	\$1B to \$5B	\$500M to \$1B	< \$500M
2020	\$63,380	\$83,182	\$65,598	\$50,381	\$43,788
2019	\$64,913	\$82,078	\$65,302	\$52,034	\$48,833

## Companies continue to move away from meeting attendance fees

- » Only 7% of the technology companies in the index pay directors fees for meeting attendance, the same rate as seen for S&P 500 boards. The rate for tech companies has fallen steadily from 13% of companies in the Tech 200 in 2017 as companies continue to shift toward all-in retainers that come with required attendance by directors. Among the largest companies (greater than \$5 billion revenue), only 2% pay attendance fees.
- » When board meeting fees are provided, the average compensation is \$2,231.

## Boards That Provide Meeting Attendance Fees

	Technology 200					
	Tech 200	S&P 500	>\$5B	\$1B to \$5B	\$500M to \$1B	< \$500M
Percent providing meeting attendance fees	7%	7%	2%	8%	7%	8%
Average board meeting fee	\$2,231	\$2,512	\$3,000	\$2,429	\$2,167	\$1250

## Fewer tech companies give additional compensation to lead/presiding directors

- » Thirty-nine percent (39%) of technology companies pay a premium to their lead or presiding directors, compared with 36% in 2019 and 41% in 2018. This remains well behind the 78% of S&P 500 companies that give additional pay to lead or presiding directors.
- » Among companies providing additional compensation, the average premium is \$31,369, an 8% drop from the \$34,740 average in 2019.
- » Of the boards with an independent chair, 96% offer that person a premium of equity and cash, with an average compensation of \$99,000. While the percentage of companies offering a premium to independent chairs is almost the same as the S&P 500 (95%), the S&P 500's average compensation of \$173,606 for independent chairs is much higher.

## Nearly all boards compensate committee chairs; most also reward members

- » Ninety-four percent (94%) of tech boards compensate audit committee chairs, at an average of \$27,599. Most also pay an extra retainer to compensation committee chairs (92%, averaging \$20,218) and governance committee chairs (91%, averaging \$13,801).
- » More than three-quarters of technology companies (78%) pay a retainer to audit committee members, averaging \$13,059. Seventy-four percent (74%) pay compensation committee members (average: \$10,024), and 68% pay governance committee members (average: \$6,868).
- » No boards pay a cash meeting attendance fee to audit committee chairs; 7% provide a fee to audit committee members.

### Committee Retainers

	Average retainer	% of boards that make this payment
<b>Committee chairs</b>		
Audit committee	\$27,599	94%
Compensation committee	\$20,218	92%
Governance committee	\$13,801	91%
<b>Committee members</b>		
Audit committee	\$13,059	78%
Compensation committee	\$10,024	74%
Governance committee	\$6,868	72%

## Equity compensation for tech boards decreased

- » The value of equity awards for directors of technology companies decreased 4% in 2020, to \$188,613 from \$196,177 in 2019.
- » Ninety-four percent (94%) of technology company boards include restricted stock or restricted stock units in the compensation mix, and 9% have a stock option program for new members.

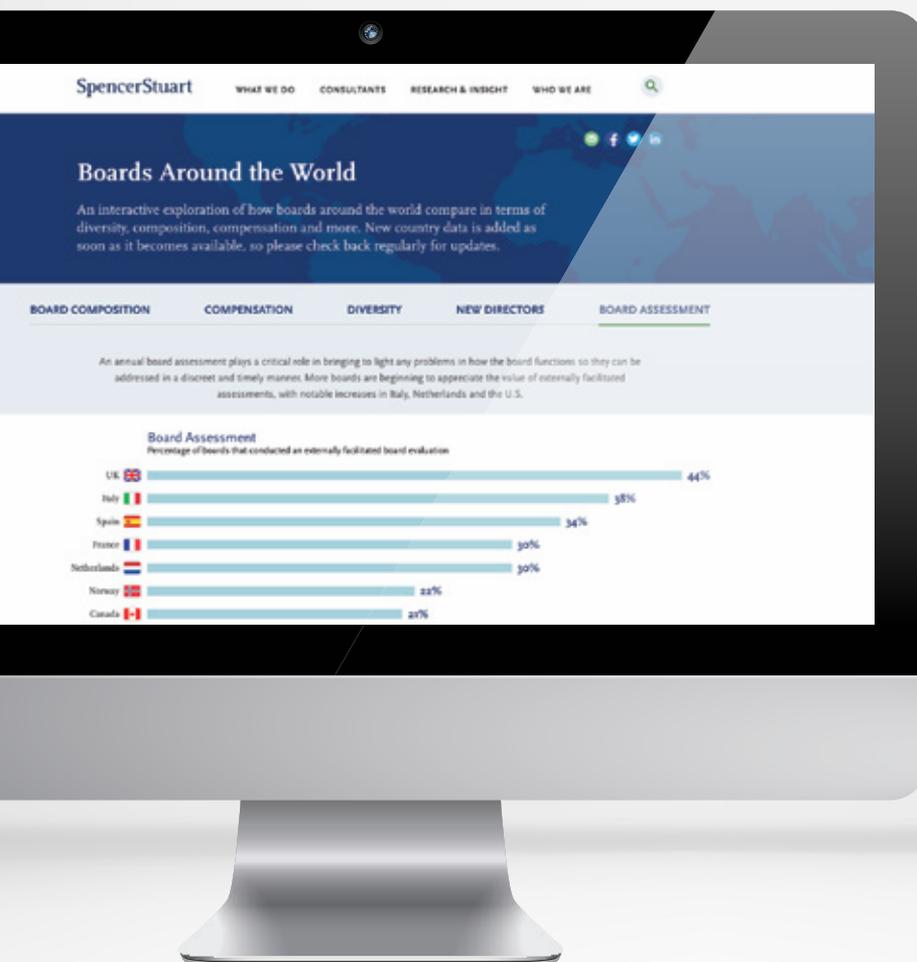
### Annual Equity Awards\*

	Technology 200				
	Tech 200	>\$5B	\$1B to \$5B	\$500M to \$1B	< \$500M
Percentage providing restricted stock or restricted stock units	94%	93%	94%	95%	88%
Average value of restricted stock	\$177,771	\$215,000	\$152,595	\$176,229	\$180,130
Average value of restricted stock units	\$198,029	\$215,855	\$209,437	\$177,712	\$157,104
Percentage of companies with a stock option program	9%	9%	9%	9%	9%
Total value of annual equity awards	\$188,613	\$205,422	\$194,666	\$177,379	\$157,414

\*The value of the equity awards is based on the amounts reported in company proxy statements; equity is calculated at the fair market value on the date of the award.

# Boards Around the World

Spencer Stuart publishes Board Indexes covering more than 25 countries around the world. The majority of these Board Indexes are published annually, with a few appearing on alternate years.



We have compiled key data from all these countries into our **Boards Around the World** feature — an interactive data exploration tool.

Compare nationally aggregated data from leading companies from North and South America, Europe and Asia Pacific across a wide range of measures.

Our more detailed **International Comparison** data set, previously published in printed editions of our Board Indexes, is now available online only.

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# Comparative Board Data

## Methodology:

The index examines 200 public technology companies in the United States, sorted into four groups based on revenue. The companies included in the index were publicly traded on one of the major stock exchanges (NYSE or NASDAQ). All data were culled from each company's DEF14A proxy statement most recently filed with the U.S. Securities and Exchange Commission between July 1, 2019 and July 1, 2020, except where noted.

# Comparative Board Data

	NUMBER OF DIRECTORS			INDEPENDENT DIRECTORS					PERCENTAGE OF TOTAL COMPENSATION					
	TOTAL	INDEPENDENT DIRECTORS	WOMEN	SEPARATE CHAIR/CEO	AVERAGE AGE	AVERAGE TENURE (YEARS)	RETIREMENT AGE	MEETINGS PER YEAR <sup>a</sup>	COMPARISON PER NON-EMPLOYEE DIRECTOR <sup>b</sup> (\$)	AVERAGE INDEPENDENT BOARD CHAIR PREMIUM (\$)	CASH	STOCK	OPTIONS	ALL OTHER
<b>&gt;\$5 BILLION</b>														
Adobe Systems	11	10	3	N	63	13	-	7	387,442	-	21%	79%	0%	0%
Advanced Micro Devices	8	7	2	Y	60	5	72	9	326,806	129,500	39%	61%	0%	0%
Agilent Technologies	11	10	3	Y	65	8	75	7	357,042	155,000	35%	65%	0%	0%
Alphabet	11	8	3	Y	65	11	-	10	461,867	175,000	18%	82%	0%	0%
Amazon.com	10	9	5	N	64	8	-	6	935,167	-	0%	100%	0%	0%
Amphenol Corporation	8	7	1	Y	69	11	72	5	278,850	150,000	43%	57%	0%	0%
Analog Devices	10	8	2	Y	63	7	-	9	366,654	180,000	33%	67%	0%	0%
Apple	7	6	2	Y	67	12	75	5	402,029	200,000	35%	62%	0%	3%
Applied Materials	10	9	3	Y	58	8	70	5	349,425	150,000	36%	63%	0%	1%
Broadcom	9	7	3	Y	59	2	75	9	344,606	150,000	31%	69%	0%	0%
Cerner Corporation	10	9	3	N	65	8	75	9	351,140	-	28%	71%	0%	1%
Cisco Systems	10	9	3	N	61	8	72	5	342,710	-	34%	66%	0%	0%
Cognizant Technology Solutions Corporation	11	10	4	Y	63	5	-	11	347,718	150,000	40%	60%	0%	0%
Commscope Holding Company	11	9	1	Y	66	6	-	9	289,289	-	37%	63%	0%	0%
Dell Technologies	7	4	2	N	62	3	72	6	308,329	-	28%	36%	36%	0%
DXC Technology Company	10	9	2	Y	62	2	72	12	315,698	260,000	37%	63%	0%	0%
eBay	13	12	4	Y	54	6	-	10	373,205	200,000	31%	69%	0%	0%
Equinix	10	8	3	Y	62	8	75	10	357,744	-	30%	70%	0%	0%
Facebook	9	7	4	N	54	4	72	13	381,373	-	20%	80%	0%	0%
Fidelity National Information Services	10	9	3	N	67	4	75	11	393,601	-	42%	57%	0%	1%
Fortive Corporation	7	6	2	Y	60	4	-	7	318,321	185,000	13%	69%	18%	0%
Hewlett Packard Enterprise Company	13	12	5	Y	62	4	-	6	353,933	200,000	23%	77%	0%	0%
Insight Enterprises	9	8	3	Y	56	9	72	10	225,657	100,000	45%	55%	0%	0%
Intel Corporation	9	8	3	Y	55	3	72	12	338,563	-	33%	66%	0%	1%
International Business Machines Corporation	14	12	2	Y	63	6	72	9	448,182	-	75%	0%	0%	25%
Intuit	11	8	3	Y	57	7	75	6	375,088	-	18%	82%	0%	0%
Jabil	10	8	3	Y	62	12	-	4	307,744	-	31%	68%	0%	1%
Lam Research Corporation	10	9	3	Y	62	6	75	8	313,849	120,000	35%	62%	0%	3%
Microchip Technology	5	4	1	N	71	19	-	5	164,568	-	51%	49%	0%	0%
Micron Technology	7	6	2	Y	66	7	75	6	375,775	150,000	36%	64%	0%	0%
Microsoft Corporation	13	11	5	Y	58	4	75	5	386,136	212,500	38%	62%	0%	0%
Motorola Solutions	8	7	2	N	61	5	75	5	304,000	-	25%	75%	0%	0%
NCR Corporation	10	8	3	Y	53	3	-	8	339,623	-	18%	82%	0%	0%
NetApp	7	6	2	Y	63	9	-	5	355,818	150,000	31%	69%	0%	0%
Nvidia Corporation	11	10	2	Y	65	13	-	7	259,536	-	29%	71%	0%	0%
On Semiconductor Corporation	7	6	1	Y	61	8	75	11	312,926	100,000	34%	66%	0%	0%
Oracle Corporation	15	10	4	Y	72	12	-	4	533,224	-	17%	83%	0%	0%
PayPal Holdings	11	10	4	Y	59	4	-	7	388,496	100,000	28%	72%	0%	0%
Qualcomm	10	9	2	Y	62	4	-	11	364,699	175,000	38%	55%	0%	7%
salesforce.com	11	9	3	N	69	10	-	9	588,369	-	14%	86%	0%	0%
Sanmina Corporation	9	7	2	Y	66	11	-	6	301,703	-	29%	68%	0%	3%
Texas Instruments	11	10	4	N	60	7	70	8	296,321	-	28%	34%	34%	4%

# Comparative Board Data

	NUMBER OF DIRECTORS			INDEPENDENT DIRECTORS					PERCENTAGE OF TOTAL COMPENSATION					
	TOTAL	INDEPENDENT DIRECTORS	WOMEN	SEPARATE CHAIR/CEO	AVERAGE AGE	AVERAGE TENURE (YEARS)	RETIREMENT AGE	MEETINGS PER YEAR <sup>a</sup>	COMENSATION PER NON-EMPLOYEE DIRECTOR (\$) <sup>b</sup>	AVERAGE INDEPENDENT BOARD CHAIR PREMIUM (\$)	CASH	STOCK	OPTIONS	ALL OTHER
VMware	9	6	2	Y	64	6	-	7	515,945	-	56%	44%	0%	0%
Western Digital Corporation	8	7	3	Y	61	9	72	7	371,167	150,000	32%	68%	0%	0%
Xerox Corporation	7	6	1	Y	53	2	75	16	409,828	100,000	32%	68%	0%	0%

## \$1 BILLION TO \$5 BILLION

ACI Worldwide	8	7	2	Y	64	5	-	20	337,414	100,000	26%	74%	0%	0%
Akamai Technologies	11	10	3	Y	62	6	-	6	345,580	80,000	31%	69%	0%	0%
Allscripts Healthcare Solutions	7	6	1	Y	63	5	72	15	313,932	100,000	36%	64%	0%	0%
Amkor Technology	11	7	2	Y	64	8	-	4	226,952	-	43%	27%	0%	30%
Ansys	9	8	3	Y	59	4	75	7	365,234	90,000	17%	83%	0%	0%
Arista Networks	7	5	2	Y	60	6	-	5	503,776	-	21%	79%	0%	0%
Autodesk	10	9	5	Y	56	5	-	5	356,144	75,000	26%	74%	0%	0%
Avaya Holdings Corp.	7	6	2	Y	54	3	-	40	470,100	75,000	34%	66%	0%	0%
Benchmark Electronics	9	8	2	Y	64	6	72	5	246,446	80,000	39%	61%	0%	0%
Black Knight	8	6	1	Y	62	5	-	5	245,431	-	49%	51%	0%	0%
CACI International	10	8	1	Y	73	13	-	11	282,250	-	47%	53%	0%	0%
Cadence Design Systems	9	7	2	Y	63	11	-	7	335,441	110,000	41%	58%	0%	1%
CDK Global	9	8	2	Y	60	6	72	7	297,616	150,000	41%	59%	0%	0%
Ciena Corporation	9	7	3	Y	66	11	-	6	285,378	-	31%	69%	0%	0%
Cirrus Logic	8	7	2	Y	60	6	75	12	289,833	15,000	34%	66%	0%	0%
Citrix Systems	10	8	2	Y	61	6	-	17	423,999	100,000	31%	63%	0%	6%
Coherent	8	7	2	Y	60	8	72	6	328,977	60,000	27%	73%	0%	0%
Corelogic	12	11	3	Y	67	7	-	6	279,064	120,000	43%	57%	0%	0%
Cree	8	7	2	Y	55	7	-	8	243,695	60,000	30%	70%	0%	0%
Diodes	7	6	1	N	70	11	75	6	358,347	-	24%	76%	0%	0%
Dolby Laboratories	9	7	2	Y	58	11	-	6	337,197	75,000	23%	77%	0%	0%
Dropbox	8	7	3	N	54	5	-	8	374,267	-	20%	80%	0%	0%
Entegris	8	7	1	Y	63	11	75	12	234,794	60,000	38%	62%	0%	0%
F5 Networks	10	8	3	Y	62	10	-	11	349,062	100,000	26%	74%	0%	0%
First Solar	10	8	2	Y	62	10	-	5	284,035	-	41%	59%	0%	0%
FLIR Systems	11	9	2	Y	68	13	-	7	261,455	-	39%	61%	0%	0%
Fortinet	8	6	3	N	60	6	-	10	335,038	-	22%	78%	0%	0%
GoDaddy	9	8	2	Y	54	4	-	9	290,423	50,000	23%	76%	0%	1%
GoPro	9	8	2	N	59	4	-	12	243,024	-	28%	72%	0%	0%
II-VI	11	8	1	Y	62	7	75	19	265,797	-	35%	30%	35%	0%
llumina	10	8	3	Y	60	3	-	7	491,641	-	19%	81%	0%	0%
Infinera Corporation	10	8	2	Y	59	5	-	12	268,964	50,000	30%	70%	0%	0%
IPG Photonics Corporation	9	6	1	N	62	8	72	6	328,815	-	20%	52%	28%	0%
Iron Mountain	13	12	4	Y	64	8	-	6	319,955	125,000	38%	50%	0%	12%
Itron	9	8	2	Y	62	8	70	11	175,324	250,000	55%	45%	0%	0%
Jack Henry & Associates	9	7	3	Y	59	8	70	8	286,834	-	44%	56%	0%	0%
Juniper Networks	10	9	3	Y	62	8	75	8	313,597	75,000	31%	69%	0%	0%
Keysight Technologies	9	8	2	N	67	5	75	6	333,913	155,000	40%	60%	0%	0%
KLA Corporation	10	9	2	Y	63	10	75	6	337,264	110,000	35%	63%	0%	2%

# Comparative Board Data

	NUMBER OF DIRECTORS			INDEPENDENT DIRECTORS					PERCENTAGE OF TOTAL COMPENSATION					
	TOTAL	INDEPENDENT DIRECTORS	WOMEN	SEPARATE CHAIR/CEO	AVERAGE AGE	AVERAGE TENURE (YEARS)	RETIREMENT AGE	MEETINGS PER YEAR <sup>a</sup>	COMENSATION PER NON-EMPLOYEE DIRECTOR (\$) <sup>b</sup>	AVERAGE INDEPENDENT BOARD CHAIR PREMIUM (\$)	CASH	STOCK	OPTIONS	ALL OTHER
Liberty TripAdvisor Holdings	7	5	0	N	67	5	-	5	168,318	-	37%	23%	40%	0%
Logitech	11	9	3	Y	55	4	70	15	244,315	151,530	31%	69%	0%	0%
Lumentum Holdings	7	6	2	Y	60	4	-	12	267,620	60,000	36%	64%	0%	0%
Maxar Technologies	9	8	2	Y	65	3	-	15	188,720	110,000	47%	53%	0%	0%
Maxim Integrated Products	9	8	3	Y	66	10	-	8	303,221	71,500	32%	68%	0%	0%
Methode Electronics	8	7	1	Y	67	9	-	14	207,250	30,000	44%	56%	0%	0%
MKS Instruments	8	6	4	Y	60	3	-	4	265,514	-	36%	64%	0%	0%
National Instruments Corporation	9	7	2	Y	62	7	72	7	285,038	100,000	39%	61%	0%	0%
NortonLifeLock	8	7	2	Y	55	6	72	24	353,028	75,000	23%	77%	0%	0%
Nuance Communications	9	8	2	Y	60	4	-	4	337,688	150,000	26%	74%	0%	0%
Nutanix	8	7	1	N	56	4	-	8	259,536	-	0%	100%	0%	0%
Palo Alto Networks	11	8	2	N	57	7	-	11	333,696	-	0%	100%	0%	0%
Pitney Bowes	9	8	4	Y	68	11	-	9	214,362	100,000	51%	47%	0%	2%
Plantronics	10	7	1	N	62	12	-	11	277,701	40,000	28%	72%	0%	0%
Plexus Corporation	11	9	2	Y	64	11	72	4	244,442	-	43%	56%	0%	1%
PTC	8	7	2	Y	63	6	-	4	347,803	115,000	26%	74%	0%	0%
Pure Storage	10	7	3	N	56	2	-	4	291,694	-	19%	81%	0%	0%
Roku	7	5	1	Y	58	5	-	5	247,069	-	24%	38%	38%	0%
ServiceNow	10	8	4	Y	56	4	-	7	383,367	-	15%	85%	0%	0%
Skyworks Solutions	9	7	2	Y	61	11	-	5	296,052	130,000	35%	65%	0%	0%
Sonos	7	6	1	Y	53	7	-	4	294,123	-	24%	76%	0%	0%
Splunk	9	8	3	Y	56	6	-	7	302,168	50,000	24%	76%	0%	0%
Square	10	8	3	N	55	6	-	5	309,987	-	7%	93%	0%	0%
SS&C Technologies Holdings	7	5	1	N	62	7	-	4	78,823	-	49%	51%	0%	0%
Synaptics	8	7	1	N	63	18	-	9	272,762	300,000	32%	68%	0%	0%
Synopsys	9	7	2	N	66	14	72	6	312,851	-	44%	56%	0%	0%
Teledyne Technologies	11	10	3	Y	71	12	75	8	227,778	-	52%	48%	0%	0%
Teradata Corporation	11	10	3	Y	63	7	-	8	341,381	120,000	24%	76%	0%	0%
Teradyne	8	7	2	Y	68	12	-	5	293,963	65,000	32%	68%	0%	0%
Trimble	10	8	3	Y	57	6	75	7	336,969	-	18%	82%	0%	0%
TTM Technologies	9	8	2	Y	65	11	72	8	225,525	108,000	41%	59%	0%	0%
Twilio	8	7	3	N	58	4	-	5	257,766	-	18%	82%	0%	0%
Twitter	10	8	2	Y	51	3	-	5	293,138	-	20%	80%	0%	0%
Tyler Technologies	9	6	2	Y	67	8	-	5	319,830	-	22%	78%	0%	0%
Ubiquiti Networks	4	3	0	N	55	6	-	5	200,000	-	100%	0%	0%	0%
Ultra Clean Holdings	8	7	3	Y	60	8	-	8	196,046	40,000	34%	66%	0%	0%
Unisys Corporation	11	10	4	N	65	6	74	11	256,200	-	41%	59%	0%	0%
Veeva Systems	9	7	1	Y	60	6	-	8	285,587	50,000	18%	82%	0%	0%
Verint Systems	10	9	1	N	62	6	-	22	276,032	-	28%	72%	0%	0%
VeriSign	8	7	2	N	67	10	-	5	340,117	-	27%	73%	0%	0%
Viasat	8	6	1	N	67	13	-	7	273,503	-	30%	36%	34%	0%
Viavi Solutions	8	7	1	Y	62	8	-	5	272,960	75,000	35%	65%	0%	0%
Vishay Intertechnology	10	6	1	Y	68	8	75	6	244,414	-	37%	63%	0%	0%
Vonage Holdings	10	9	3	Y	59	5	-	8	220,332	102,500	44%	56%	0%	0%
Workday	11	8	2	Y	57	5	-	6	384,792	50,000	0%	100%	0%	0%

# Comparative Board Data

	NUMBER OF DIRECTORS			INDEPENDENT DIRECTORS					PERCENTAGE OF TOTAL COMPENSATION					
	TOTAL	INDEPENDENT DIRECTORS	WOMEN	SEPARATE CHAIR/CEO	AVERAGE AGE	AVERAGE TENURE (YEARS)	RETIREMENT AGE	MEETINGS PER YEAR <sup>a</sup>	COMPARISON PER NON-EMPLOYEE DIRECTOR <sup>b</sup>	AVERAGE INDEPENDENT BOARD CHAIR PREMIUM (\$)	CASH	STOCK	OPTIONS	ALL OTHER
Xilinx	9	8	2	Y	61	5	-	9	306,211	115,000	33%	67%	0%	0%
Zebra Technologies Corporation	8	7	2	Y	62	10	-	9	317,234	155,000	37%	63%	0%	0%
Zillow Group	8	5	2	Y	53	13	-	6	200,000	-	100%	0%	0%	0%

## \$500 MILLION TO \$1 BILLION

3D Systems Corporation	11	9	1	Y	64	9	-	9	245,836	250,000	59%	41%	0%	0%
Adtran	6	5	2	N	57	9	-	6	185,196	-	51%	49%	0%	0%
Advanced Energy Industries	8	7	1	Y	63	8	-	9	252,974	50,000	28%	72%	0%	0%
Aspen Technology	8	7	2	Y	65	12	-	6	315,939	75,000	32%	31%	20%	17%
Blackbaud	7	6	2	Y	69	11	-	4	348,403	100,000	29%	71%	0%	0%
Blucora	8	7	4	Y	57	2	-	22	197,724	100,000	33%	67%	0%	0%
Box	9	8	4	N	54	4	-	11	262,208	-	16%	39%	45%	0%
Brooks Automation Footnote <sup>c</sup>	9	8	2	Y	69	12	75	8	230,300	80,000	46%	54%	0%	0%
Cloudera	8	7	1	Y	54	2	-	15	292,502	40,000	21%	79%	0%	0%
Commvault Systems	11	9	2	Y	59	11	-	7	279,936	75,000	28%	72%	0%	0%
Comtech Telecommunications Corp.	6	5	0	N	78	12	-	7	194,500	-	38%	62%	0%	0%
Cornerstone OnDemand	9	8	2	Y	51	3	-	5	270,247	50,000	21%	79%	0%	0%
CSG Systems International	10	9	2	Y	63	12	-	6	262,097	50,000	33%	67%	0%	0%
Daktronics	7	6	1	N	71	17	-	7	112,825	-	50%	50%	0%	0%
DocuSign	8	7	3	Y	56	4	75	5	n/a	77,500	n/a	n/a	n/a	n/a
Ebix	7	6	0	N	59	14	-	4	106,101	-	33%	67%	0%	0%
Enphase Energy	6	4	0	N	60	7	-	5	143,500	-	44%	56%	0%	0%
Extreme Networks	7	6	2	Y	67	10	-	8	251,645	50,000	32%	68%	0%	0%
FireEye	7	6	1	Y	58	5	-	10	261,389	45,000	17%	83%	0%	0%
FormFactor	8	7	3	Y	61	6	-	5	205,459	25,000	31%	69%	0%	0%
Guidewire Software	8	6	2	Y	61	5	-	7	245,983	50,000	28%	72%	0%	0%
HubSpot	9	7	3	N	55	5	-	6	237,744	-	21%	59%	20%	0%
Inovalon Holdings	8	6	1	N	65	7	75	4	250,000	-	30%	70%	0%	0%
LogMeIn	9	8	2	Y	60	7	70	13	308,517	50,000	25%	75%	0%	0%
Manhattan Associates	7	6	1	Y	61	12	-	5	282,758	100,000	29%	71%	0%	0%
Mercury Systems	8	7	2	Y	67	8	-	9	205,508	45,000	36%	64%	0%	0%
Monolithic Power Systems	6	5	0	N	64	15	-	4	248,500	-	30%	70%	0%	0%
Netgear	8	7	3	N	61	7	72	12	272,945	-	24%	76%	0%	0%
NetScout Systems	9	7	3	N	63	9	-	8	265,333	-	33%	67%	0%	0%
Novanta	9	8	2	Y	60	5	-	9	217,486	125,000	36%	64%	0%	0%
Paycom Software	7	6	1	N	66	6	-	4	315,306	-	29%	71%	0%	0%
Pegasystems	8	7	1	N	62	7	-	6	282,570	-	26%	74%	0%	0%
Proofpoint	9	8	3	N	55	8	-	8	281,527	-	10%	90%	0%	0%
RealPage	8	7	1	N	62	12	75	6	297,500	-	26%	74%	0%	0%
RingCentral	7	6	1	N	62	5	-	8	313,852	-	22%	78%	0%	0%
Semtech Corporation	9	8	2	Y	65	14	-	8	213,820	50,000	30%	70%	0%	0%
Silicon Laboratories	9	8	2	Y	58	10	75	12	266,588	75,000	26%	74%	0%	0%
Slack Technologies	8	7	3	N	55	4	-	7	25,358	-	100%	0%	0%	0%
SolarWinds Corporation	11	10	1	N	52	3	-	7	273,882	-	23%	77%	0%	0%
Universal Electronics	8	7	1	N	68	15	-	6	273,292	-	25%	75%	0%	0%

# Comparative Board Data

	NUMBER OF DIRECTORS			INDEPENDENT DIRECTORS					PERCENTAGE OF TOTAL COMPENSATION					
	TOTAL	INDEPENDENT DIRECTORS	WOMEN	SEPARATE CHAIR/CEO	AVERAGE AGE	AVERAGE TENURE (YEARS)	RETIREMENT AGE	MEETINGS PER YEAR <sup>a</sup>	AVERAGE COMPENSATION PER NON-EMPLOYEE DIRECTOR (\$) <sup>b</sup>	INDEPENDENT BOARD CHAIR PREMIUM (\$)	CASH	STOCK	OPTIONS	ALL OTHER
Zendesk	8	7	3	N	55	3	-	6	255,177	-	7%	93%	0%	0%
Zoom Video Communications	9	8	1	N	53	4	-	10	58,108	-	58%	42%	0%	0%

## < \$500 MILLION

Arlo Technologies	7	6	2	Y	53	2	72	11	66,238	50,000	100%	0%	0%	0%
Avalara	9	7	4	N	57	5	-	6	188,798	-	23%	40%	37%	0%
Avid Technology	10	9	4	Y	55	7	-	7	195,682	50,000	41%	59%	0%	0%
Bottomline Technologies	8	7	1	Y	58	9	-	4	327,936	90,000	14%	86%	0%	0%
Calix	10	9	2	Y	60	7	-	6	204,576	45,000	32%	68%	0%	0%
Coupa Software	6	5	1	N	61	5	-	4	242,085	-	20%	80%	0%	0%
CrowdStrike Holdings	9	8	1	Y	59	6	-	13	36,891	20,000	87%	0%	0%	13%
Dynatrace Footnote <sup>d</sup>	8	7	1	Y	54	3	-	9	241,270	-	17%	83%	0%	0%
Harmonic	7	6	3	Y	57	6	-	7	180,785	40,000	34%	66%	0%	0%
Key Tronic Corporation	6	5	0	Y	69	16	-	4	61,553	14,375	86%	0%	14%	0%
Lattice Semiconductor Corporation	9	8	2	Y	64	5	75	5	194,157	30,000	33%	67%	0%	0%
Macom Technology Solutions Holdings	7	4	1	Y	65	7	-	11	196,009	-	34%	66%	0%	0%
Medallia	9	6	2	Y	61	5	-	5	262,726	-	11%	89%	0%	0%
MicroStrategy	5	4	0	N	58	11	-	6	445,090	-	45%	54%	0%	1%
MongoDB	10	7	2	Y	49	4	70	6	209,936	20,000	21%	79%	0%	0%
NeoPhotonics Corporation	7	6	1	N	59	8	-	8	144,723	-	42%	32%	26%	0%
New Relic	7	5	2	Y	55	5	-	4	225,282	20,000	11%	49%	40%	0%
Okta	9	7	3	N	57	4	-	6	246,229	-	19%	81%	0%	0%
Paylocity	7	5	2	Y	57	6	-	5	223,988	-	23%	77%	0%	0%
Pluralsight	11	8	3	N	56	3	-	7	214,135	-	13%	87%	0%	0%
Progress Software Corporation	9	8	3	Y	58	6	85	7	279,951	50,000	29%	71%	0%	0%
Quantum Corporation	5	4	0	N	54	3	-	22	73,620	-	100%	0%	0%	0%
Rambus	8	7	2	Y	60	5	-	15	153,750	25,000	38%	62%	0%	0%
Universal Display Corporation	9	6	3	Y	69	12	-	9	287,029	-	27%	73%	0%	0%
Veeco	8	7	2	Y	65	10	75	5	208,414	-	42%	58%	0%	0%
VOXX International Corporation	7	4	1	Y	66	9	-	9	83,924	-	90%	0%	0%	10%

<sup>a</sup> Includes regular, special and telephonic board meetings.

<sup>b</sup> Total average compensation per non-employee director is based on non-employee director compensation tables included in proxy statements. The number includes all board and committee retainers and meeting fees, supplemental non-executive chairman and lead/presiding director fees, the value of equity compensation, and all other compensation paid in fiscal year 2019.

<sup>c</sup> Inclined not to nominate at age 75.

<sup>d</sup> Dynatrace data taken from DEF14A filed 7/15/20.

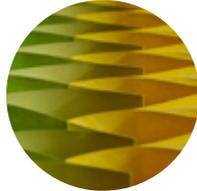
Quantum had no women as of July 2019; they have since added a new woman director.

# Research and Insights

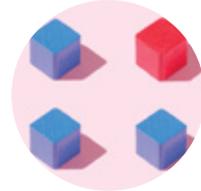
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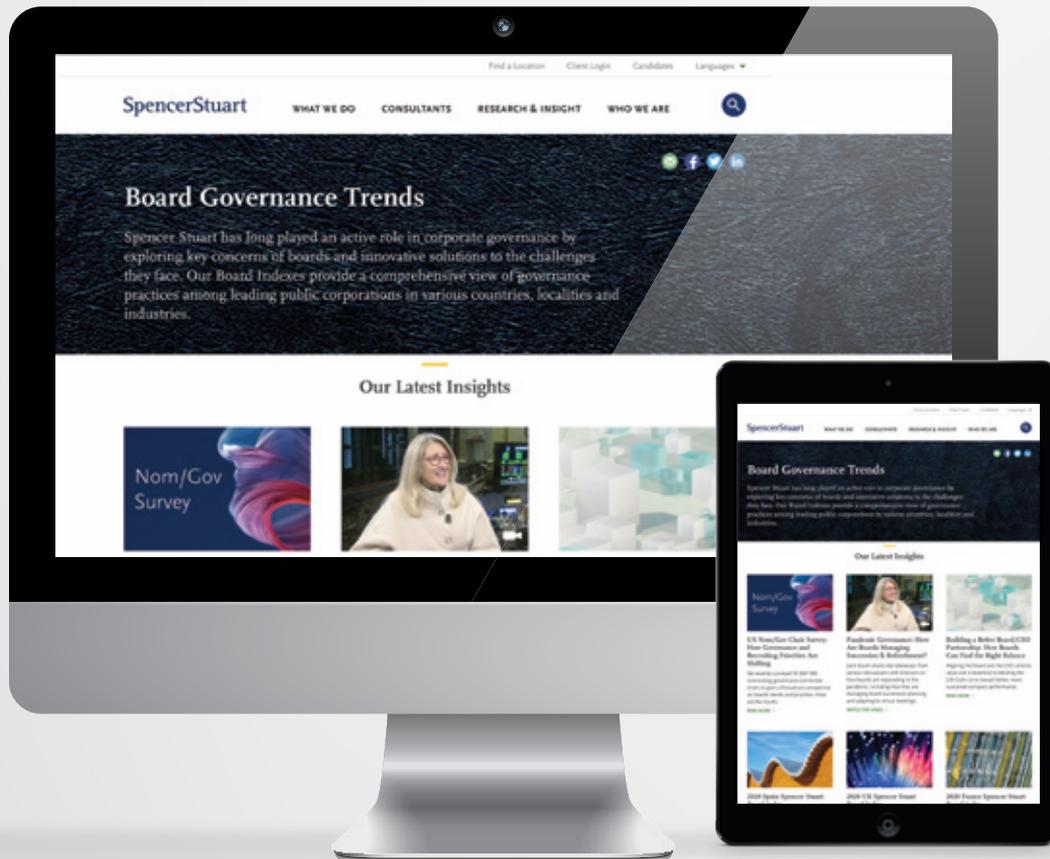
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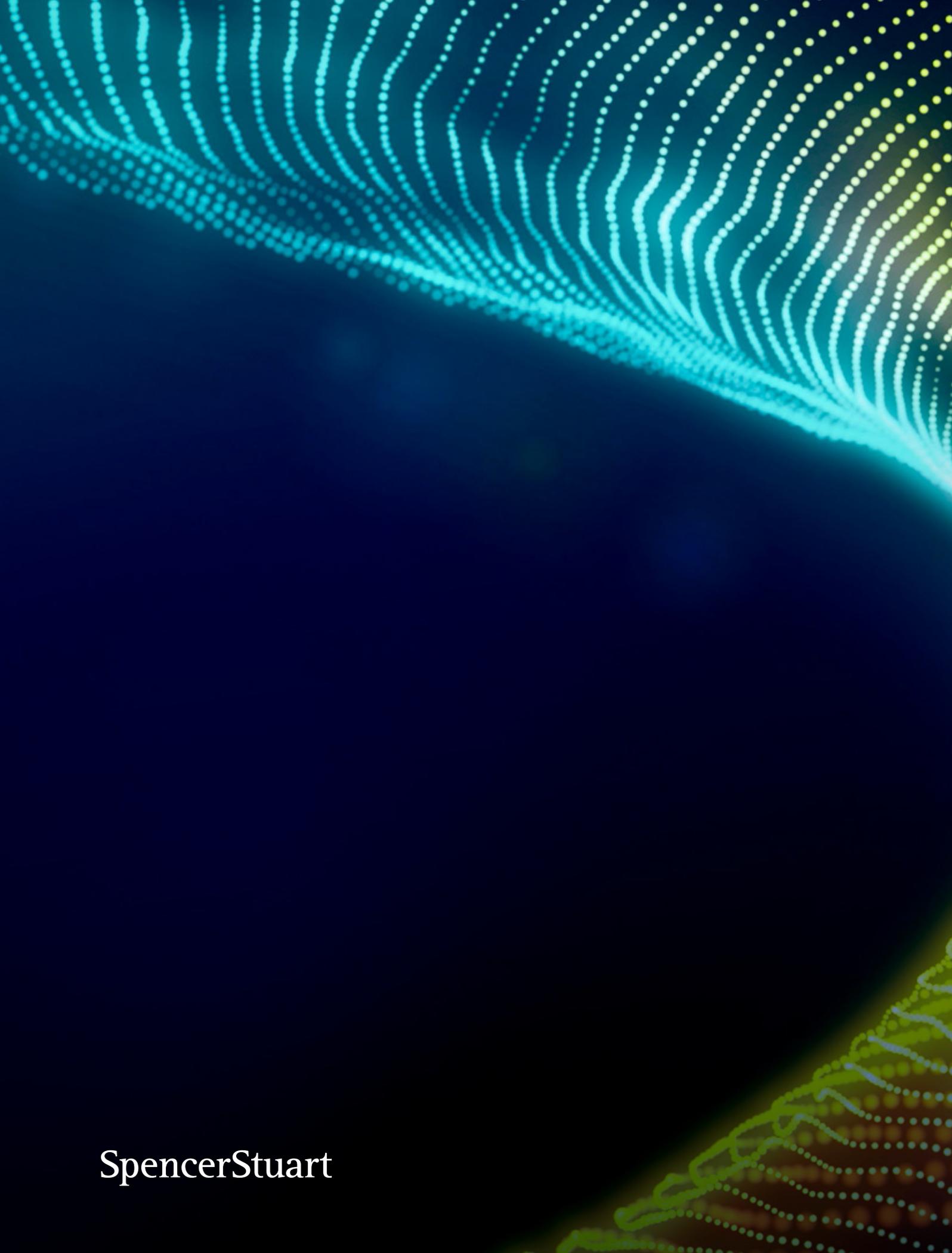
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