

2020 Technology Survey

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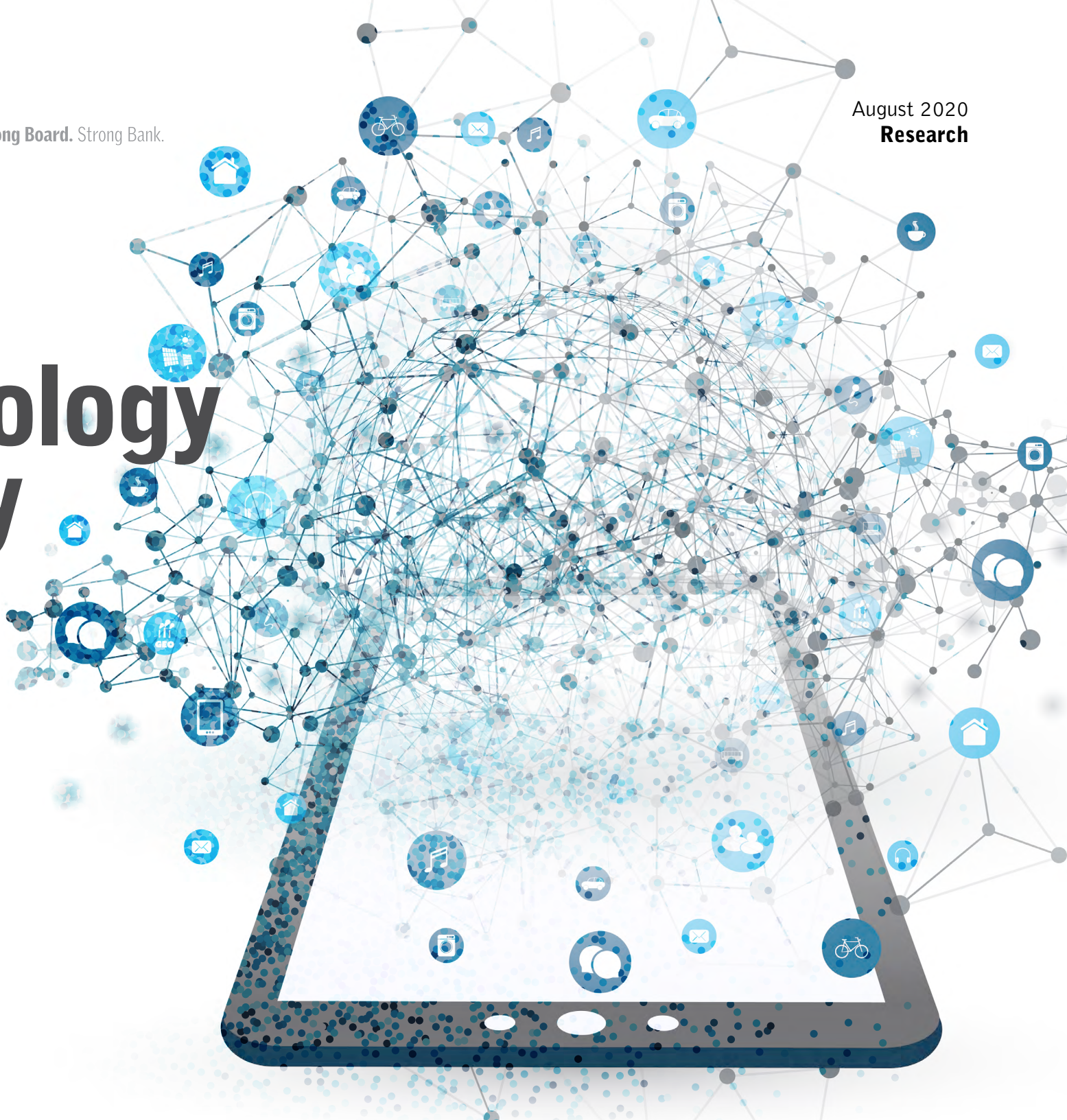


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About Bank Director

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EXECUTIVE SUMMARY



Emily McCormick is the vice president of research for Bank Director, an information resource for directors and officers of financial companies. You can follow her on Twitter or get connected on LinkedIn.

The Covid-19 pandemic has bankers reexamining the value of their branches.

While branch networks remain vital, their preeminence as a delivery channel has been diminished through the coronavirus crisis.

Bank Director's 2020 Technology Survey, sponsored by CDW, finds that bank executives and directors indicating that the digital channel is most important to their bank's growth (50%) outnumber those who place equal value on both the digital and branch channels (46%).

In last year's survey, those numbers were essentially flipped, with 51% indicating that the two channels were equally important, and 38% prioritizing mobile and online channels.

This accelerates the evolution that the industry has undergone for years. Nearly all respondents — 97% — say their bank has seen increased adoption and use of digital channels due to Covid-19.

The survey was distributed in June and July, after a period of time when many banks upgraded their technology to better serve customers digitally, facilitate remote work by their employees and respond to the high demand for Paycheck Protection Program (PPP) loans. Sixty-five percent say their bank implemented or upgraded technology due to the coronavirus crisis. Of these respondents, 70% say their bank adopted technology to issue PPP loans.

These executives and directors also report installing or upgrading customer-facing virtual meeting technology and/or interactive teller machines (39%), or enabling customers to apply for loans (35%) and/or open deposit accounts digitally (32%).

Yet, just 37% sought new technology providers as a result of the pandemic.

The survey also reveals that fewer banks rely on their core provider to drive their technology strategy forward. Forty-one percent indicate that their bank relies on its core to introduce innovative solutions, down from 60% in last year's survey. Sixty percent look to non-core providers for new solutions.

KEY FINDINGS

➔ Focus on Experience

Eighty-one percent of respondents say improving the customer experience drives their bank's technology strategy; 79% seek efficiencies.

➔ Driving the Strategy Forward

For 64% of respondents, modernizing digital applications represents an important piece of their bank's overall technology strategy. While banks look to third-party providers for the solutions they need, they're also participating in industry groups (37%), designating a high-level executive to focus on innovation (37%) and engaging directors through a board-level technology committee (35%). A few are taking internal innovation even further by hiring developers (12%) and/or data scientists (9%), or building an innovation lab or team (15%).

➔ Room for Improvement

Just 13% of respondents say their small business lending process is fully digital, and 55% say commercial customers can't apply for a loan digitally. Retail lending shows more progress; three-quarters say their process is at least partially digital.

➔ Spending Continues to Rise

Banks budgeted a median of \$900,000 for technology spending in fiscal year 2020, up from \$750,000 last year. But financial institutions spent above and beyond that to respond to Covid-19, with 64% reporting increased spending due to the pandemic.

➔ Impact on Technology Roadmaps

More than half say their bank adjusted its technology roadmap in response to the current crisis. Of these respondents, 74% want to enhance online and mobile banking capabilities. Two-thirds plan to upgrade — or have upgraded — existing technology, and 55% prioritize adding new digital lending capabilities.

➔ Remote Work Permanent for Some

Forty-two percent say their institution plans to permanently shift more of its employees to remote work arrangements following the Covid-19 crisis; another 23% haven't made a decision.

STRATEGY & INVESTMENT

1. What are the top three objectives that drive your bank's technology strategy?

Respondents were asked to select no more than three options.



Improving the customer experience



Creating a more efficient operation



Improving online and mobile offerings

Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Improving the customer experience	75%	82%	82%	81%	81%
Creating a more efficient operation	83%	66%	82%	90%	79%
Improving online and mobile offerings	33%	37%	50%	29%	39%
Building and/or implementing more innovative solutions	42%	37%	24%	29%	31%
Leveraging data for customer and/or strategic insights	33%	37%	21%	19%	27%
Enhancing the bank's top-line growth (revenues and/or sales)	25%	21%	29%	26%	25%
Competing with larger banks	8%	11%	5%	26%	13%
Redesigning branches	-	3%	5%	-	3%
Other	-	3%	-	-	1%

2. Who is the primary provider of the following technologies currently used by your financial institution?

Application programming interfaces (APIs)					
Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Core provider	17%	65%	63%	45%	54%
Alternate provider	58%	14%	24%	13%	21%
Developed in-house	17%	8%	3%	3%	6%
We don't use this technology	-	-	5%	16%	6%
Unsure	8%	14%	5%	23%	13%

Artificial intelligence (AI)/machine learning					
Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Core provider	-	11%	16%	13%	12%
Alternate provider	50%	31%	32%	10%	27%
Developed in-house	8%	3%	-	-	2%
We don't use this technology	33%	42%	37%	68%	46%
Unsure	8%	14%	16%	10%	13%

Biometrics

Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Core provider	9%	11%	16%	3%	11%
Alternate provider	36%	19%	27%	31%	27%
Developed in-house	9%	-	-	-	1%
We don't use this technology	36%	47%	41%	55%	46%
Unsure	9%	22%	16%	10%	16%

Cloud

Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Core provider	17%	28%	40%	32%	32%
Alternate provider	75%	53%	47%	58%	55%
Developed in-house	-	3%	-	-	1%
We don't use this technology	-	6%	5%	3%	4%
Unsure	8%	11%	8%	7%	9%

Data aggregation

Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Core provider	8%	36%	46%	57%	42%
Alternate provider	42%	25%	35%	7%	25%
Developed in-house	42%	8%	5%	13%	12%
We don't use this technology	-	14%	11%	20%	13%
Unsure	8%	17%	3%	3%	8%

Digital account opening

Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Core provider	18%	28%	55%	40%	39%
Alternate provider	73%	53%	26%	23%	38%
Developed in-house	-	3%	-	3%	2%
We don't use this technology	-	11%	16%	33%	17%
Unsure	9%	6%	3%	-	4%

Mobile banking

Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Core provider	17%	42%	70%	87%	60%
Alternate provider	67%	58%	27%	10%	36%
Developed in-house	-	-	-	3%	1%
We don't use this technology	8%	-	-	-	1%
Unsure	8%	-	3%	-	2%

Peer-to-peer (P2P) payments

Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Core provider	33%	28%	43%	50%	39%
Alternate provider	42%	47%	30%	33%	37%
Developed in-house	-	-	3%	-	1%
We don't use this technology	17%	14%	11%	10%	12%
Unsure	8%	11%	14%	7%	10%

Robotic process automation (RPA)

Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Core provider	8%	6%	3%	3%	4%
Alternate provider	42%	8%	19%	3%	14%
Developed in-house	17%	-	-	3%	3%
We don't use this technology	25%	61%	53%	77%	59%
Unsure	8%	25%	25%	13%	20%

Workflow automation tools

Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Core provider	8%	22%	37%	26%	27%
Alternate provider	67%	31%	37%	26%	35%
Developed in-house	8%	8%	5%	7%	7%
We don't use this technology	8%	14%	13%	29%	17%
Unsure	8%	25%	8%	13%	15%

3. Which three technologies do you believe are the most important for your institution today?

Respondents were asked to select no more than three options.

42% 

Process automation

39% 

Data analytics

37% 

Security structure

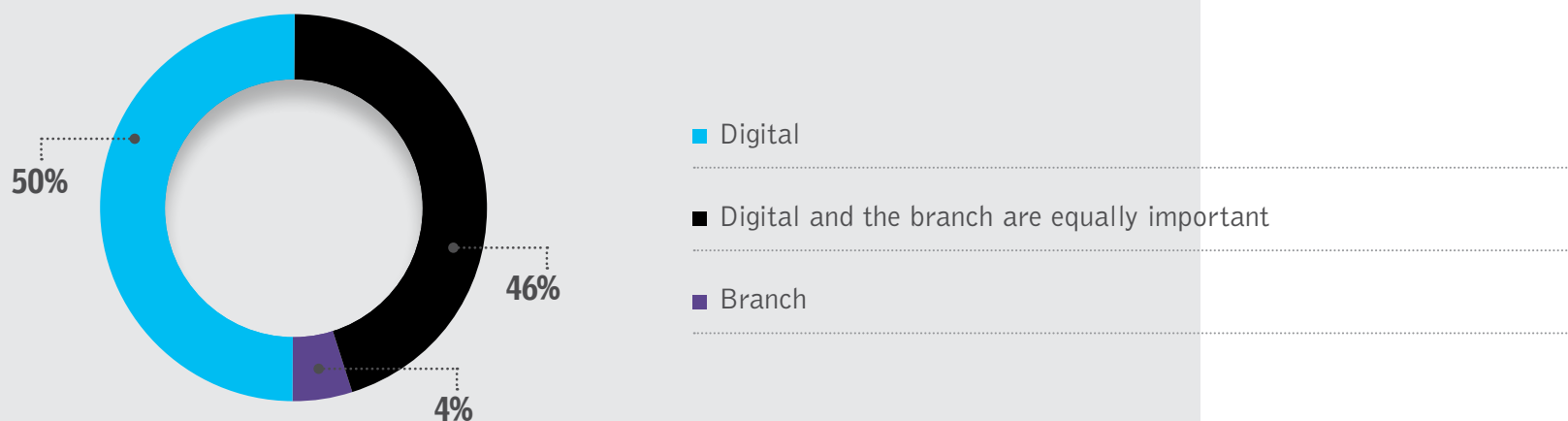
Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Process automation	33%	38%	47%	42%	42%
Data analytics	42%	51%	40%	23%	39%
Security structure	33%	38%	42%	32%	37%
Automation	58%	32%	24%	42%	35%
APIs	42%	30%	42%	26%	34%
End-to-end digital account opening	8%	41%	26%	36%	31%
Credit underwriting automation	8%	24%	24%	32%	25%
Cloud	25%	22%	13%	23%	20%
AI/machine learning	25%	5%	18%	7%	12%
P2P payments	-	8%	13%	13%	10%
Personal financial management/budgeting tools	-	-	3%	10%	3%
Biometrics	-	3%	3%	-	2%
Other	8%	3%	-	-	2%

4. Which of the following are elements of your bank's technology strategy?

Respondents were asked to select all that apply.

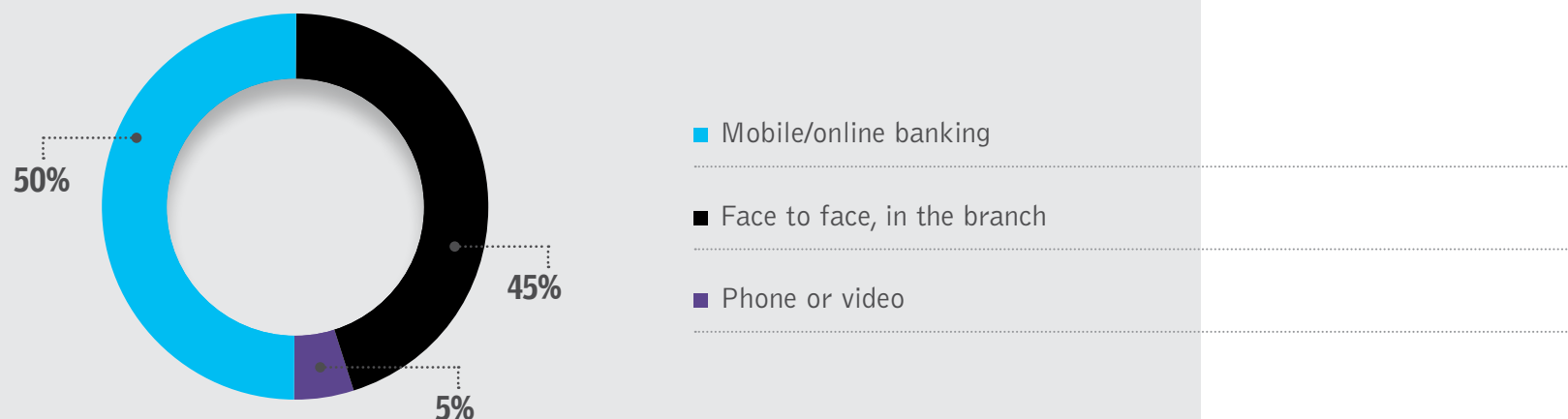
Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Modernizing digital applications	75%	65%	58%	67%	64%
Implementing solutions from non-core providers	83%	68%	58%	43%	60%
The bank relies on the core provider to introduce innovative solutions	-	35%	45%	60%	41%
Participating in industry groups/consortia	42%	49%	26%	33%	37%
Designating a high-level bank executive to focus on innovation	25%	51%	32%	30%	37%
Engaging directors through a board-level technology committee	25%	32%	32%	47%	35%
Collaborating with fintech firms to develop new technology	42%	41%	21%	27%	31%
Building an innovation lab or team	33%	22%	11%	3%	15%
Hiring developers	67%	8%	5%	3%	12%
Hiring data scientists	50%	14%	-	-	9%
Investing in technology startups	17%	14%	3%	7%	9%
Participating in or hosting startup accelerators	17%	11%	3%	-	6%
Acquiring technology companies	17%	-	-	3%	3%
None of the above	-	-	11%	-	3%
Other	8%	-	5%	3%	3%

5. Which delivery channel is more critical to your bank's growth strategy?



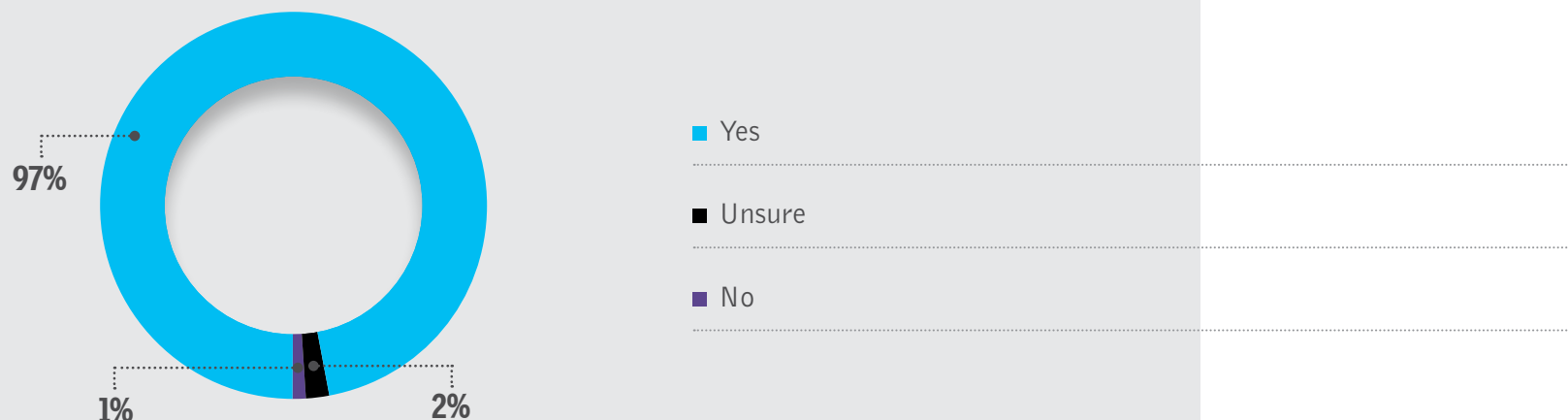
Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Digital	67%	42%	57%	45%	50%
Digital and the branch are equally important	33%	53%	38%	52%	46%
Branch	-	6%	5%	3%	4%

6. In your opinion, how do the majority of your bank's customers primarily prefer to interact with your institution?



Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Mobile/online banking	36%	53%	41%	62%	50%
Face to face, in the branch	55%	39%	54%	38%	45%
Phone or video	9%	8%	5%	-	5%

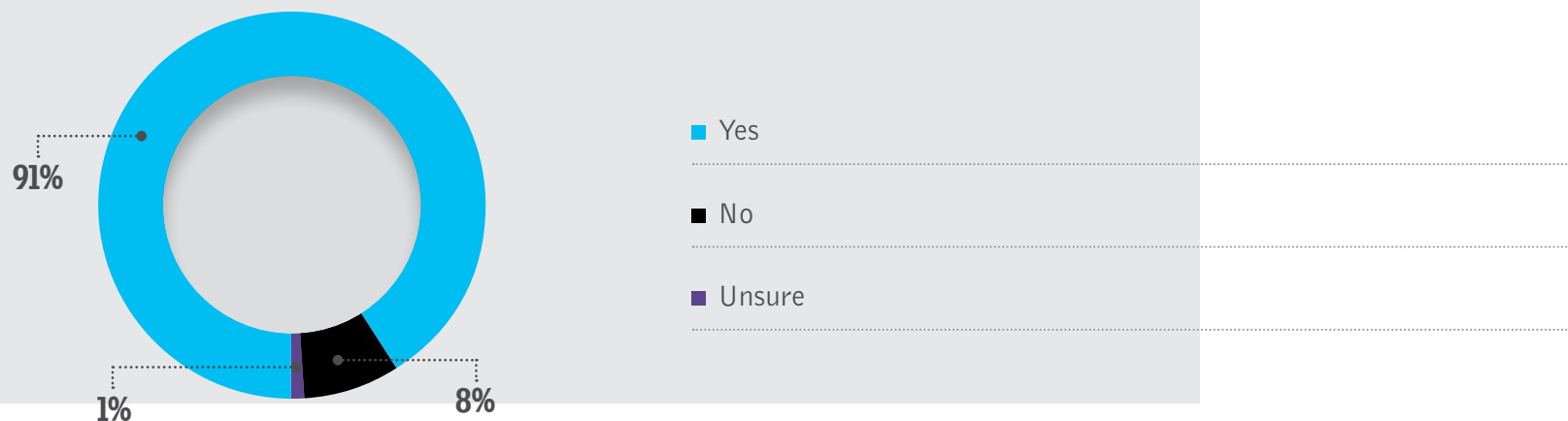
7. Has your bank seen an increase in the adoption and use of digital channels due to Covid-19?



Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes	92%	100%	97%	97%	97%
Unsure	-	-	3%	3%	2%
No	8%	-	-	-	1%

PIVOTING OPERATIONS

8. Do you believe the bank's technology has allowed it to sufficiently respond to customers' needs during the Covid-19 pandemic?



Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes	83%	97%	95%	83%	91%
No	17%	3%	5%	14%	8%
Unsure	-	-	-	3%	1%

9. Can your bank's retail and business customers currently apply for deposit accounts and/or loans digitally?

Retail deposit accounts					
Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes, fully digital	50%	46%	43%	35%	42%
Yes, partially digital	25%	33%	24%	24%	27%
No	17%	18%	32%	41%	29%
N/A	8%	3%	-	-	2%

Retail loans (mortgages, consumer loans, etc.)					
Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes, fully digital	27%	31%	32%	24%	30%
Yes, partially digital	18%	54%	43%	45%	45%
No	46%	11%	22%	24%	21%
N/A	9%	3%	3%	7%	5%

Small business deposit accounts

Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes, fully digital	27%	21%	16%	21%	20%
Yes, partially digital	36%	50%	24%	17%	32%
No	27%	27%	60%	59%	46%
N/A	9%	3%	-	3%	3%

Small business loans (SBA, working lines of capital, etc.)

Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes, fully digital	30%	12%	11%	10%	13%
Yes, partially digital	40%	61%	32%	35%	42%
No	30%	27%	49%	52%	41%
N/A	-	-	8%	3%	4%

Commercial loans

Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes, fully digital	9%	6%	6%	14%	8%
Yes, partially digital	27%	49%	31%	24%	34%
No	64%	46%	61%	55%	55%
N/A	-	-	3%	7%	3%

10. How much has your bank budgeted for technology in fiscal year 2020?

Median values reported. *Indicates a count of less than 10 within a category.

Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Median technology budget	\$10,000,000	\$1,500,000	\$500,000	\$340,000	\$900,000

11. Did your bank's technology budget increase as a result of the Covid-19 pandemic? If so, by how much?

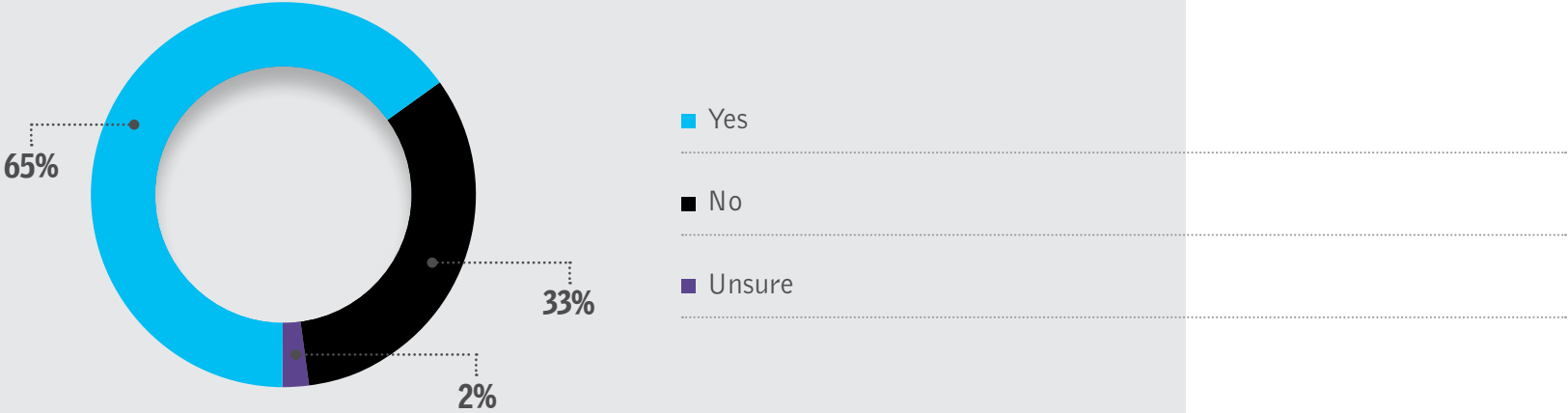
Numbers don't add up to 100% due to rounding.

■ No increase
 ■ Increased 5% - 10%
 ■ Increased less than 5%
 ■ Increased 11% - 15%
 ■ Increased more than 15%
 ■ The budget has decreased



Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
No increase	40%	35%	24%	44%	35%
Increased 5% - 10%	40%	27%	33%	30%	31%
Increased less than 5%	10%	29%	39%	11%	26%
Increased 11% - 15%	10%	6%	3%	4%	5%
Increased more than 15%	-	3%	-	7%	3%
The technology budget has decreased	-	-	-	4%	1%

12. Did your bank implement or upgrade technology as a result of the Covid-19 pandemic, either to serve customers' needs or enable your team to work remotely?



Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes	73%	77%	59%	54%	65%
No	27%	23%	38%	43%	33%
Unsure	-	-	3%	4%	2%

13. Which of the following technologies has your bank implemented or upgraded as a result of the Covid-19 crisis?

Respondents were asked to select all that apply. Only asked of respondents who indicated their bank implemented or upgraded technology as a result of Covid-19. *Indicates a count of less than 10 within a category.


Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Application or other technology specific to Paycheck Protection Program (PPP) loans	75%	85%	70%	33%	70%
Customer-facing virtual meeting technology and/or interactive teller machines (ITMs)	13 %	46%	40%	42%	39%
Digital loan applications, for consumer or business loans	25%	42%	20%	50%	35%
Digital deposit account opening, for retail and/or small business	25%	39%	30%	25%	32%
Digital communications/marketing tools	13%	19%	25%	33%	23%
Call center/interactive voice response (IVR) enhancements	25%	27%	10%	-	17%
Other	25%	15%	10%	25%	17%
Upgraded push notifications or similar mobile/text communications technology	13%	15%	15%	17%	15%
Automation	13%	19%	5%	17%	14%
Cloud	-	8%	20%	17%	12%
Remote deposit capture (RDC)	-	19%	5%	17%	12%
Data analytics capabilities	13%	12%	-	-	6%
Chatbots	13%	8%	-	-	5%
AI/machine learning	-	8%	-	-	3%

14. What are the top three challenges your bank has faced in shifting to a remote workforce in response to Covid-19?


Respondents were asked to select no more than three options.

46% 

Overcoming security/data privacy concerns

38% 

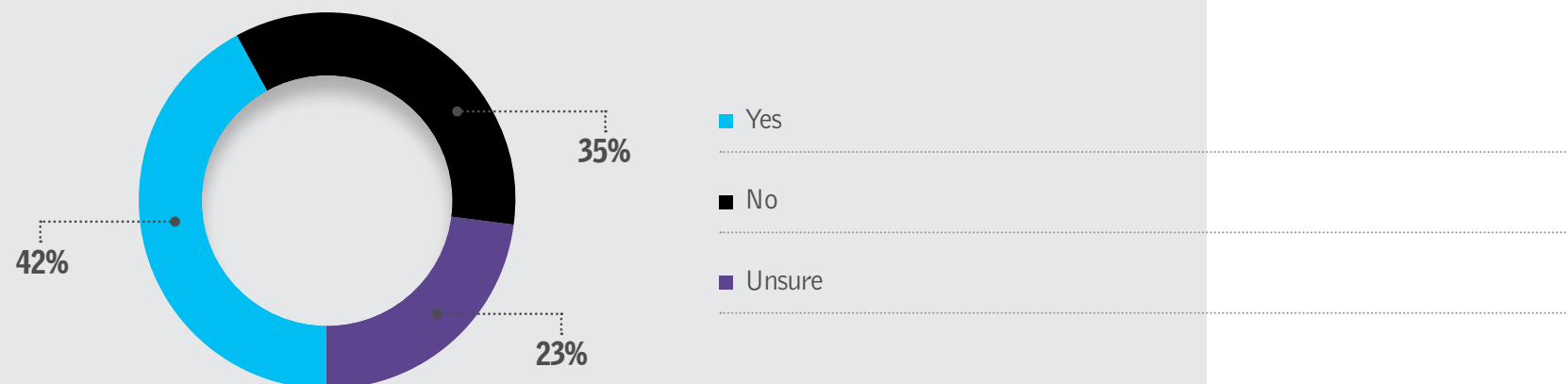
Reducing reliance on paper-based processes

37% 

Overcoming cultural challenges

Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Overcoming security/data privacy concerns	30%	40%	47%	57%	46%
Reducing reliance on paper-based processes	50%	31%	35%	46%	38%
Overcoming cultural challenges	40%	37%	32%	43%	37%
Training employees on how to safely/effectively work from home	20%	49%	38%	18%	35%
Acquiring laptops to provide employees	40%	37%	29%	32%	34%
Implementing/using video conferencing or other similar communication tools	20%	34%	18%	46%	31%
Implementing/using collaboration tools, like Microsoft Teams or Slack	30%	20%	21%	11%	19%
Implementing/using virtual private networks (VPNs)	10%	14%	12%	14%	13%
Other	20%	6%	9%	-	7%
Our employees were already predominantly remote	10%	3%	6%	-	4%
Our bank didn't shift to remote work, and staff continued to come into the office	-	-	9%	4%	4%

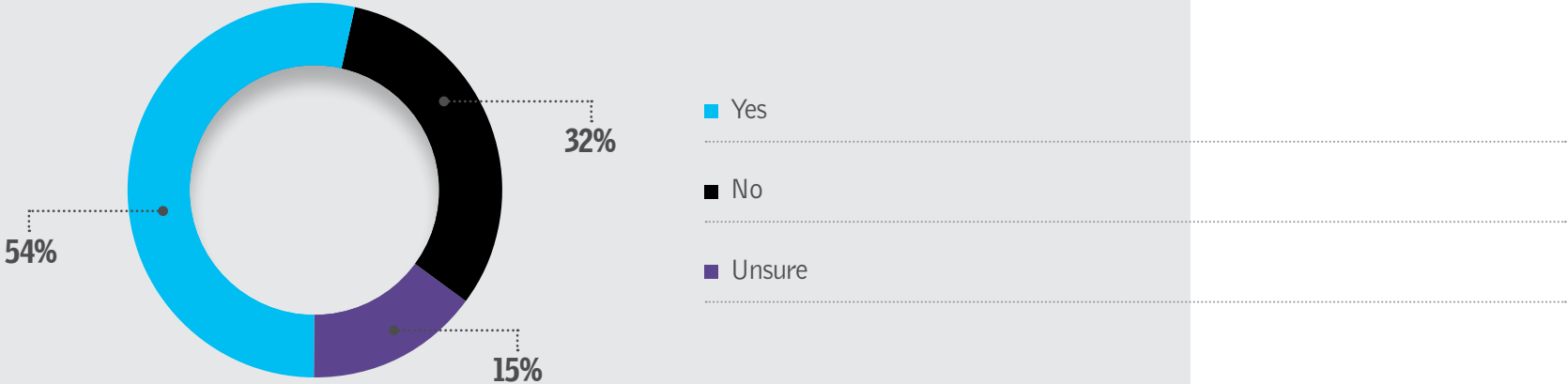
15. Does your institution plan to permanently shift more of its workforce to remote work arrangements following the Covid-19 crisis?



Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes	46%	49%	44%	29%	42%
No	46%	26%	35%	43%	35%
Unsure	9%	26%	21%	29%	23%

16. Has your bank adjusted its technology roadmap in response to the Covid-19 crisis?

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



Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes	82%	51%	53%	46%	54%
No	-	31%	32%	43%	32%
Unsure	18%	17%	15%	11%	15%

17. How has your bank's technology roadmap changed in response to Covid-19?

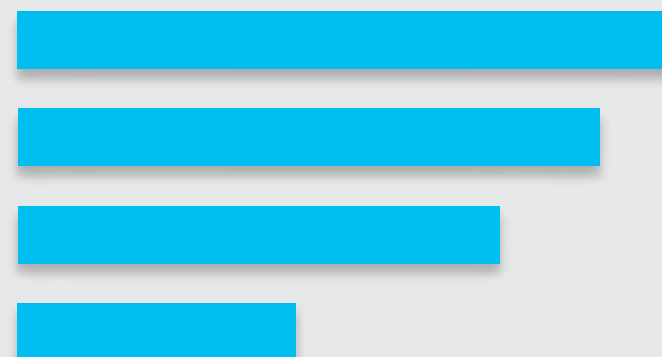
Respondents were asked to select all that apply. Only asked of respondents who indicated that their bank adjusted its technology roadmap due to Covid-19. *Indicates a count of less than 10 within a category.

74% Enhanced/will enhance mobile/online banking capabilities

66% Upgraded/plan to upgrade existing technology

55% Added/will add new digital lending capabilities

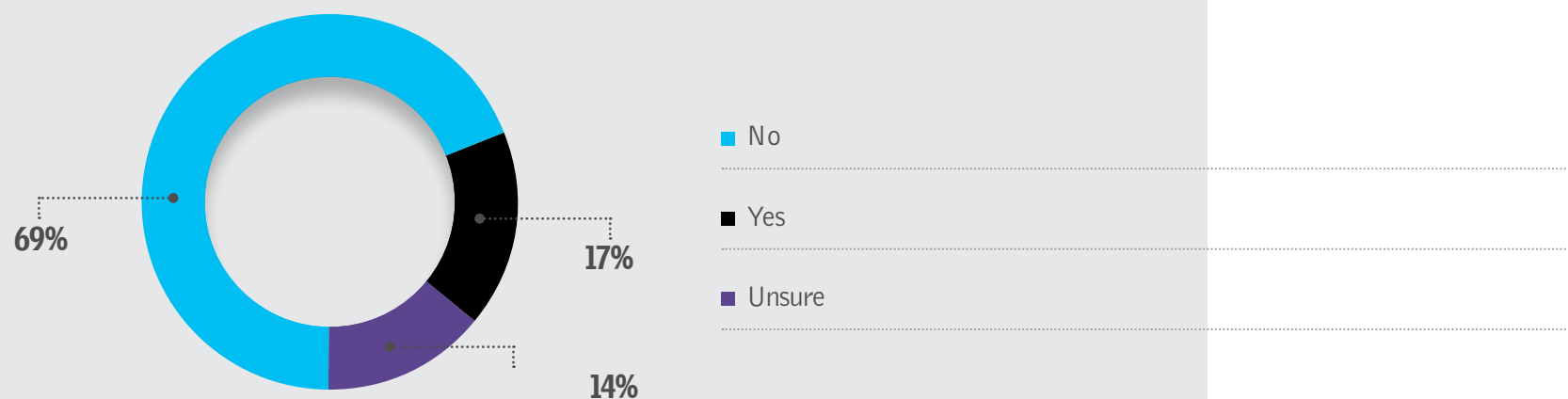
31% Prioritized business continuity improvements



Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Enhanced/will enhance mobile/online banking capabilities	44%	72%	78%	92%	74%
Upgraded/plan to upgrade existing technology	78%	67%	61%	62%	66%
Added/will add new digital lending capabilities	89%	56%	33%	62%	55%
Prioritized business continuity improvements	22%	33%	28%	39%	31%
Prioritized security investments	11%	22%	22%	23%	21%
Added/will add technology to improve regulatory compliance	22%	17%	6%	23%	16%
Other	-	-	11%	8%	5%

18. In adopting new technology as a result of the Covid-19 pandemic, has your bank streamlined its vendor due diligence processes?

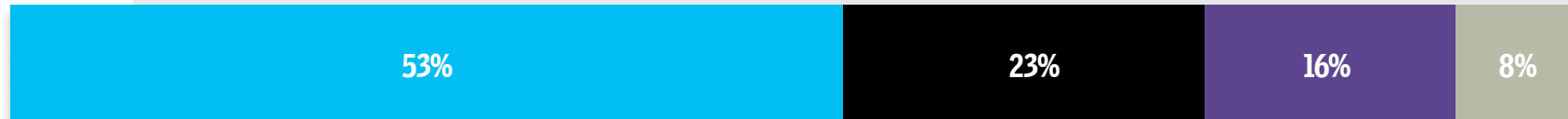
Only asked of respondents who indicated that their bank adjusted its technology roadmap due to Covid-19. *Indicates a count of less than 10 within a category.



Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
No	50%	63%	75%	80%	69%
Yes	25%	15%	20%	13%	17%
Unsure	25%	22%	5%	7%	14%

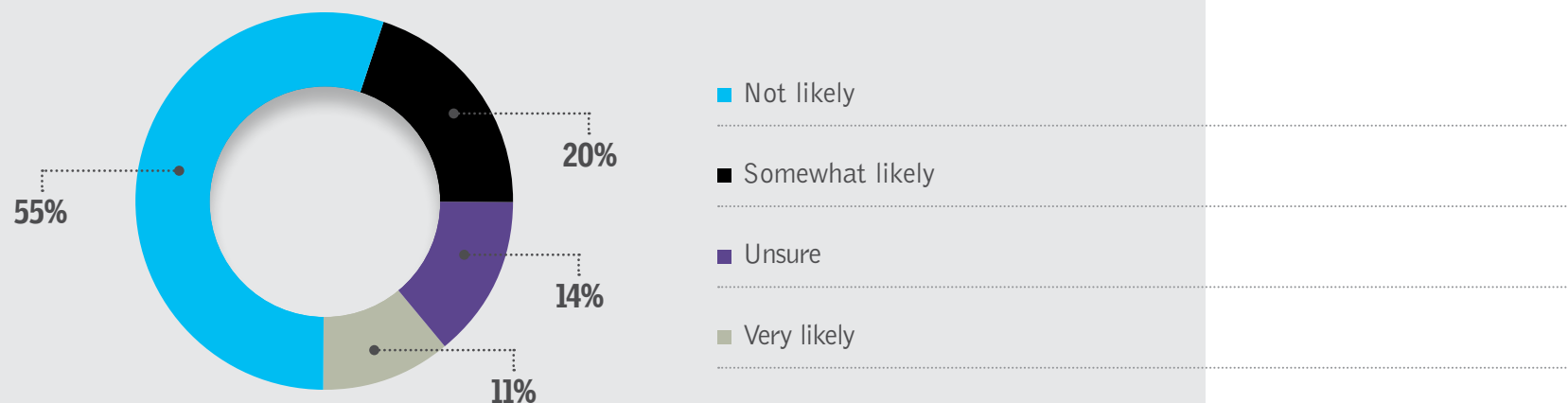
19. How would you rate the level of support offered by your bank's core provider throughout the Covid-19 crisis?

■ Good
 ■ Fair
■ Excellent
■ Poor



Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Good	50%	57%	47%	57%	53%
Fair	30%	20%	29%	18%	23%
Excellent	10%	20%	15%	14%	16%
Poor	10%	3%	9%	11%	8%

20. How likely is your bank to switch its core provider when its contract is due to renew?



Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Not likely	27%	54%	65%	54%	55%
Somewhat likely	36%	26%	9%	21%	20%
Unsure	9%	9%	18%	18%	14%
Very likely	27%	11%	9%	7%	11%

21. Did your bank seek new technology providers as a result of the pandemic?

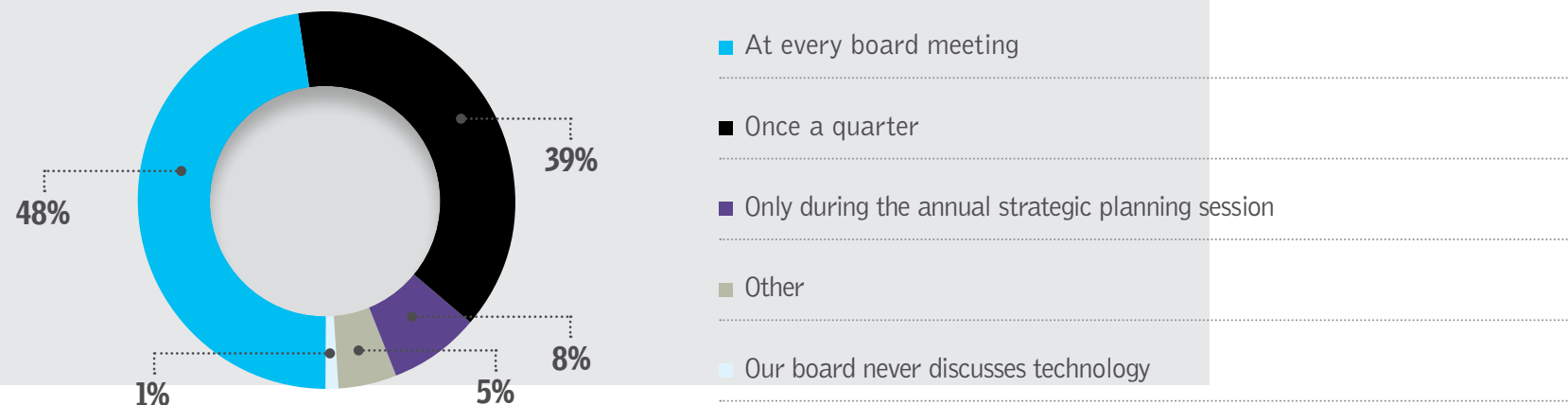


Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
No	40%	57%	53%	71%	58%
Yes	60%	40%	35%	29%	37%
Unsure	-	3%	12%	-	5%

BOARD DISCUSSIONS

22. How frequently does your board discuss technology?

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



Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
At every board meeting	64%	47%	33%	61%	48%
Once a quarter	18%	44%	49%	29%	39%
Only during the annual strategic planning session	9%	6%	9%	7%	8%
Other	9%	-	9%	4%	5%
Our board never discusses technology	-	3%	-	-	1%

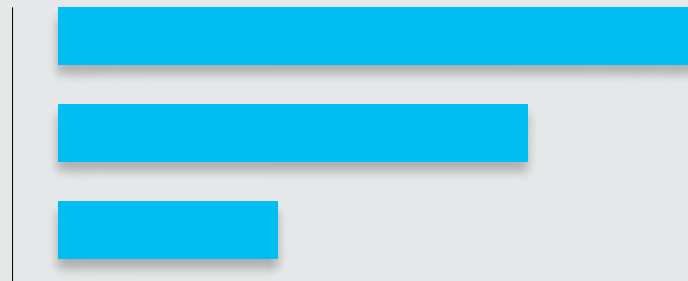
23. How have your bank’s boards and board-level committees convened throughout the pandemic?

Respondents were asked to select all that apply.

73% Using video conference technology

53% Over phone/teleconferencing

25% In person



Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Using video conference technology	73%	85%	61%	71%	73%
Over phone/teleconferencing	64%	50%	61%	43%	53%
In person	-	21%	27%	36%	25%

24. Regarding technology, what issues does the board currently focus on?

Respondents were asked to select all that apply.

91%



Cybersecurity

45%



Staying on top of technology trends

40%

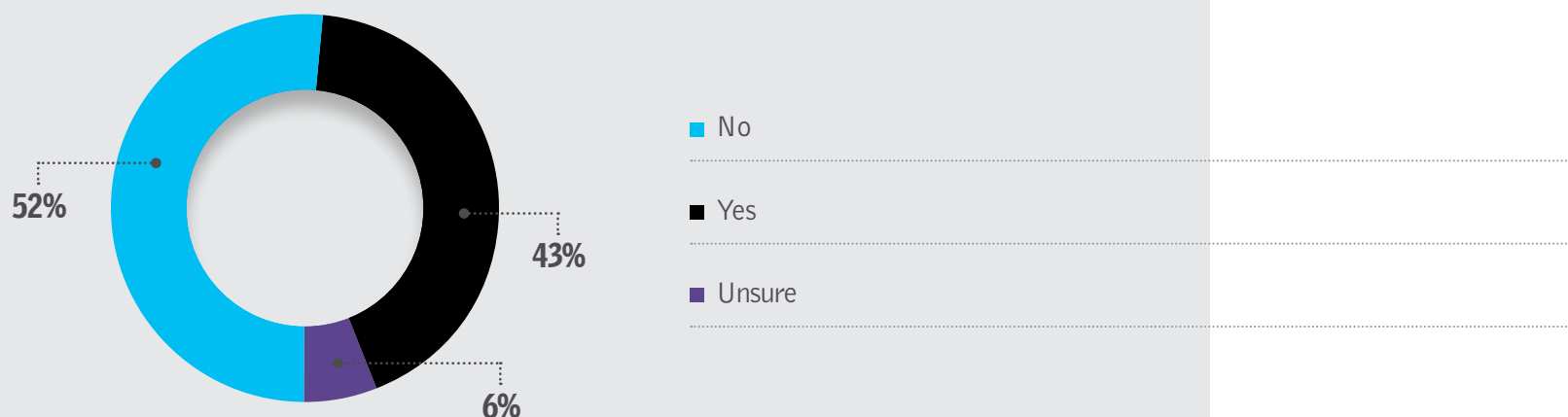


Improving processes within the bank

Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Cybersecurity	82%	94%	94%	86%	91%
Staying on top of technology trends	64%	47%	38%	43%	45%
Improving processes within the bank	46%	47%	31%	39%	40%
Implementing new customer-facing technology	27%	47%	41%	21%	36%
Our relationship with our core provider	27%	32%	34%	32%	32%
Evaluating new technologies	18%	29%	3%	29%	20%
Technology to improve the compliance function	27%	29%	9%	14%	19%
Our relationships with newer technology providers	9%	15%	13%	14%	13%
Other	9%	-	3%	-	2%

25. Has the board discussed technology more frequently in the past three to four months as a result of Covid-19?

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



Bank Asset Size	>\$10B	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
No	64%	53%	42%	57%	52%
Yes	36%	41%	46%	43%	43%
Unsure	-	6%	12%	-	6%

ABOUT THE SURVEY

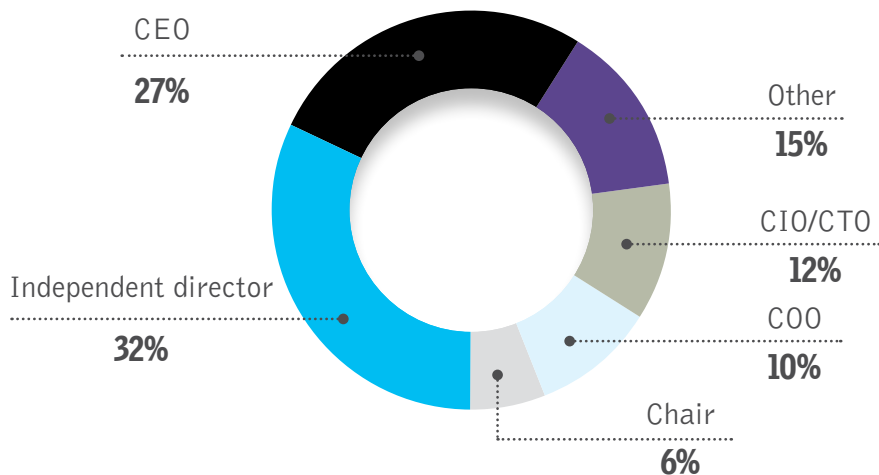
Bank Director’s 2020 Technology Survey, sponsored by CDW, surveyed 157 independent directors, chief executive officers, chief operating officers and senior technology executives of U.S. banks to understand how technology drives strategy at their institutions and how those plans have changed due to the Covid-19 pandemic. The survey was conducted in June and July 2020. Thirty-eight percent serve as an independent director or chair at their bank; 12% serve as the chief information officer or chief technology officer. One-third represent a bank between \$1 billion and \$10 billion in assets.

MEDIAN AGE

60.5

TITLE

Numbers do not add up to 100% due to rounding.



ASSET SIZE

