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2018 Technology Survey

AUG 2018 | RESEARCH

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EXECUTIVE SUMMARY

Technology and strategy are inextricably linked in today's evolving digital economy. Unfortunately, bank boards—tasked with the oversight of the bank, including its long-term performance in a changing competitive environment—continue to struggle to wrap their hands around technological change and its implications. Seventy-nine percent of directors and executives say their board needs to enhance its level of technological expertise.

Sixty-three percent indicate the board should better understand how to tie technology to bank strategy, and 60 percent say the board should better understand how the bank should invest in technology—a key concern, given rising budgets and an increasing number of technology vendors working with banks.

But the survey also indicates that directors have made strides in their focus on technology, both personally and as a board. Half say the board focuses on technology at every board meeting, up from 42 percent **two years ago**.

And the directors and executives participating in the survey indicate that they're better users of their bank's technology. More than three-quarters say they personally use their bank's mobile and online channels, compared to 51 percent **three years ago**. With the onus on banks to enhance customers' digital experience in the age of Amazon, a better understanding of digital through personal experience can only serve to improve these banks' strategic direction.

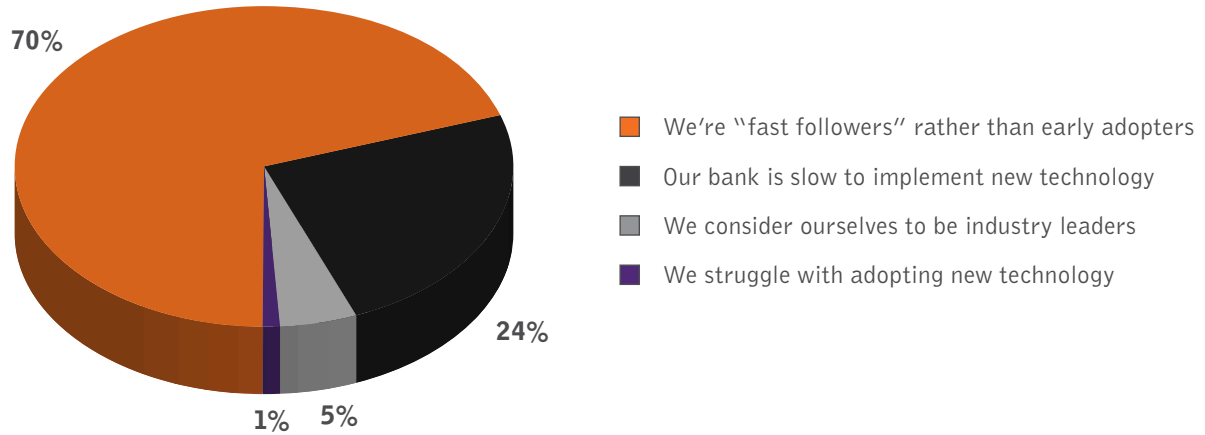
The 2018 Technology Survey is comprised of the responses of 161 directors, chief executive officers, high-level technology executives and other senior executives at banks above \$250 million in assets.

Other key findings:

- Sixty-five percent believe their bank has the products, services and delivery methods to meet the needs and demands of today's customers.
- Eighty-three percent say improving the user experience on digital channels is a goal for their bank over the next two years, followed by improving account onboarding (73 percent) and adding more features to the bank's mobile app (71 percent).
- Despite the buzz around Amazon's Alexa, just 21 percent say integrating with that or a similar external platform is a near-term goal.
- Forty-five percent say they plan to add more branches that will be smaller in size. Thirty-seven percent plan no changes to their bank's branch footprint. More than half plan to update technology used in branches over the next two years, and 47 percent plan to add more technology in the branch. One-third plan to upgrade ATMs.
- At least half of respondents indicate a need for significant improvement in their bank's use of data analytics and business process automation.
- Sixty percent indicate their bank has been increasing the number of staff focused on technology and innovation, and 55 percent have a high-level executive focused on innovation.
- Sixty percent say their management team and board are open to working with newer technology startups. The typical bank, according to the survey, works with a median of seven technology vendors, including its core processor.
- Sixty-one percent say their board has brought in relevant bank staff to better educate itself about technology. Twenty-nine percent have a board-level technology committee that regularly presents to the board.
- Cybersecurity remains the top issue focused on by the board, at 93 percent.

TECHNOLOGY & STRATEGY

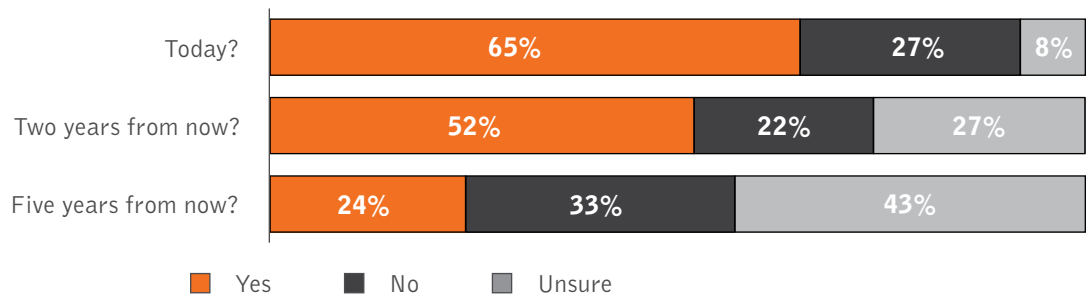
1. How would you describe your bank's approach to technology?



Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
We're "fast followers" rather than early adopters	50%	67%	75%	77%	70%
Our bank is slow to implement new technology	28%	27%	21%	23%	24%
We consider ourselves to be industry leaders	11%	7%	4%	-	5%
We struggle with adopting new technology	11%	-	-	-	1%

2. Do you believe your bank has the appropriate products, services and methods of delivery to meet the needs and demands of your bank's customers:

Numbers don't add up to 100 percent due to rounding.



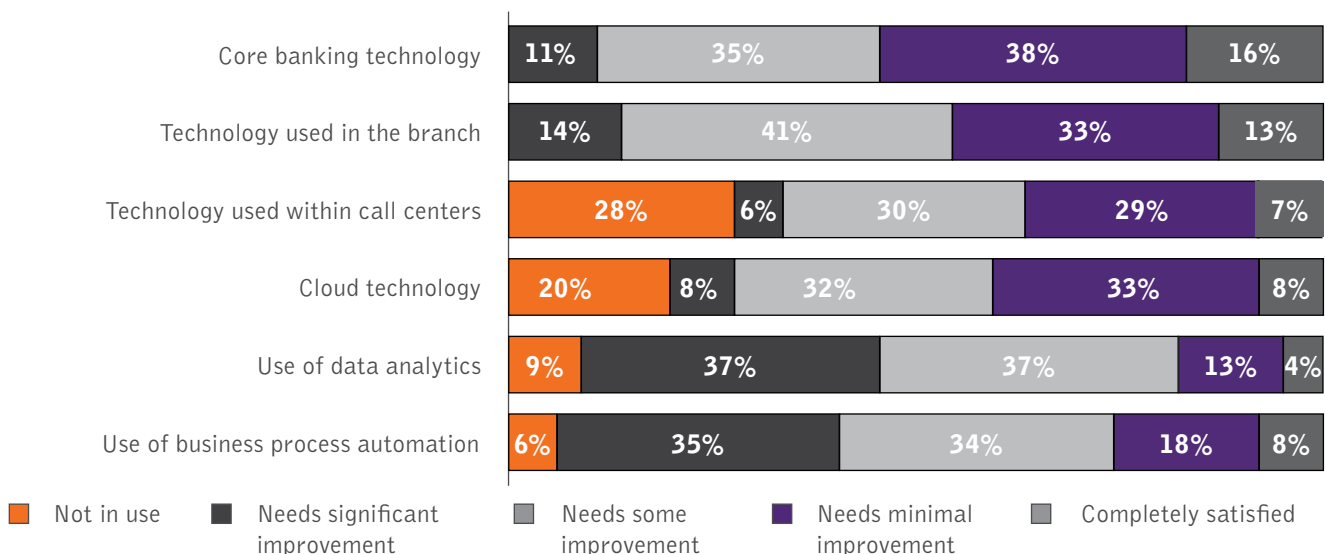
Today?					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Yes	39%	67%	65%	77%	65%
No	61%	23%	29%	10%	27%
Unsure	-	10%	6%	13%	8%

Two years from now?					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Yes	59%	59%	44%	45%	52%
No	24%	17%	25%	24%	22%
Unsure	18%	24%	31%	31%	27%

Five years from now?					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Yes	47%	25%	17%	21%	24%
No	24%	27%	44%	31%	33%
Unsure	29%	47%	39%	48%	43%

3. Describe your satisfaction regarding the strategic use of the following technologies currently in place at your bank.

Numbers don't add up to 100 percent due to rounding.



Core banking technology					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Not in use	-	-	-	-	-
Needs significant improvement	22%	7%	14%	10%	11%
Needs some improvement	50%	33%	29%	40%	35%
Needs minimal improvement	28%	42%	40%	30%	38%
Completely satisfied	-	18%	17%	20%	16%

Technology used in the branch					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Not in use	-	-	-	-	-
Needs significant improvement	44%	8%	14%	7%	14%
Needs some improvement	44%	43%	37%	40%	41%
Needs minimal improvement	6%	37%	35%	40%	33%
Completely satisfied	6%	12%	15%	13%	13%

Technology used within call centers					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Not in use	-	17%	39%	47%	28%
Needs significant improvement	13%	7%	2%	10%	6%
Needs some improvement	50%	30%	25%	27%	30%
Needs minimal improvement	38%	35%	27%	17%	29%
Completely satisfied	-	12%	8%	-	7%

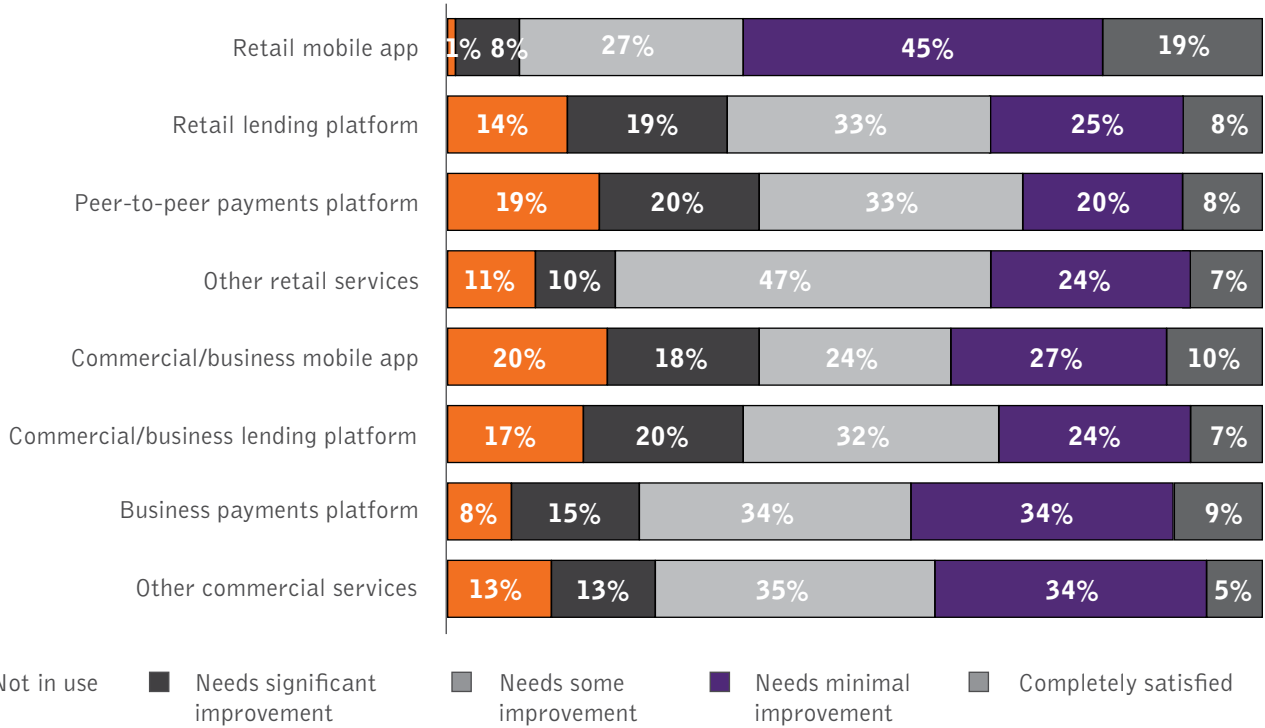
Cloud technology					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Not in use	11%	25%	23%	7%	20%
Needs significant improvement	11%	3%	12%	7%	8%
Needs some improvement	50%	27%	27%	38%	32%
Needs minimal improvement	28%	36%	31%	35%	33%
Completely satisfied	-	8%	8%	14%	8%

Use of data analytics					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Not in use	6%	5%	14%	13%	9%
Needs significant improvement	50%	43%	31%	27%	37%
Needs some improvement	39%	35%	39%	40%	37%
Needs minimal improvement	6%	13%	12%	20%	13%
Completely satisfied	-	5%	6%	-	4%

Use of business process automation					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Not in use	6%	5%	4%	10%	6%
Needs significant improvement	56%	32%	37%	27%	35%
Needs some improvement	33%	38%	33%	30%	34%
Needs minimal improvement	6%	18%	17%	23%	18%
Completely satisfied	-	7%	10%	10%	8%

4. Describe your satisfaction regarding the strategic use of the following customer-facing technologies currently in place at your bank.

Numbers don't add up to 100 percent due to rounding.



Retail mobile app					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Not in use	-	-	2%	3%	1%
Needs significant improvement	28%	5%	4%	7%	8%
Needs some improvement	22%	30%	25%	27%	27%
Needs minimal improvement	50%	45%	44%	43%	45%
Completely satisfied	-	20%	25%	20%	19%

Retail lending platform					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Not in use	17%	10%	15%	20%	14%
Needs significant improvement	33%	24%	19%	3%	19%
Needs some improvement	22%	32%	33%	40%	33%
Needs minimal improvement	28%	25%	25%	23%	25%
Completely satisfied	-	8%	8%	13%	8%

Peer-to-peer payments platform					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Not in use	11%	19%	17%	27%	19%
Needs significant improvement	44%	19%	23%	3%	20%
Needs some improvement	17%	34%	33%	40%	33%
Needs minimal improvement	28%	20%	15%	23%	20%
Completely satisfied	-	8%	12%	7%	8%

Other retail services					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Not in use	6%	7%	15%	14%	11%
Needs significant improvement	11%	14%	10%	3%	10%
Needs some improvement	78%	40%	44%	48%	47%
Needs minimal improvement	6%	30%	25%	24%	24%
Completely satisfied	1%	9%	6%	10%	7%

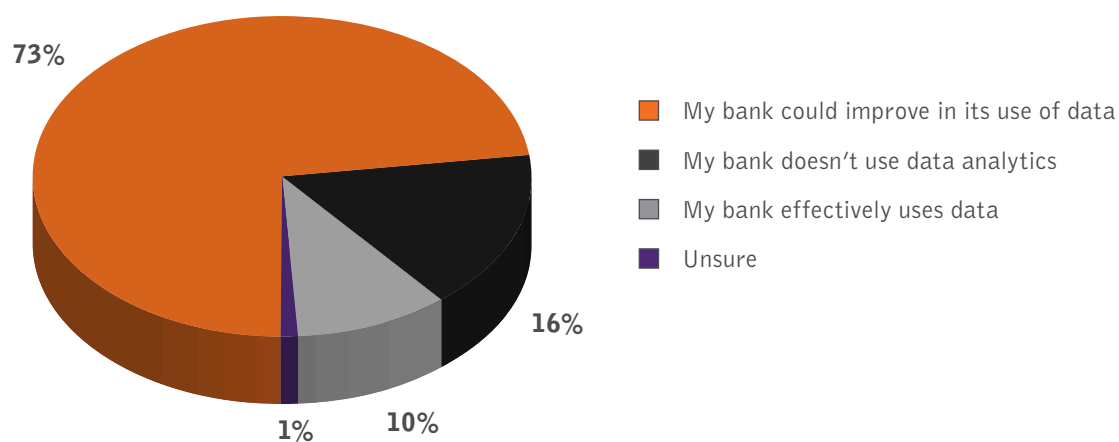
Commercial/business mobile app					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Not in use	22%	19%	21%	21%	20%
Needs significant improvement	22%	21%	14%	21%	18%
Needs some improvement	28%	24%	25%	21%	24%
Needs minimal improvement	28%	26%	29%	24%	27%
Completely satisfied	-	10%	12%	14%	10%

Commercial/business lending platform					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Not in use	17%	12%	21%	20%	17%
Needs significant improvement	28%	25%	17%	10%	20%
Needs some improvement	28%	34%	33%	30%	32%
Needs minimal improvement	28%	24%	17%	33%	24%
Completely satisfied	-	5%	12%	7%	7%

Business payments platform					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Not in use	11%	5%	8%	10%	8%
Needs significant improvement	6%	24%	10%	10%	15%
Needs some improvement	33%	25%	41%	40%	34%
Needs minimal improvement	50%	37%	26%	33%	34%
Completely satisfied	-	8%	16%	7%	9%

Other commercial services					
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Not in use	13%	9%	14%	20%	13%
Needs significant improvement	13%	19%	6%	13%	13%
Needs some improvement	38%	33%	40%	30%	35%
Needs minimal improvement	38%	34%	33%	33%	34%
Completely satisfied	-	5%	8%	3%	5%

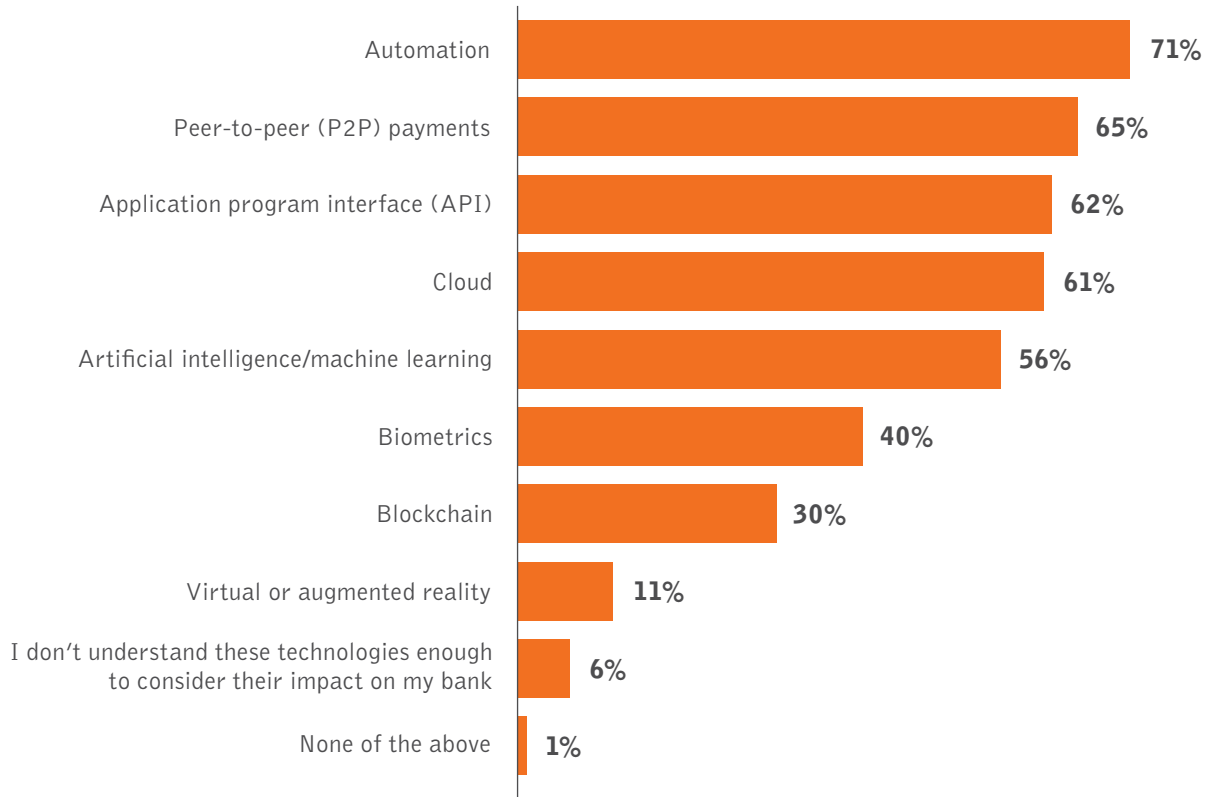
5. How effectively does your bank use data to serve the needs of your existing customers or identify new customers?



Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
My bank could improve in its use of data	78%	78%	62%	79%	73%
My bank doesn't use data analytics	11%	10%	23%	18%	16%
My bank effectively uses data	11%	8%	15%	4%	10%
Unsure	-	3%	-	-	1%

6. Which of the following technologies do you believe will directly impact your financial institution over the next two years?

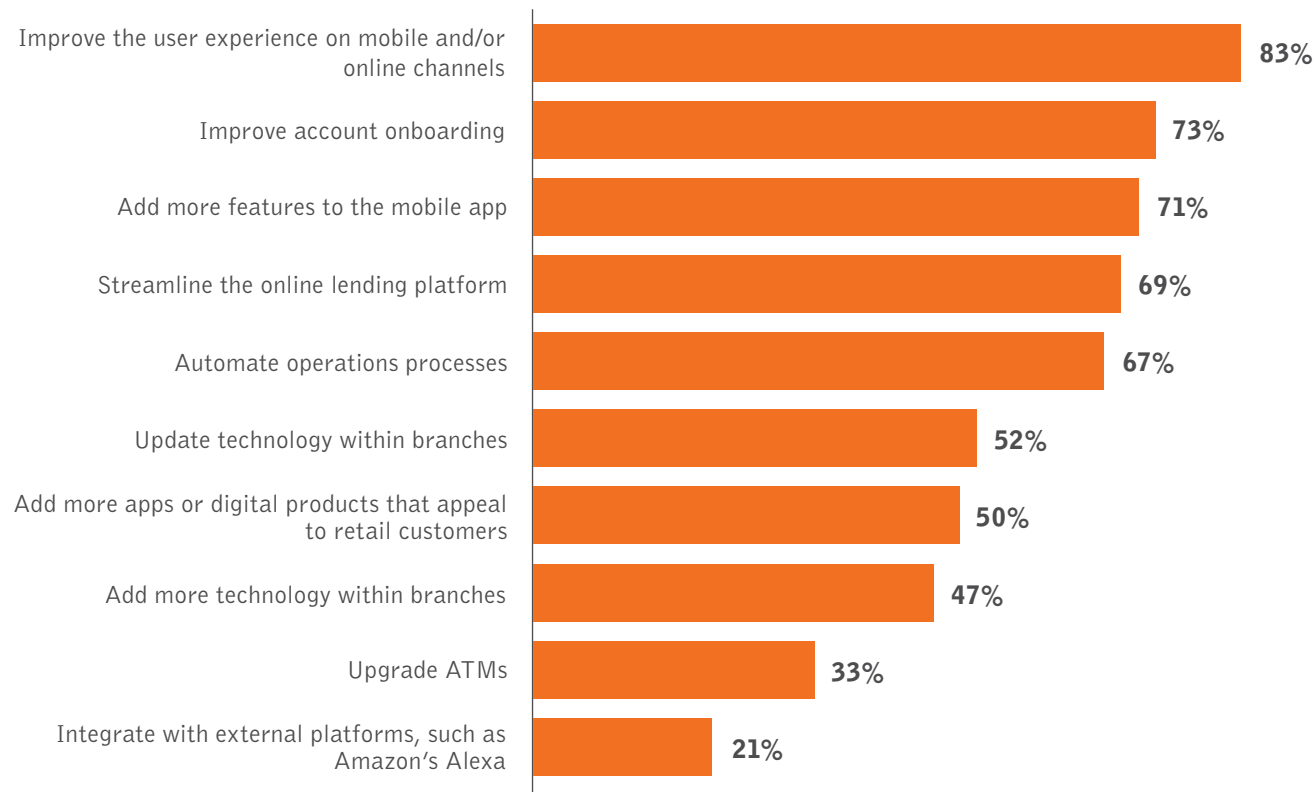
Respondents were asked to select all that apply.



Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Automation	83%	63%	78%	67%	71%
Peer-to-peer (P2P) payments	89%	60%	67%	57%	65%
Application program interface (API)	78%	55%	75%	47%	62%
Cloud	89%	57%	59%	57%	61%
Artificial intelligence/machine learning	72%	62%	55%	37%	56%
Biometrics	44%	38%	33%	50%	40%
Blockchain	17%	33%	29%	30%	30%
Virtual or augmented reality	11%	8%	16%	10%	11%
I don't understand these technologies enough to consider their impact on my bank	-	7%	4%	13%	6%
None of the above	-	-	-	3%	1%

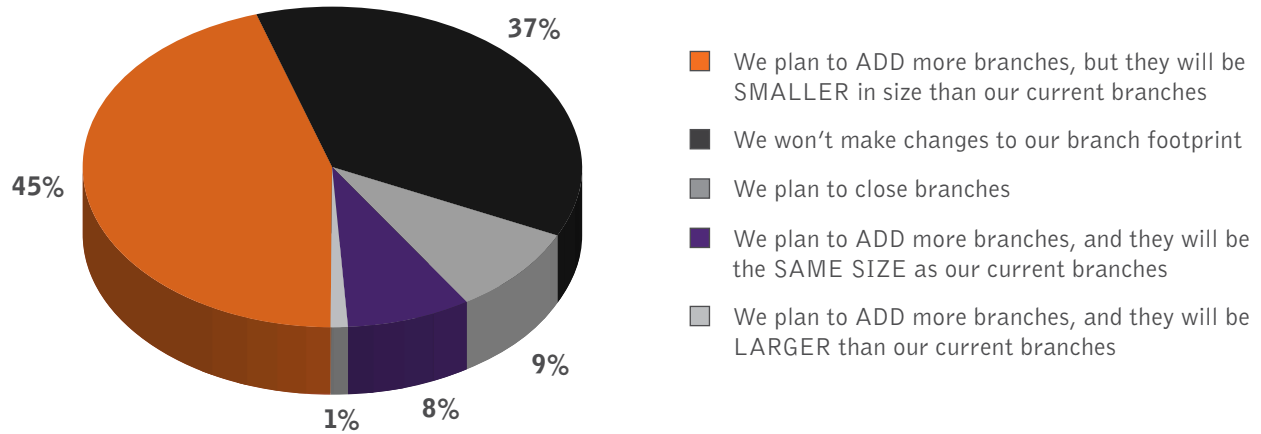
7. Regarding technology and your bank's retail strategy, which of the following are goals for your financial institution over the next two years?

Respondents were asked to select all that apply.



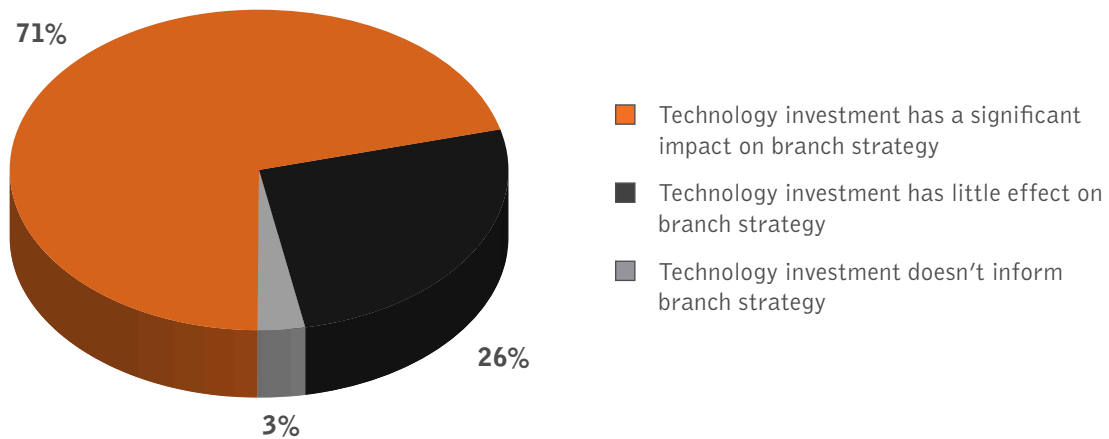
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Improve the user experience on mobile and/or online channels	94%	81%	79%	86%	83%
Improve account onboarding	88%	75%	71%	64%	73%
Add more features to the mobile app	81%	64%	67%	82%	71%
Streamline the online lending platform	81%	72%	69%	57%	69%
Automate operations processes	88%	63%	73%	54%	67%
Update technology within branches	56%	46%	54%	57%	52%
Add more apps or digital products that appeal to retail customers	63%	39%	56%	54%	50%
Add more technology within branches	56%	46%	48%	43%	47%
Upgrade ATMs	19%	36%	38%	29%	33%
Integrate with external platforms, such as Amazon's Alexa	25%	22%	25%	11%	21%

8. Regarding the branch channel, which of the following BEST DESCRIBE your bank’s strategy?



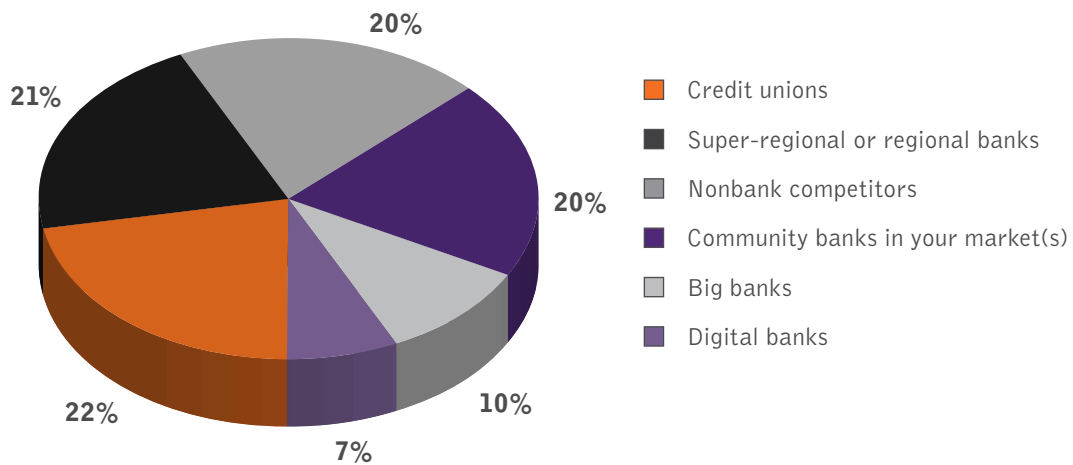
Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
We plan to ADD more branches, but they will be SMALLER in size than our current branches	21%	53%	48%	35%	45%
We won't make changes to our branch footprint	43%	29%	34%	58%	37%
We plan to close branches	36%	5%	8%	4%	9%
We plan to ADD more branches, and they will be the SAME SIZE as our current branches	-	10%	10%	4%	8%
We plan to ADD more branches, and they will be LARGER than our current branches	-	2%	-	-	1%

9. How does your bank’s investment in technology impact your bank’s branch strategy?



Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Technology investment has a significant impact on branch strategy	79%	68%	68%	77%	71%
Technology investment has little effect on branch strategy	21%	31%	26%	19%	26%
Technology investment doesn't inform branch strategy	-	2%	6%	4%	3%

10. Which of the following pose the greatest competitive threat to your bank?



Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Credit unions	6%	20%	27%	29%	22%
Super-regional or regional banks	19%	22%	22%	18%	21%
Nonbank competitors	25%	27%	12%	18%	20%
Community banks in your market(s)	13%	10%	25%	36%	20%
Big banks	25%	15%	4%	-	10%
Digital banks	13%	5%	10%	-	7%

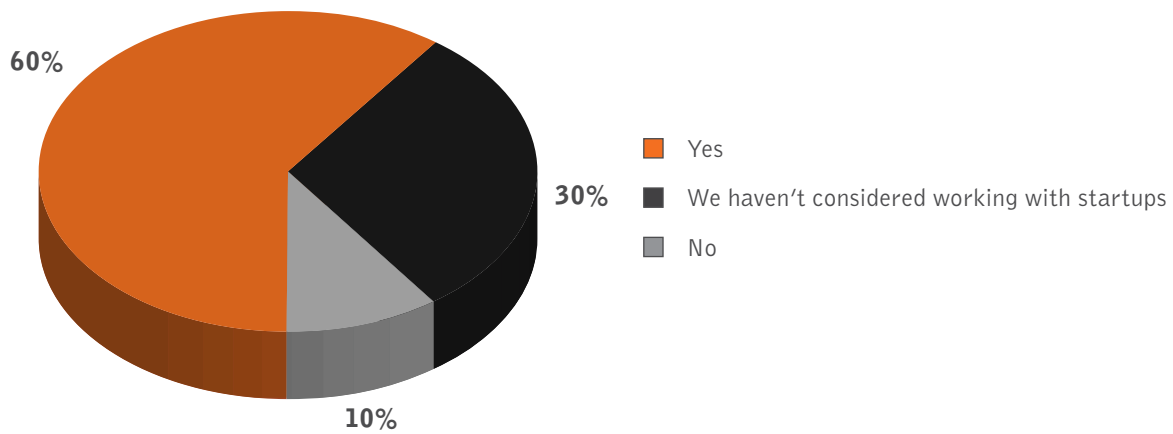
VENDOR RELATIONSHIPS

11. Including your bank’s core processor, how many technology firms currently work with your institution?

Median values reported.

Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Median	12	8	8	5	7

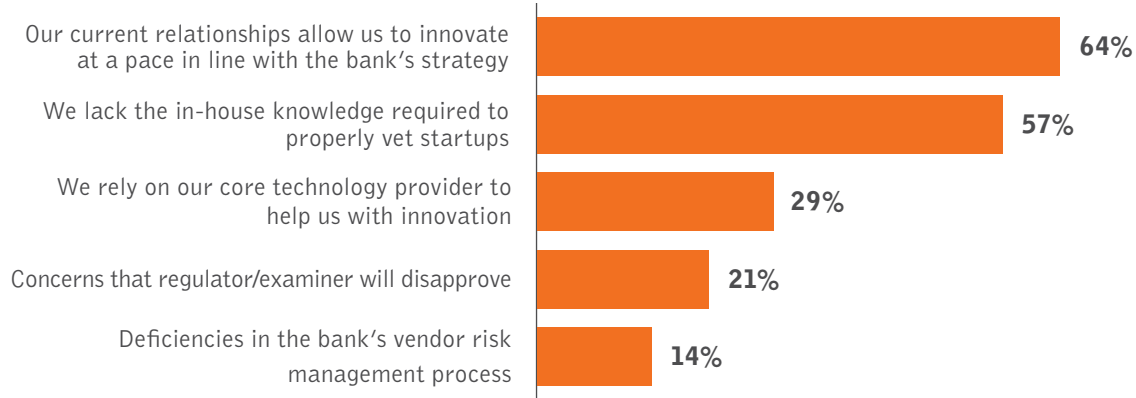
12. Are the management team and board at your bank open to working with newer fintech startups, which were founded less than five years ago, to help the bank implement new products and services, or create efficiencies within the organization?



Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Yes	69%	72%	52%	44%	60%
We haven't considered working with startups	19%	25%	33%	44%	30%
No	13%	4%	15%	12%	10%

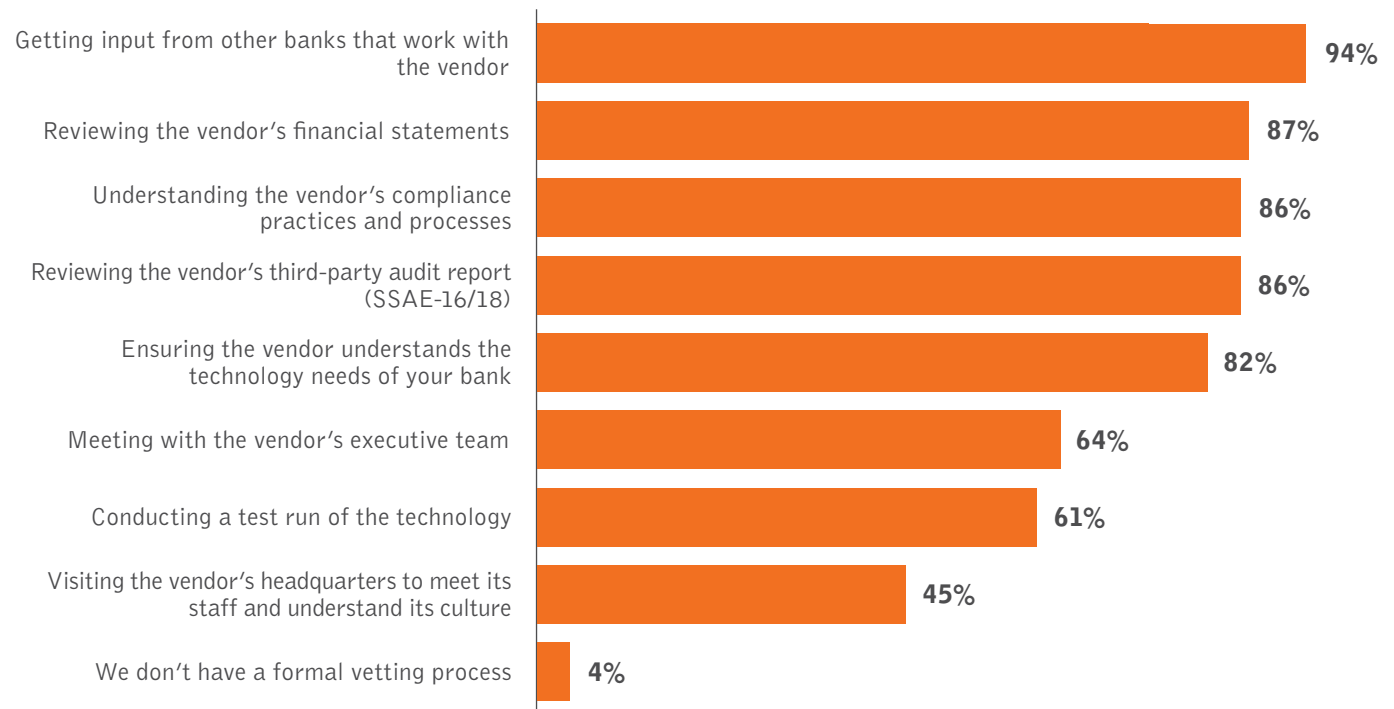
13. Why is the bank reluctant to work with newer fintech startups?

Respondents were asked to select all that apply. Question was only asked of respondents whose management team and board were not open to working with newer fintech startups.



14. Which of the following are elements of your bank's process for vetting technology vendors?

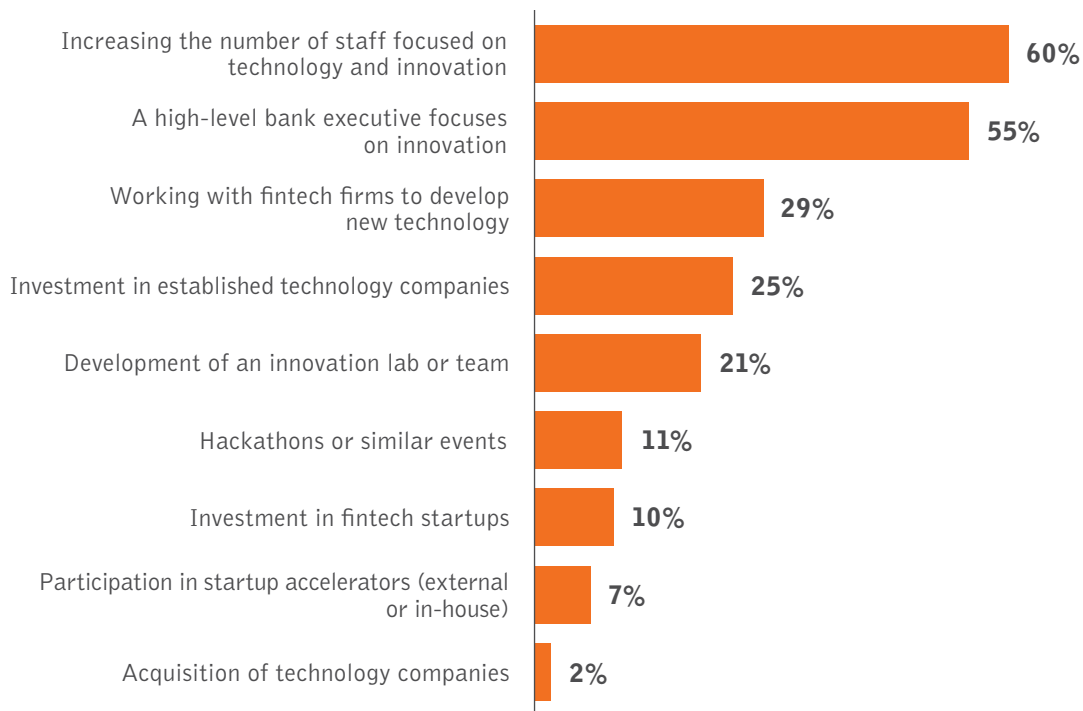
Respondents were asked to select all that apply.



Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Getting input from other banks that work with the vendor	100%	92%	94%	92%	94%
Reviewing the vendor's financial statements	93%	90%	83%	85%	87%
Understanding the vendor's compliance practices and processes	100%	92%	79%	81%	86%
Reviewing the vendor's third-party audit report (SSAE-16/18)	93%	88%	79%	92%	86%
Ensuring the vendor understands the technology needs of your bank	100%	83%	79%	77%	82%
Meeting with the vendor's executive team	87%	69%	60%	46%	64%
Conducting a test run of the technology	80%	56%	57%	69%	61%
Visiting the vendor's headquarters to meet its staff and understand its culture	67%	56%	36%	27%	45%
We don't have a formal vetting process	-	-	4%	12%	4%

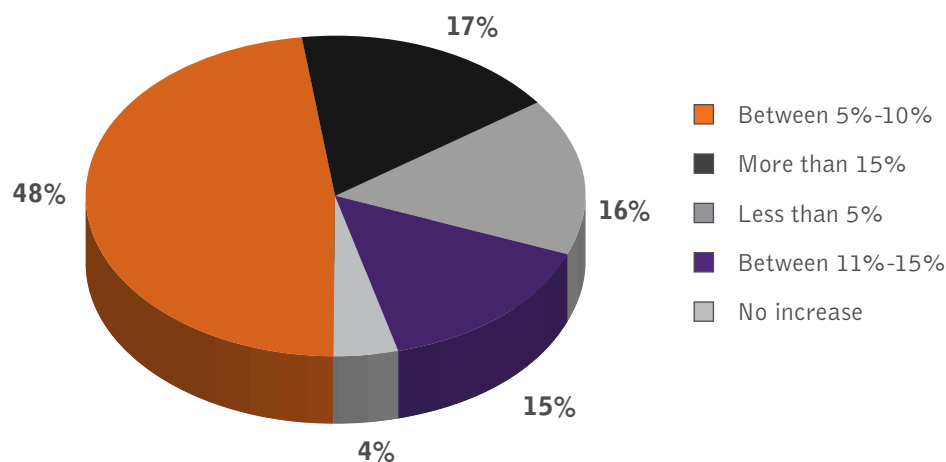
15. Which of the following are elements of your bank's innovation strategy?

Respondents were asked to select all that apply.



Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Increasing the number of staff focused on technology and innovation	67%	54%	68%	55%	60%
A high-level bank executive focuses on innovation	73%	50%	56%	50%	55%
Working with fintech firms to develop new technology	47%	35%	20%	18%	29%
Investment in established technology companies	20%	25%	27%	27%	25%
Development of an innovation lab or team	27%	27%	20%	9%	21%
Hackathons or similar events	20%	8%	12%	9%	11%
Investment in fintech startups	20%	10%	10%	5%	10%
Participation in startup accelerators (external or in-house)	27%	8%	-	5%	7%
Acquisition of technology companies	7%	2%	2%	-	2%

16. How much has your bank's technology budget increased for fiscal year 2018?

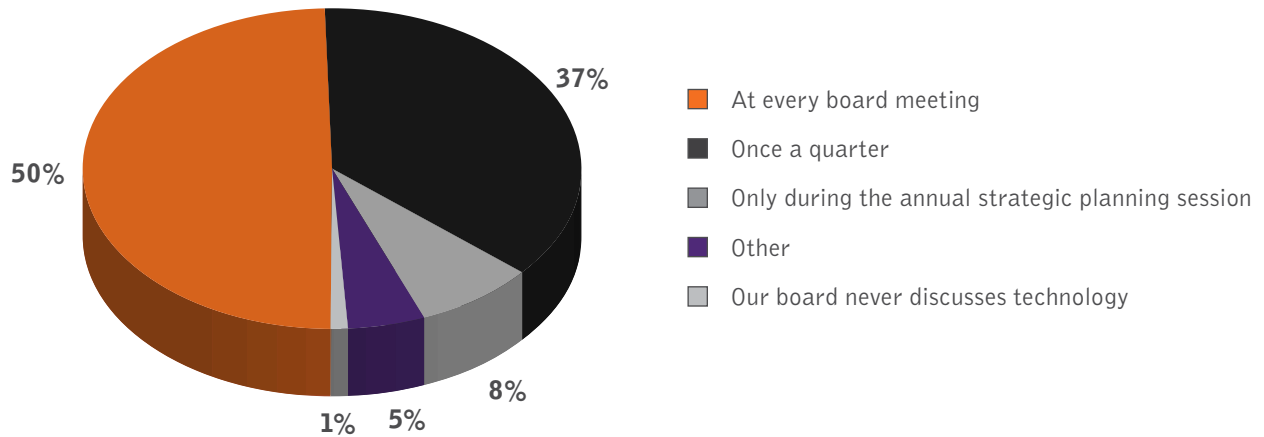


Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Between 5%-10%	64%	52%	43%	42%	48%
More than 15%	7%	14%	23%	15%	17%
Less than 5%	7%	16%	17%	19%	16%
Between 11%-15%	14%	12%	15%	19%	15%
No increase	7%	6%	2%	4%	4%

TECHNOLOGY GOVERNANCE

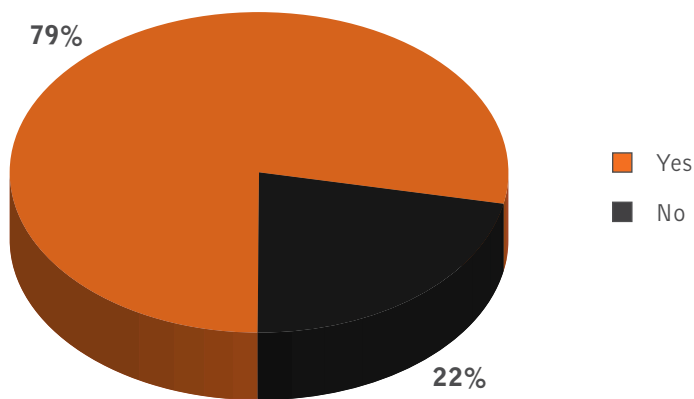
17. How frequently does your board discuss technology?

Numbers don't add up to 100 percent due to rounding.



Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
At every board meeting	47%	40%	59%	52%	50%
Once a quarter	33%	45%	30%	37%	37%
Only during the annual strategic planning session	7%	4%	9%	11%	8%
Other	13%	11%	-	-	5%
Our board never discusses technology	-	-	2%	-	1%

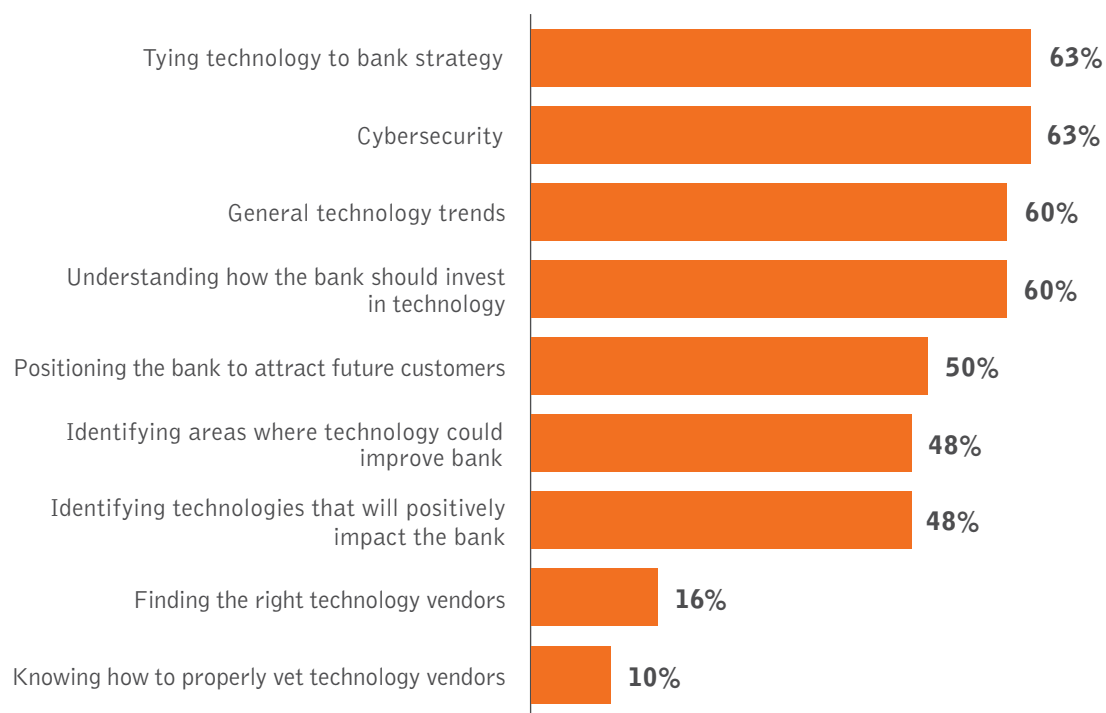
18. In your opinion, does the board as a whole need to enhance its level of expertise regarding technology?



Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Yes	80%	78%	77%	82%	79%
No	20%	22%	23%	19%	22%

19. Where does the board need to improve its knowledge of technology?

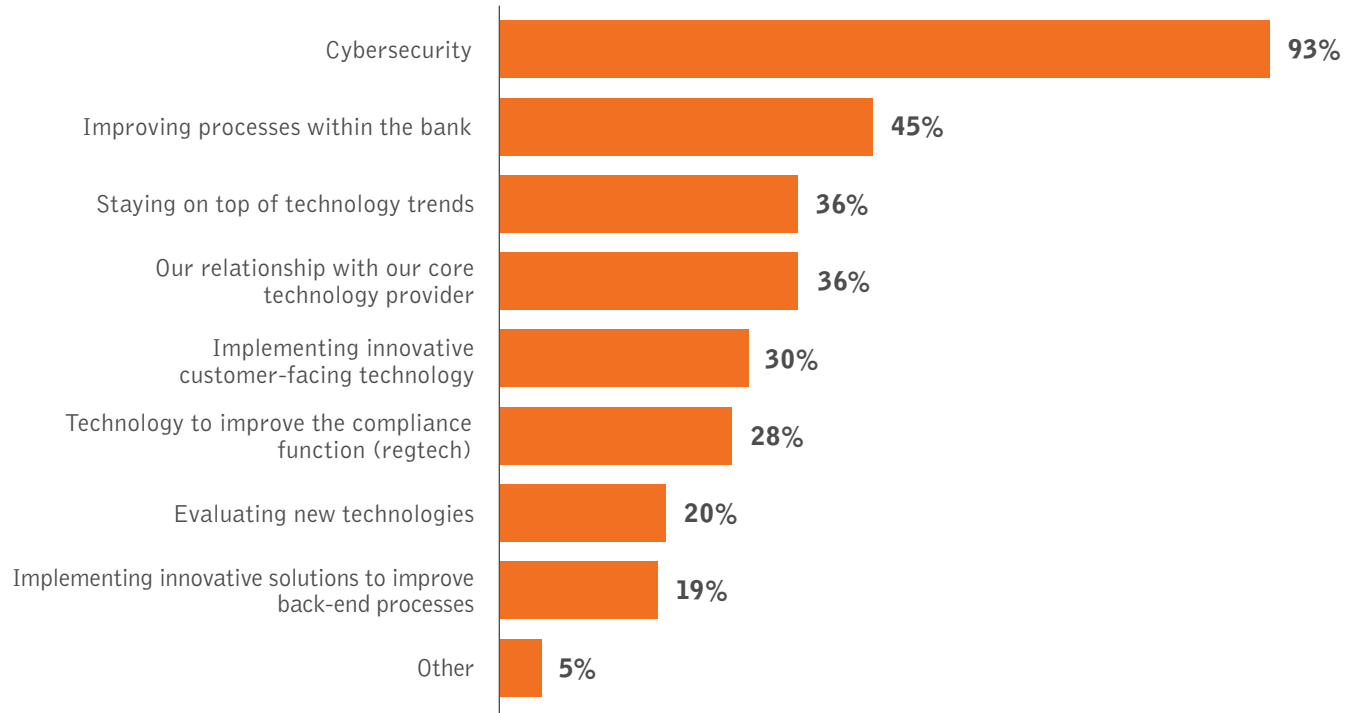
Respondents were asked to select all that apply.



Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Tying technology to bank strategy	80%	59%	64%	62%	63%
Cybersecurity	40%	65%	64%	69%	63%
General technology trends	73%	55%	61%	62%	60%
Understanding how the bank should invest in technology	60%	57%	66%	58%	60%
Positioning the bank to attract future customers	47%	43%	59%	50%	50%
Identifying areas where technology could improve bank	47%	39%	61%	42%	48%
Identifying technologies that will positively impact the bank	47%	39%	57%	50%	48%
Finding the right technology vendors	7%	16%	16%	19%	16%
Knowing how to properly vet technology vendors	7%	8%	7%	23%	10%

20. Regarding technology, what issues does the board CURRENTLY focus on?

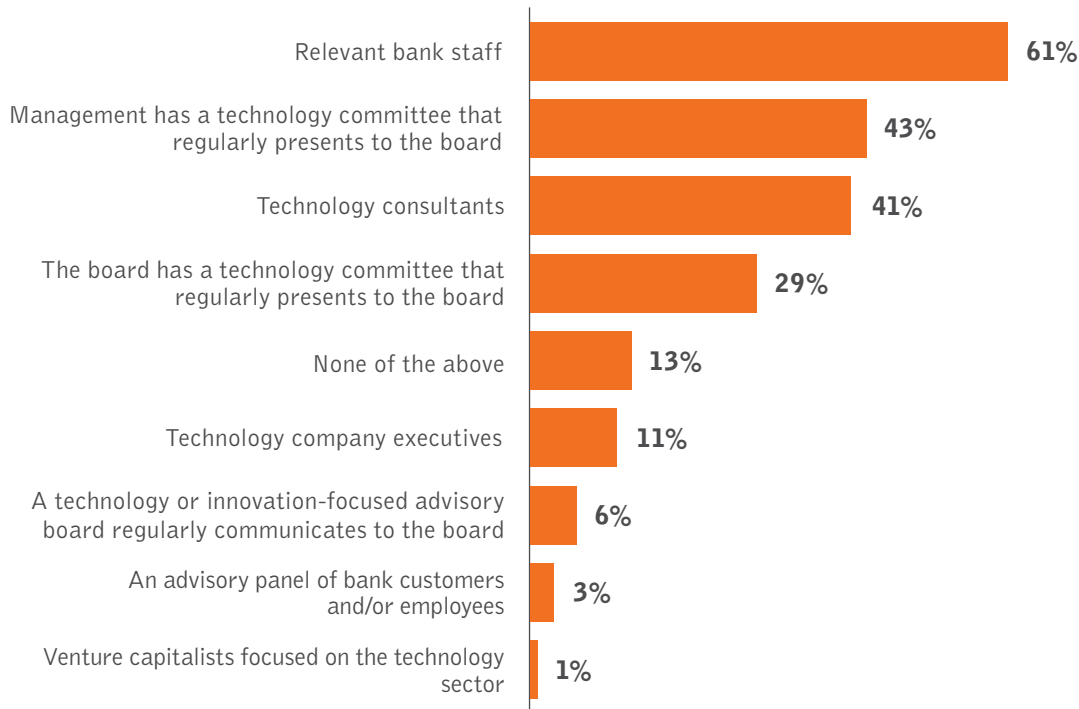
Respondents were asked to select all that apply.



Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Cybersecurity	80%	94%	96%	92%	93%
Improving processes within the bank	47%	34%	50%	58%	45%
Staying on top of technology trends	40%	28%	32%	54%	36%
Our relationship with our core technology provider	27%	38%	41%	27%	36%
Implementing innovative customer-facing technology	33%	26%	30%	35%	30%
Technology to improve the compliance function (regtech)	33%	24%	39%	15%	28%
Evaluating new technologies	-	16%	25%	31%	20%
Implementing innovative solutions to improve back-end processes	20%	14%	21%	23%	19%
Other	7%	8%	-	8%	5%

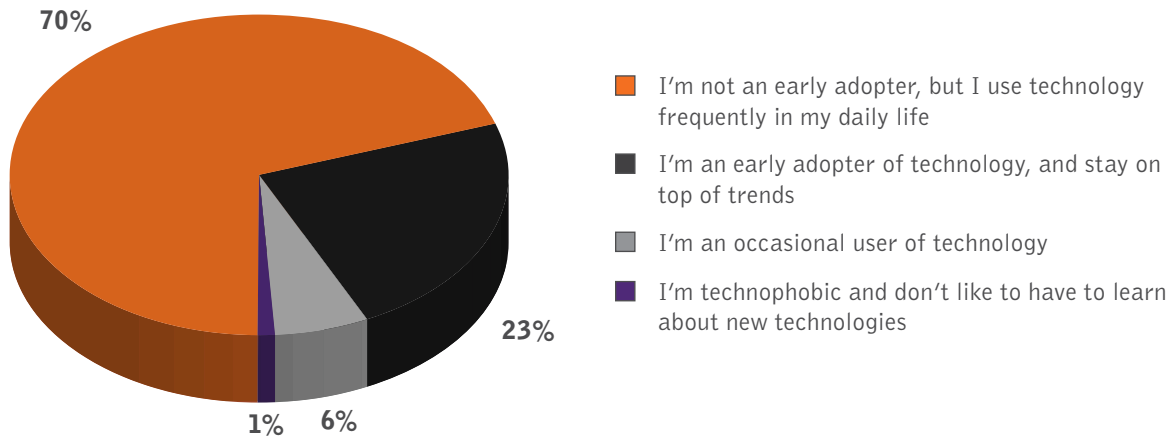
21. Has the board brought in any of the following within the past year to better educate itself about technology?

Respondents were asked to select all that apply.



Bank Asset Size	>\$10B	\$1B-\$10B	\$500M-\$1B	<\$500M	Total
Relevant bank staff	73%	70%	50%	56%	61%
Management has a technology committee that regularly presents to the board	27%	44%	41%	56%	43%
Technology consultants	53%	46%	43%	22%	41%
The board has a technology committee that regularly presents to the board	13%	36%	27%	26%	29%
None of the above	7%	14%	14%	15%	13%
Technology company executives	13%	12%	9%	11%	11%
A technology or innovation-focused advisory board regularly communicates to the board	20%	4%	2%	7%	6%
An advisory panel of bank customers and/or employees	-	4%	2%	4%	3%
Venture capitalists focused on the technology sector	7%	-	-	-	1%

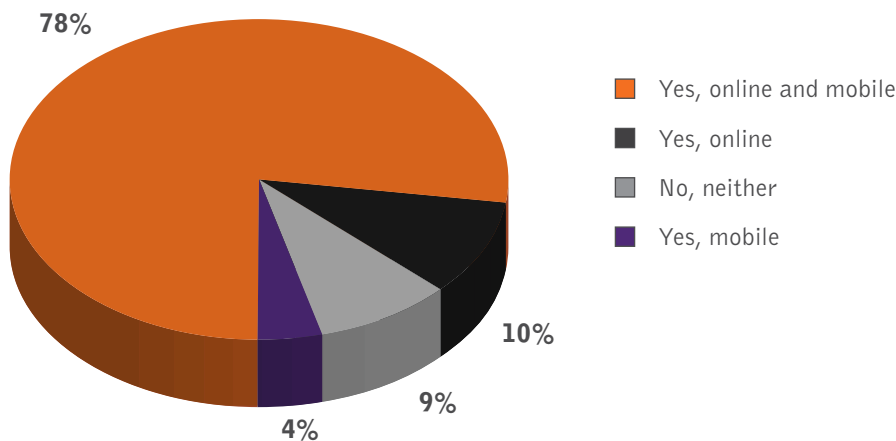
22. Which statement best describes your use of technology in your personal life?



Age	>65 years	55-64 years	45-54 years	<44 years	Total
I'm not an early adopter, but I use technology frequently in my daily life	77%	67%	73%	53%	70%
I'm an early adopter of technology, and stay on top of trends	12%	28%	23%	40%	23%
I'm an occasional user of technology	12%	2%	3%	7%	6%
I'm technophobic and don't like to have to learn about new technologies	-	2%	-	-	1%

23. Do you personally use your bank's online or mobile banking channels?

Numbers don't add up to 100 percent due to rounding.

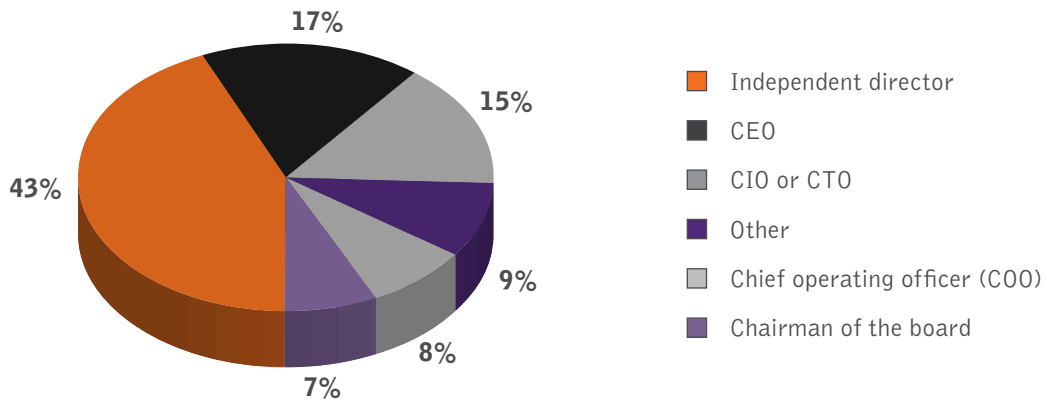


ABOUT THE SURVEY

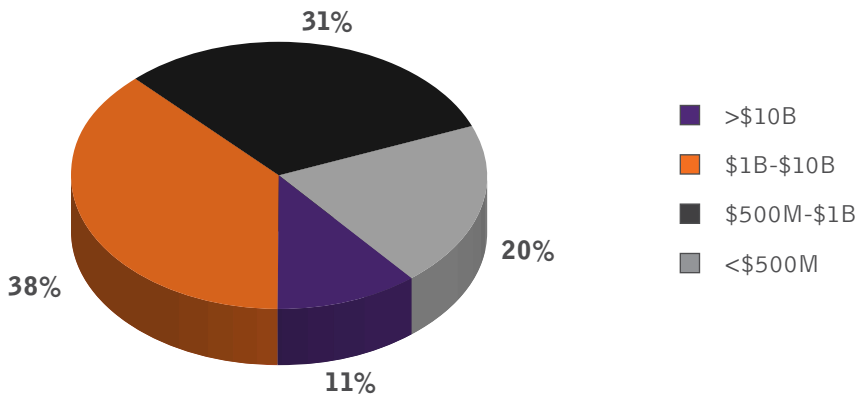
Bank Director’s 2018 Technology Survey, sponsored by CDW, surveyed 161 independent directors, chief executives, high-level technology executives and other senior executives of U.S. banks above \$250 million in assets to understand how banks are strategically using technology today, how they’re vetting vendors and how boards are staying on top of this important issue. The survey was conducted in late June and throughout July 2018. Half of the respondents are independent directors or chairmen, 17 percent serve as the bank’s CEO and 15 percent as the bank’s chief information officer or chief technology officer. Thirty-eight percent represent a bank between \$1 billion and \$10 billion in assets. Thirty-eight percent represent a bank between \$1 billion and \$10 billion in assets.

Title Breakdown

Numbers don’t add up to 100 percent due to rounding.



Asset Size



Respondent Age

