

2021 Technology Survey



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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.

JPMorgan Chase & Co. Chairman and CEO Jamie Dimon recognizes the enormous competitive pressures facing the banking industry, particularly from big technology companies and emerging startups.

“The landscape is changing dramatically,” Dimon said at a June 2021 conference, where he described the bank’s growth strategy as “three yards and a cloud of dust” — a phrase that described football coach Woody Hayes’ penchant for calling running plays that gain just a few yards at a time. Adding technology, along with bankers and branches, will drive revenues at Chase — and also costs. The megabank spends around \$11 billion a year on technology. Products recently launched include a digital investing app in 2019, and a buy now, pay later installment loan called “My Chase Plan” in November 2020. It’s also invested in more than 100 fintech companies.

“We think we have [a] huge competitive advantage,” Dimon said, “and huge competition ... way beyond anything the banks have seen in the last 50 [to] 75 years.”

Community banks’ spending on technology won’t get within field-goal distance of JPMorgan Chase’s technology spend, but budgets are rising. More than three-quarters of the executives and board members responding to Bank Director’s 2021 Technology Survey, sponsored by CDW, say their technology budget for fiscal year 2021 increased from 2020, at a median of 10%. The survey, conducted in June and July, explores how banks with less than \$100 billion in assets leverage their technology investment to respond to competitive threats, along with the adoption of specific technologies.

Those surveyed budgeted an overall median of almost \$1.7 million in FY 2021 for technology, which works out to 1% of assets, according to respondents. A median 40% of that budget goes to core systems.

However, smaller banks with less than \$500 million in assets are spending more, at a median of 3% of assets. Further, larger banks with more than \$1 billion in assets spend more on expertise, in the form of internal staffing and managed services — indicating a widening expertise gap for community banks.

KEY FINDINGS

➔ Competitive Concerns

Despite rising competition outside the traditional banking sphere — including digital payment providers such as Square, which launched a small business banking suite shortly after the survey closed in July — respondents say they consider local banks and credit unions (54%), and/or large and superregional banks (45%), to be the greatest competitive threats to their bank.

➔ Digital Evolution Continues

Fifty-four percent of respondents believe their customers prefer to interact through digital channels, compared to 41% who believe their clients prefer face-to-face interactions. Banks continued to ramp up their digital capabilities in the third and fourth quarters of last year and into the first half of 2021, with 41% upgrading or implementing digital deposit account opening, and 30% already offering this capability. More than a third upgraded or implemented digital loan applications, and 27% already had this option in place.

➔ Cryptocurrency

More than 40% say their bank's leadership team has discussed cryptocurrency and are weighing the potential opportunities and risks. A quarter don't expect cryptocurrency to affect their bank; a third haven't discussed it.

➔ Data Dilemma

One-third upgraded or implemented data analytics capabilities at their bank over the past four quarters, and another third said these capabilities were already in place. However, when asked about their bank's internal technology expertise, more than half say they're concerned the bank isn't effectively using and/or aggregating its data. Less than 20% have a chief data officer on staff, and just 13% employ data scientists.

➔ Behind the Times

Thirty-six percent of respondents worry that bank leaders have an inadequate understanding of how emerging technologies could impact their institution. Further, 31% express concern about their reliance on outdated technology.

➔ Serving Digital Natives

Are banks ready to serve younger generations? Just 43% believe their bank effectively serves millennial customers, who are between 25 and 40 years old. But most (57%) believe their banks are taking the right steps with the next generation — Gen Z, the oldest of whom are 24 years old. It's important that financial institutions start getting this right: More than half of Americans are millennials or younger.

STRATEGY & ADOPTION

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

Respondents were asked to select no more than three options. *Indicates a count of less than 10 within a category.

Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Creating a more efficient operation	50%	70%	67%	78%	70%
Improving the customer experience	75%	60%	79%	70%	68%
Improving online and mobile offerings	63%	32%	29%	35%	34%
Competing with other financial services providers	-	17%	33%	48%	27%
Building and/or implementing more innovative solutions	-	34%	25%	13%	25%
Enhancing the bank's top-line growth	25%	32%	17%	13%	24%
Leveraging data for customer and/or strategic insights	50%	26%	8%	9%	20%
Enhancing digital lending capabilities	38%	15%	-	13%	13%
Streamlining compliance and/or risk processes	-	9%	21%	9%	11%
Enhancing technology in the branch	-	4%	-	4%	3%
We don't have a specific technology strategy	-	-	4%	-	1%
Other	-	2%	-	-	1%

2. Of the following, which three do you consider to be the greatest competitive threat to your bank?

Respondents were asked to select no more than three options. *Indicates a count of less than 10 within a category.

54%



Local banks and/or credit unions

45%



Big/superregional banks

36%



Digital payments providers

Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Local banks and/or credit unions	38%	53%	58%	57%	54%
Big/superregional banks	63%	43%	46%	44%	45%
Digital payments providers such as Square and Paypal	63%	34%	38%	30%	36%
Digital, nonbank business lenders	13%	43%	29%	30%	34%
Neo/challenger banks that attract consumer deposits, such as Chime	13%	34%	29%	35%	31%
Big tech companies such as Apple, Facebook and Google	50%	17%	25%	22%	23%
Digital, nonbank mortgage lenders	13%	23%	8%	26%	20%
Retailers such as Amazon and Walmart	38%	17%	13%	17%	18%
Digital wealth management providers	13%	9%	21%	-	10%
Digital, nonbank consumer lenders	-	4%	4%	4%	4%
Other	-	-	8%	-	2%

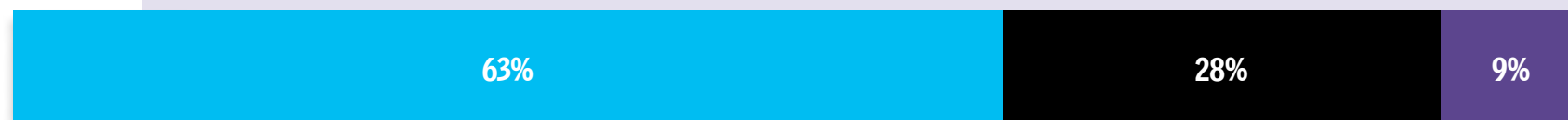
3. Which of the following technologies are currently used by your financial institution?

■ Currently used

■ Not used

■ Unsure

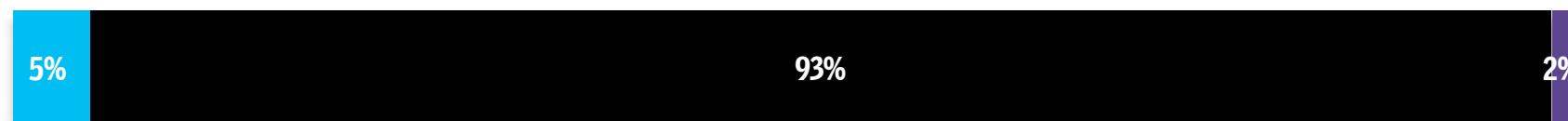
Application programming interfaces (APIs)



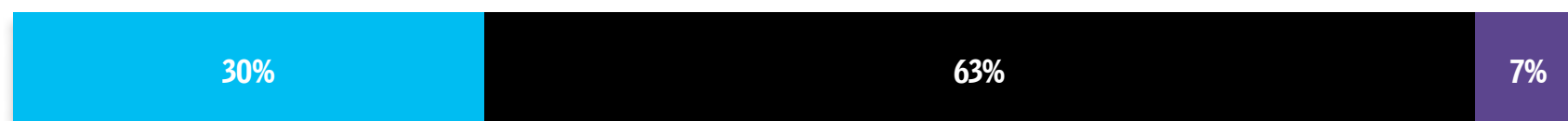
Artificial intelligence (AI)/machine learning



Blockchain



Biometrics



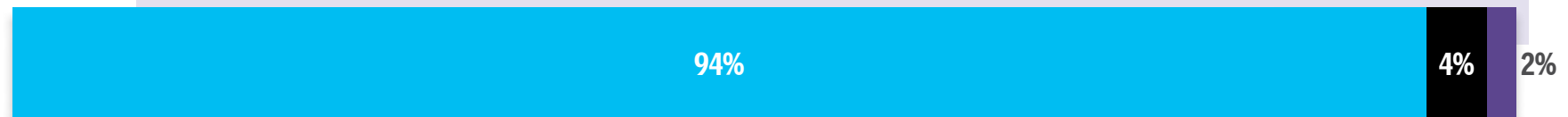
(Continued) Which of the following technologies are currently used by your financial institution?

■ Currently used

■ Not used

■ Unsure

Cloud



Robotic process automation (RPA)



4. Did your bank implement or upgrade any of the following tools or solutions in the third or fourth quarters of 2020, or the first half of 2021?

■ Upgraded
 ■ Implemented
 ■ Already in place at our bank
 ■ Not in use at our bank
 ■ Unsure

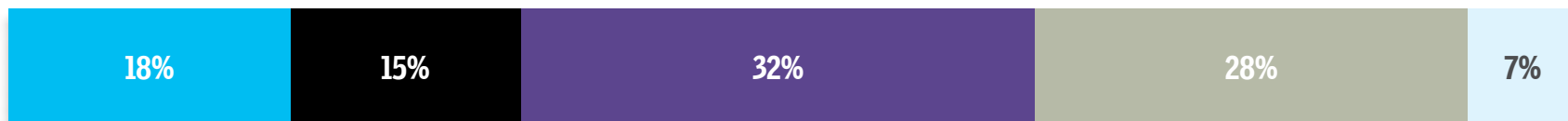
Call center/interactive voice response (IVR) systems



Chatbots



Data analytics capabilities



Digital communications/marketing tools



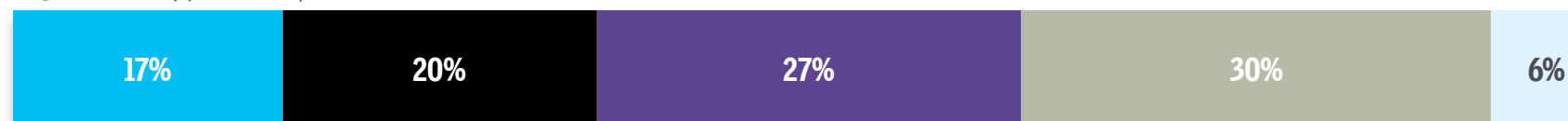
(Continued) Did your bank implement or upgrade any of the following tools or solutions in the third or fourth quarters of 2020, or the first half of 2021?

■ Upgraded ■ Implemented ■ Already in place at our bank ■ Not in use at our bank ■ Unsure

Digital deposit account opening, for retail and/or small business



Digital loan applications, for consumer and/or business loans



Interactive teller machines (ITMs) or similar customer-facing technology



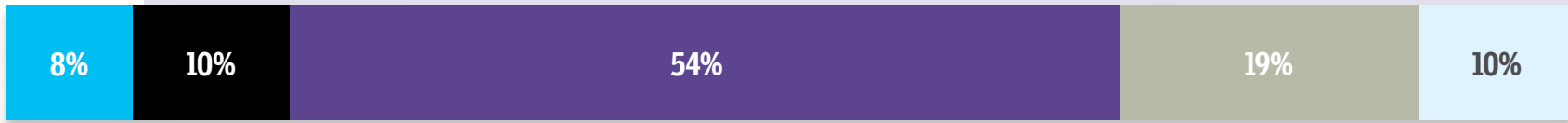
Peer-to-peer (P2P) payments



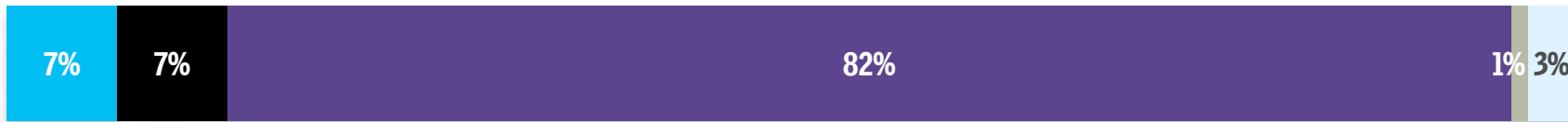
(Continued) Did your bank implement or upgrade any of the following tools or solutions in the third or fourth quarters of 2020, or the first half of 2021?

■ Upgraded ■ Implemented ■ Already in place at our bank ■ Not in use at our bank ■ Unsure

Push notifications or similar mobile/text communications technology



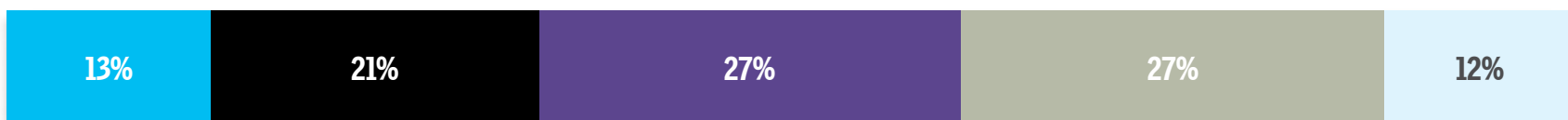
Remote deposit capture (RDC)



Wealth management tools/capabilities



Workflow automation tools



5. Over the past year, has your bank's leadership team discussed how cryptocurrency (digital assets such as bitcoin) could affect your financial institution?

*Indicates a count of less than 10 within a category.

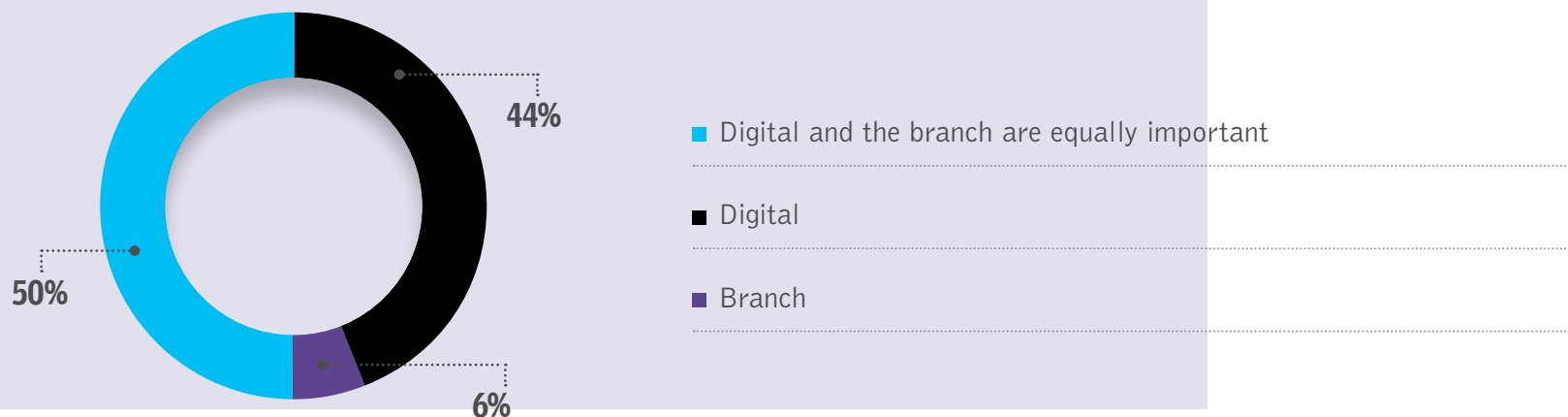


Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes, and we're weighing potential opportunities and risks	67%	43%	33%	41%	42%
No, we haven't discussed cryptocurrency	-	34%	46%	32%	33%
Yes, and we don't expect it to impact our bank	33%	23%	21%	27%	25%

SERVING CUSTOMERS

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

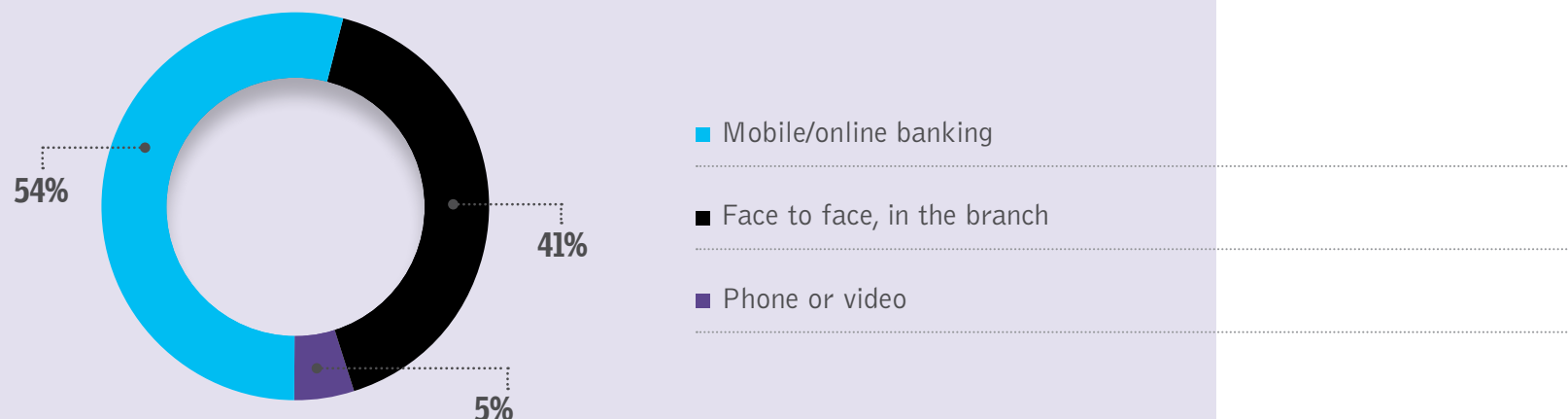
*Indicates a count of less than 10 within a category.



Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Digital and the branch are equally important	38%	54%	54%	41%	50%
Digital	63%	44%	42%	41%	44%
Branch	-	2%	4%	18%	6%

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

*Indicates a count of less than 10 within a category.



Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Mobile/online banking	75%	51%	46%	59%	54%
Face to face, in the branch	25%	47%	42%	36%	41%
Phone or video	-	2%	13%	5%	5%

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

**Indicates a count of less than 10 within a category.*

Retail deposit accounts					
Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes, fully digital	88%	51%	38%	18%	43%
Yes, partially digital	13%	33%	33%	32%	31%
No	-	16%	29%	50%	25%

Retail loans (mortgages, consumer loans, etc.)					
Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes, fully digital	25%	44%	17%	18%	30%
Yes, partially digital	75%	36%	46%	32%	40%
No	-	16%	25%	46%	23%
Not applicable	-	4%	13%	5%	6%

Small business deposit accounts

Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes, fully digital	14%	24%	13%	9%	17%
Yes, partially digital	57%	39%	25%	27%	34%
No	29%	37%	58%	59%	47%
Not applicable	-	-	4%	5%	2%

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

Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes, fully digital	-	11%	-	-	5%
Yes, partially digital	75%	44%	25%	18%	36%
No	25%	44%	67%	77%	56%
Not applicable	-	-	8%	5%	3%

Commercial loans

Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes, fully digital	13%	2%	4%	-	3%
Yes, partially digital	38%	38%	29%	33%	35%
No	50%	60%	67%	62%	61%
Not applicable	-	-	-	5%	1%

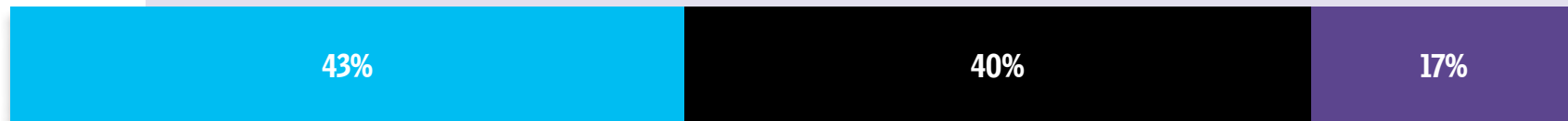
9. Do you believe that your bank has the tools in place to effectively serve the following generations of customers?

■ Yes

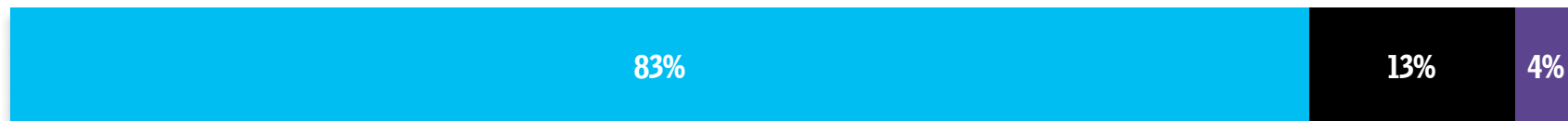
■ No

■ Unsure

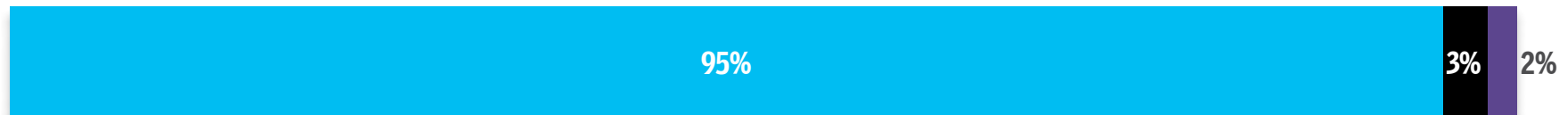
Millennials (25-40 years old)



Generation X (41-56)

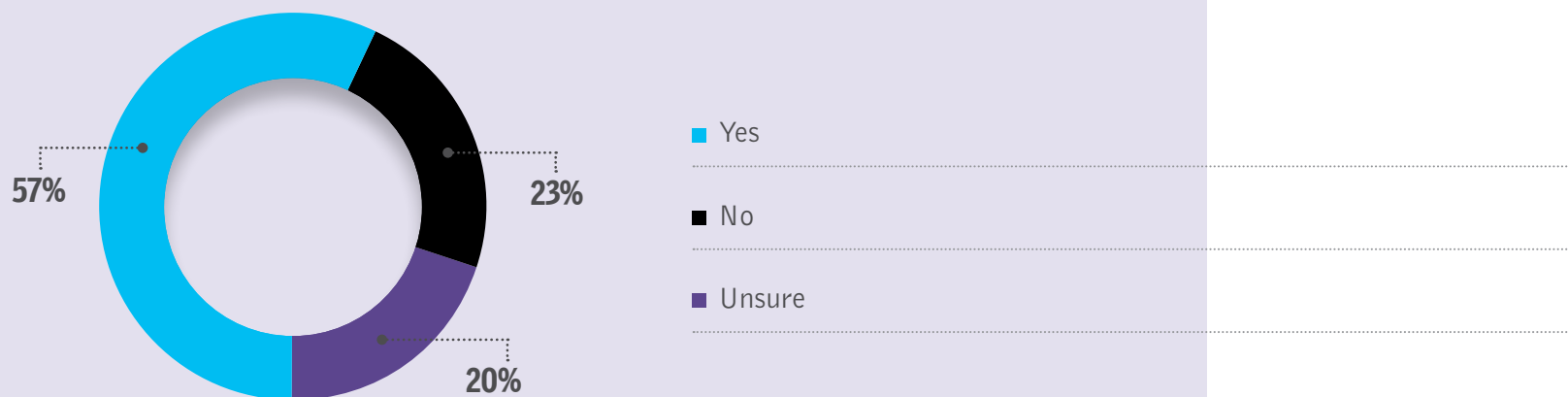


Baby Boomers (57-75)



10. Do you believe your bank is taking the right steps to position itself to serve younger customers, specifically Generation Z, the oldest of whom are 24 years old?

*Indicates a count of less than 10 within a category.



Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes	63%	54%	58%	59%	57%
No	13%	26%	25%	18%	23%
Unsure	25%	20%	17%	23%	20%

11. Do you see fintech firms more as an opportunity or more as a threat when it comes to meeting the needs of younger customers – specifically, Gen Z and millennials?

**Indicates a count of less than 10 within a category.*



Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Opportunity	100%	76%	58%	32%	64%
Threat	-	24%	42%	68%	36%

INVESTMENT

12. How much has your bank budgeted for technology in fiscal year 2021?

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

\$1,695,620

Median amount budgeted for technology

Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Median technology budget	\$21,000,000	\$3,000,000	\$1,025,000	\$275,000	\$1,695,620

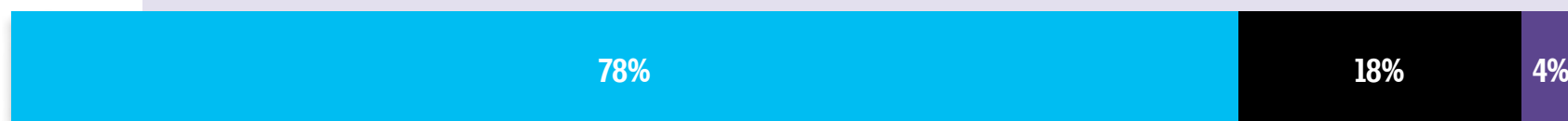
13. Did your budget increase or decrease its budget for technology in FY 2021 compared to its technology budget for FY 2020?

*Indicates a count of less than 10 within a category.

■ Increased

■ No change

■ Decreased



Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Increased	80%	86%	75%	65%	78%
No change	-	14%	20%	29%	18%
Decreased	20%	-	5%	6%	4%

14. By what percentage did your technology budget increase for FY 2021, compared to your bank's technology budget in FY 2020?

Median values reported. Only asked of respondents indicating their technology budget increased. *Indicates a count of less than 10 within a category.

10%

Median technology budget increase

Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M*	Total
Median technology budget increase (%)	5.0%	10.0%	6.4%	10.0%	10.0%

15. As a percentage of assets, how much has your bank budgeted for technology for FY 2021?

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

1%

Median technology budget as % of assets

Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B*	<\$500M	Total
Median technology budget (% of assets)	0.8%	1.0%	1.0%	3.0%	1.0%

16. As a percentage of your bank’s technology budget for FY 2021, roughly how much goes to...?

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

40%

Core systems technology

12.5%

Ancillary technology

25%

Staffing

18%

Managed services/
outsourcing

Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B*	<\$500M	Total
Core systems technology	42.5%	35.0%	47.5%	55.0%	40.0%
Ancillary technology	10.0%	18.0%	20.0%	10.0%	12.5%
Staffing	30.0%	25.0%	20.0%	20.0%	25.0%
Managed services/outsourcing	20.0%	20.0%	15.0%	10.0%	18.0%

17. Do you believe that your bank is spending enough on technology, relative to its strategy?

**Indicates a count of less than 10 within a category.*



Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes, I believe we spend enough on technology	80%	67%	71%	59%	67%
No, I believe we spend too little on technology	20%	33%	29%	41%	33%

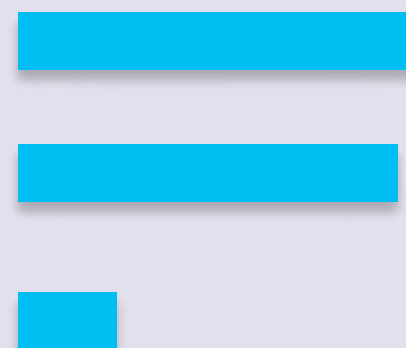
18. Over the past five years, has your bank partnered with technology companies in any of the following ways?

Respondents were asked to select all that apply. *Indicates a count of less than 10 within a category.

49% None of the above: We view technology companies as vendors only

46% We have collaborated with one or more technology partners to develop specific solutions

12% We have directly invested in one or more technology companies

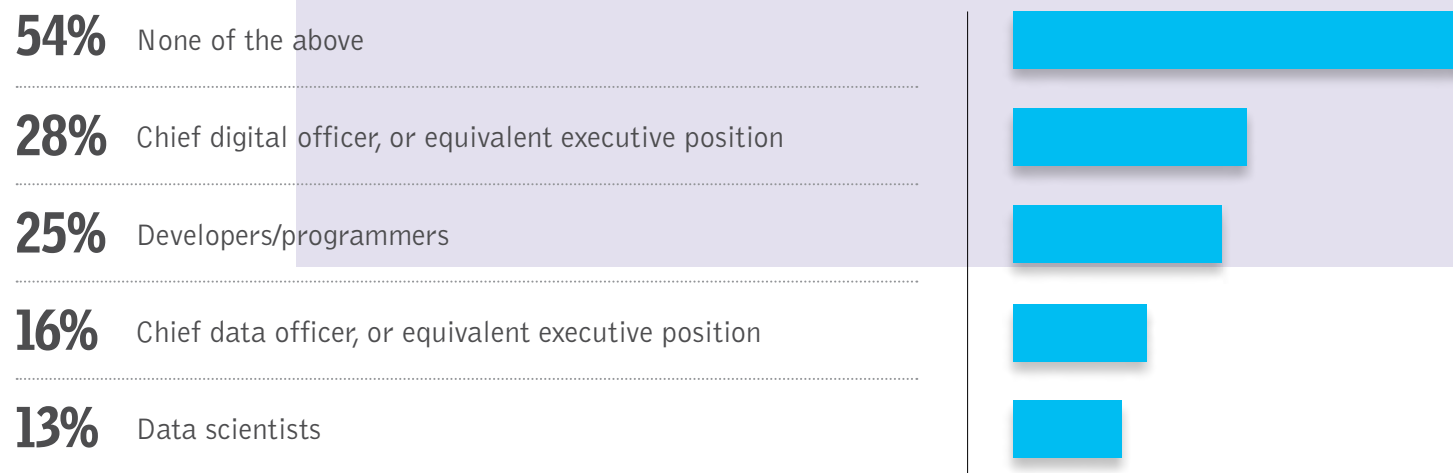


Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
None of the above: We view technology companies as vendors only	20%	33%	67%	71%	49%
We have collaborated with one or more technology partners to develop specific solutions	80%	58%	28%	29%	46%
We have directly invested in one or more technology companies	20%	17%	11%	-	12%
We have participated in a venture fund that invests in technology companies	20%	14%	6%	-	9%
Our bank has acquired one or more technology companies	-	3%	-	-	1%
Other	-	3%	-	-	1%

LEVERAGING EXPERTISE

19. Which of the following positions do you currently have on staff at your bank?

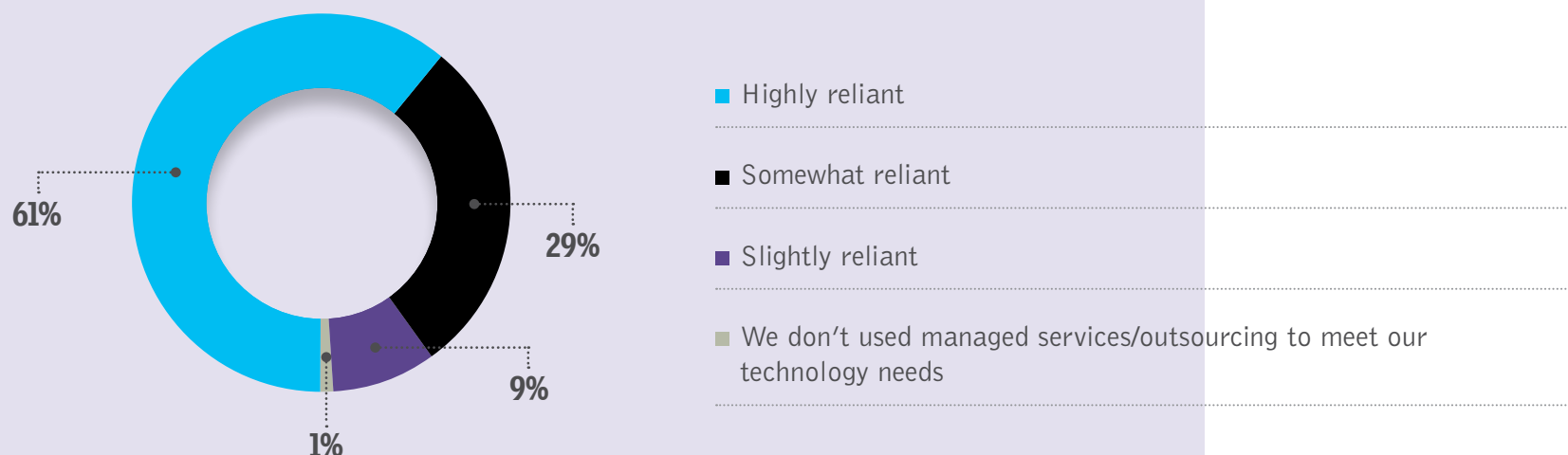
Respondents were asked to select all that apply. *Indicates a count of less than 10 within a category.



Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
None of the above	-	51%	60%	71%	54%
Chief digital officer, or equivalent executive position	40%	31%	33%	7%	28%
Developers/programmers	80%	29%	13%	7%	25%
Chief data officer, or equivalent executive position	20%	17%	7%	21%	16%
Data scientists	80%	11%	7%	-	13%

20. How reliant is your bank on managed services/outsourcing for its technology expertise?

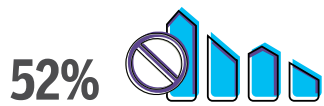
*Indicates a count of less than 10 within a category.



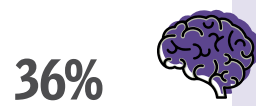
Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Highly reliant	60%	57%	69%	64%	61%
Somewhat reliant	40%	37%	19%	14%	29%
Slightly reliant	-	6%	13%	14%	9%
We don't use managed services/outsourcing to meet our technology needs	-	-	-	7%	1%

21. What are your greatest concerns about your bank's internal technology expertise?

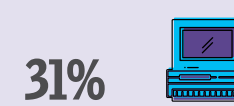
Respondents were asked to select all that apply. *Indicates a count of less than 10 within a category.



Not effectively using/aggregating our bank's data



Inadequate understanding of how emerging technologies could impact our bank

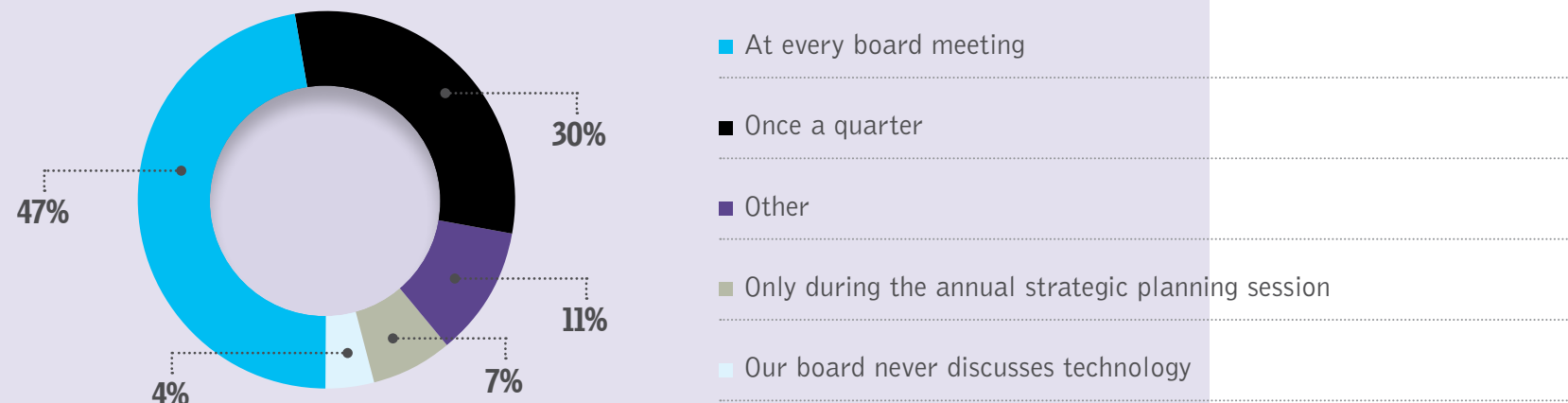


Reliance on outdated technology

Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Not effectively using/aggregating our bank's data	40%	52%	67%	43%	52%
Inadequate understanding of how emerging technologies could impact our bank	40%	27%	47%	43%	36%
Reliance on outdated technology	60%	21%	67%	7%	31%
Inability to identify specific technologies to help our bank achieve its strategic goals	20%	21%	27%	36%	25%
Inability to identify companies/resources to help our bank achieve its goals	-	18%	27%	14%	18%
Ineffective vendor due diligence	20%	6%	7%	7%	8%
Other	-	6%	7%	7%	6%

22. How frequently does your board discuss technology?

Numbers don't add up to 100% due to rounding. *Indicates a count of less than 10 within a category.



Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
At every board meeting	40%	51%	38%	50%	47%
Once a quarter	40%	34%	25%	21%	30%
Other	-	3%	31%	14%	11%
Only during the annual strategic planning session	20%	9%	-	7%	7%
Our board never discusses technology	-	3%	6%	7%	4%

23. Is there a member of the board who you would consider to be an expert in any of the following areas?

**Indicates a count of less than 10 within a category.*

Technology					
Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes	80%	49%	38%	64%	51%
No	20%	51%	63%	36%	49%

Data analytics					
Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes	20%	15%	13%	21%	16%
No	80%	82%	88%	64%	80%
Unsure	-	3%	-	14%	4%

Digital transformation					
Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes	40%	24%	13%	21%	22%
No	40%	77%	88%	64%	74%
Unsure	20%	-	-	14%	4%

Cybersecurity					
Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes	20%	24%	25%	29%	25%
No	80%	77%	69%	64%	73%
Unsure	-	-	6%	7%	3%

User experience					
Bank Asset Size	>\$10B*	\$1B - \$10B	\$500M - \$1B	<\$500M	Total
Yes	60%	38%	38%	64%	45%
No	40%	62%	63%	29%	54%
Unsure	-	-	-	7%	1%

24. What resources do you personally rely on to learn about the technologies that could impact your bank?

Respondents were asked to select all that apply.

87% 

Articles/publications

81% 

Webinars/events

67% 

Bank executives/staff

Title	CEO	CTO/CIO/COO	Board chair/director	Total
Articles/publications	71%	83%	96%	87%
Webinars/events	64%	92%	74%	81%
Bank executives/staff	71%	38%	87%	67%
Our core technology provider	50%	79%	48%	62%
My peers in the banking industry	57%	71%	22%	54%
Industry consultants	64%	46%	43%	46%
Our bank's non-core technology provider(s)	29%	50%	22%	38%
Directories/online reviews	21%	38%	30%	28%
Members of our bank's board of directors	29%	17%	35%	28%
Case studies	14%	42%	26%	26%

25. Do you use your bank's customer-facing technology?

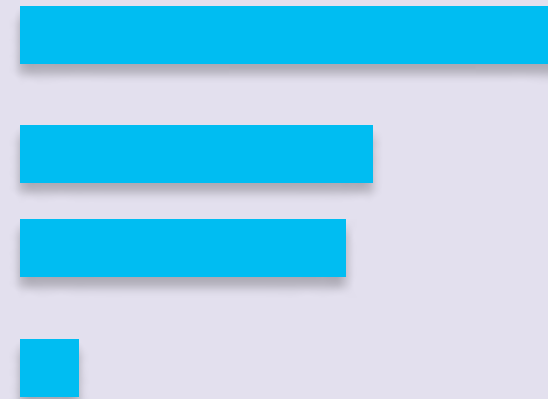
Respondents were asked to select all the options that best align with their experience.

65% Yes, I've used all or most of the forward-facing tools our customers use

42% I regularly use our bank's online banking platform

39% I regularly use our bank's mobile app

7% I don't regularly use any of the customer-facing technology offered by my bank



Title	CEO	CTO/CIO/COO	Board chair/director	Total
Yes, I've used all or most of the forward-facing tools our customers use	86%	79%	30%	65%
I regularly use our bank's online banking platform	29%	42%	65%	42%
I regularly use our bank's mobile app	21%	38%	57%	39%
I don't regularly use any of the customer-facing technology offered by my bank	7%	8%	9%	7%

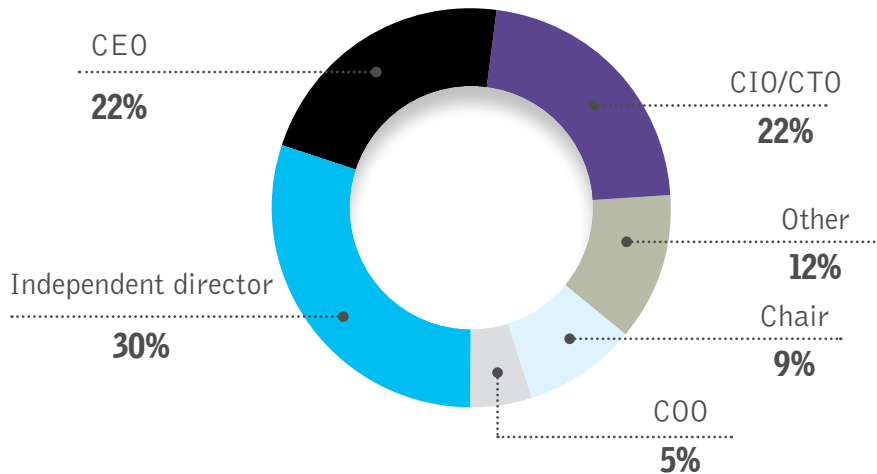
ABOUT THE SURVEY

Bank Director’s 2021 Technology Survey, sponsored by CDW, surveyed 122 independent directors, chief executive officers, chief operating officers and senior technology executives of U.S. banks below \$100 billion in assets to understand how these institutions leverage technology in response to the competitive landscape. The survey was conducted June and July 2021. Almost half of the respondents represent financial institutions between \$1 billion and \$10 billion in assets.

MEDIAN AGE



TITLE



ASSET SIZE

