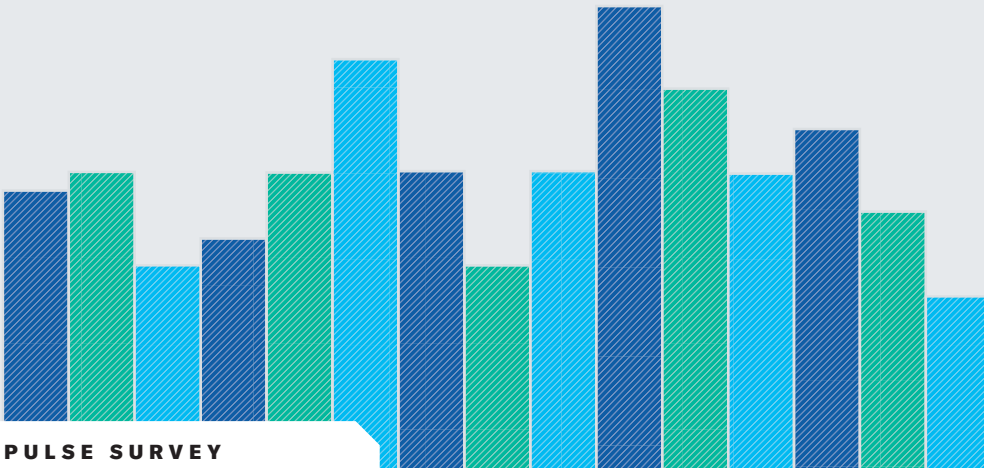




**Harvard  
Business  
Review**

ANALYTIC SERVICES



PULSE SURVEY

# Modernizing Core Systems Has Become a Business Imperative for the Banking Industry



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It is easy to say that the banking industry is changing. In fact, the industry is constantly changing. Success is often measured by how quickly changing customer needs are recognized and banks adapt accordingly. The challenge of change goes beyond a single new application, algorithm, or data capability. To transform, banks balance the need for change with the reliability of well-established systems, practices, and teams.

### **Modernizing the core is a journey ...**

Banking leaders recognize they can no longer add layer upon layer of customization to legacy core systems. Often decades old, banking cores are becoming difficult and costly to maintain. With more demands placed on the core for modern functions, like real-time transactions and personalized financial services, the core is struggling to keep up. But modernizing the core should not be viewed as a lifeline. A modern core is a business enabler, supporting new technologies to build applications that help drive the business faster and better with artificial intelligence and machine learning, elastic processing, real-time event actions, etc., and to automatically deploy such applications securely.

### **... and a journey starts with one step.**

At times, core banking modernization is misinterpreted as being an all-or-nothing transformation to the cloud. In fact, it is often a strategic, incremental journey that considers many risks. While core banking modernization projects can take years to implement, a more modular approach is often a more measured approach. By examining core functions that are ripe for modernization, financial institutions can gain flexibility, agility, and better control over operational costs for faster returns on such investments.

### **Modern architecture**

There is a reason why capabilities are often built from the ground up—it is because without a solid foundation, everything else is at risk. The same can be said for core banking systems. As this report highlights, change to these reliable systems is needed to support new growth and expansion efforts. Existing mainframes can be modernized, allowing banks to containerize separate business functions for prioritization to traverse the journey to modern, adaptive core banking systems.

### **Many reasons to change**

No two banks are alike. Becoming agile requires a strategy with both short- and longer-term goals. Pragmatic choices along the way, however, determine if the path taken builds the route to the future or if another short-lived monolith blocks your course. This report is meant to provide guidance to help you define your path forward.



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# Modernizing Core Systems Has Become a Business Imperative for the Banking Industry

For decades, top-tier banks have resisted the expense and disruption of renovating their retail and commercial core systems. Now banks have reached a point at which further delay will make it increasingly difficult to compete and grow. A modern core will let banks deliver more convenient services, launch new digital products and services more quickly, and help banks gain access to new customers, markets, and revenue streams.

In fact, according to a survey of 151 banking executives by Harvard Business Review Analytic Services, efforts to revamp or replace banks' back-end systems for processing lending and deposit transactions, updating customer account records, and recording updates to the general ledger are becoming a more urgent priority. Eighty-one percent of respondents report that their bank will increase its core modernization investments in the next 12 months, with more than half (41%) saying these increases will be significant.

These executives believe their companies will ramp up because the pressure is on. Asked about the factors influencing their bank's decision to accelerate their core modernization investments, 52% cite threats from fintech and nonbank competitors. Meanwhile, half reported fresh demand for virtual services from existing customers, and 48% cite customer interest in new products and services. **FIGURE 1**

The pandemic-induced lockdowns of 2020 and related limits on how many people can work or transact business in person have highlighted the need for a modern core, suggests Ryan Battles, a principal in EY Americas' financial services, banking, and capital markets practice. "Financial services institutions got a pretty sharp wake-up call around the importance of self-service," Battles says. "It has moved from an overall digital strategy into a pillar of their resiliency plans."

## HIGHLIGHTS



91% of survey respondents say their banks are **pursuing platform-based business models**.



81% say their banks will **invest more in core systems modernization** within the next 12 months.



75% say their bank's CEO backs **core systems modernization**.



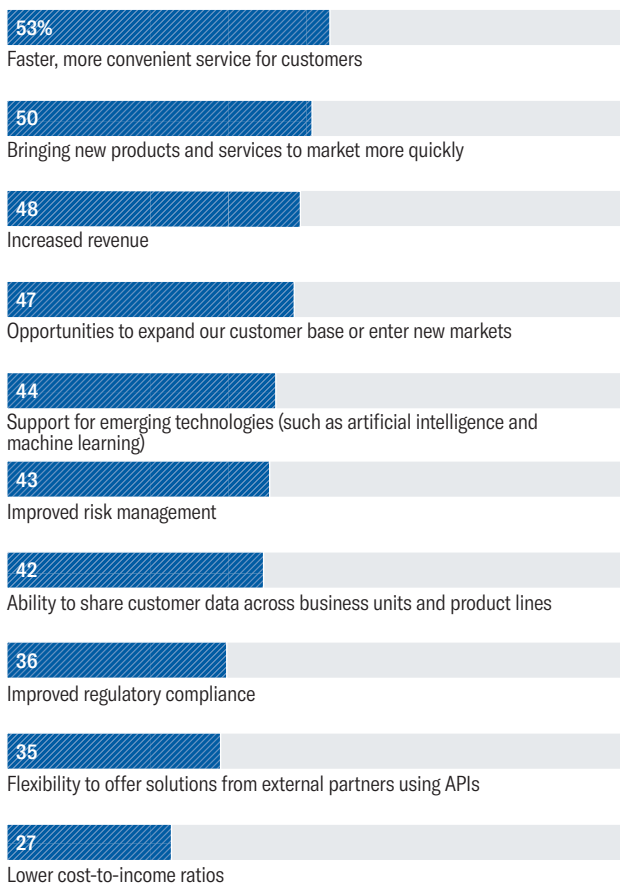
“Financial services institutions got a pretty sharp wake-up call around the importance of self-service. It has moved from an overall digital strategy into a pillar of their resiliency plans,” says Ryan Battles, a principal at EY.

FIGURE 2

### Better, Stronger, Faster

A modern core takes care of customers and the top line.

What are the most important benefits your bank aims to realize from investments in retail/commercial core systems modernization?  
[SELECT UP TO FIVE]



Source: Harvard Business Review Analytic Services Survey, September 2020

Beyond increased consumer self-sufficiency, a modern core brings fresh opportunities for banks to innovate, both within their existing lines of business and by participating in partnerships with other companies to gain access to new customers and new revenue streams. Modernization proponents may still have to convince senior business leaders that these investments are worthwhile, however.

Defining short-term business benefits, along with a vision for the bank in the future, will be important to maintaining the momentum for change. “If you look at this strictly as an IT project, it will be very difficult to find an attractive ROI,” Battles says. “But if you’re looking at it as a way to modernize not just your IT infrastructure, but also the way that you present your products and services, then there are a lot of attractive value propositions out there.”

### A Mandate for Change

Banking leaders know that their aging, mainframe-based systems present a hurdle to executing their digital business strategies. According to the survey, demand for digital products and services is the top driver of modernization, cited by 56% of respondents. Meanwhile, providing faster, more convenient services for customers, cited by 53%, is the most important benefit. **FIGURE 2**

Doing business with most retail and commercial banks today involves interacting with core banking systems that do not support what today’s users need. Many banks are still running core systems that are decades old. Over years of mergers and acquisitions, big banks also may be running multiple versions of these systems. Even though their core systems remain secure and stable, it’s getting harder for banks to keep up with the demand—from retail and corporate customers alike—for consistent, real-time, personalized, and increasingly mobile services that have to sit on top of the core: financial management tools, voice-activated transactions, peer-to-peer payments, up-to-date balance availability,<sup>1</sup> payment tracking, and digital loan origination, to name a few.<sup>2</sup>

Banks have modernized their customer interactions by providing modern digital user interfaces, but these are limited in capability, flexibility, and responsiveness because of legacy core systems. Integrating those front-end systems with modern, cloud-based core platforms would simplify how banks execute transactions, support rapid updating of customer records, and offer standard ways to connect applications, enabling banks to configure new products more quickly and to deliver services on demand. “You have a common user interface, and you can have a consistent user experience, regardless of the product,” says EY’s Battles. “If you want to package and bundle products and services, it’s much easier to do that.”

These platforms also facilitate integration of customer data, which opens the door for banks to use analytics and artificial

intelligence (AI) to automate more of their operations, identify trends that can lead to new revenue streams, and deliver personalized services.

Because modern core platforms support open banking—that is, the adoption of industry-standard, freely available application programming interfaces (APIs)—banks can also more easily join with external partners to bring their products and services to customers they have not traditionally served. For example, IDC has predicted that by 2024, 20% of banks globally will be partnering with fintechs and using AI to lend to nontraditional customers.<sup>3</sup>

An API is a software tool that enables one application to use information from another one or launch a process in

another application. Banks may already use open APIs to process payments with other banks, but if they adopt open banking, any developer would be able to create a banking service and any organization—whether or not it is a bank—would be able to use it to provide a service. Uber, for instance, offers its drivers in-app debit accounts and a digital wallet.<sup>4</sup>

An example is the partnerships between OakNorth, a digital bank in the United Kingdom, and clients that include Netherlands-based NIBC, a more traditional institution, and Modern Bank, a digital commercial bank based in the United States. OakNorth offers a platform with credit analysis and monitoring tools; the service enables clients to assess the creditworthiness of small businesses that have not been traditional customers. Small firms typically have trouble getting the loans they need in order to grow, because when banks evaluate their applications, these loans appear to be riskier and less profitable, among other reasons. OakNorth founders were inspired to start their bank after their own difficulties funding a previous venture. “The commercial banks had little understanding of small-business loans and funding,” observes Chris Skinner, author and commentator at The Finanser, a financial services portal. “They don’t understand the metrics. It requires different algorithms.”

It should be no surprise, then, that banking leaders almost universally embrace the idea of a modern platform: 91% of respondents say their banks are pursuing platform-based business models. They view platforms as important to their growth and competitiveness in different ways that likely reflect their banks’ business strategies: 35% say that platforms will help them expand their customer base or gain access to new markets, 33% say they will be able to create new revenue streams, and 32% see platforms as helping them to innovate more quickly.

## Visions for the Future

Enthusiasm for the platform benefits that a modern core provides does not always translate into smooth sailing for these initiatives. As is the case in many industries, modernizing decades-old systems is complex and expensive. When the business strategy is to transform how the bank interacts with its customers, the entire way the bank operates is likely to change.

All of these factors can make business leaders cautious, and respondents indicated as much. Even though core modernization initiatives are well underway at many banks with critical support from the top, engagement from senior executives remains shallow. Line-of-business (LOB) leaders, meanwhile, are not necessarily convinced modernization is needed.

Forty-four percent of respondents say their banks have either implemented modernized core systems in at least one business unit or region or they are in the process of

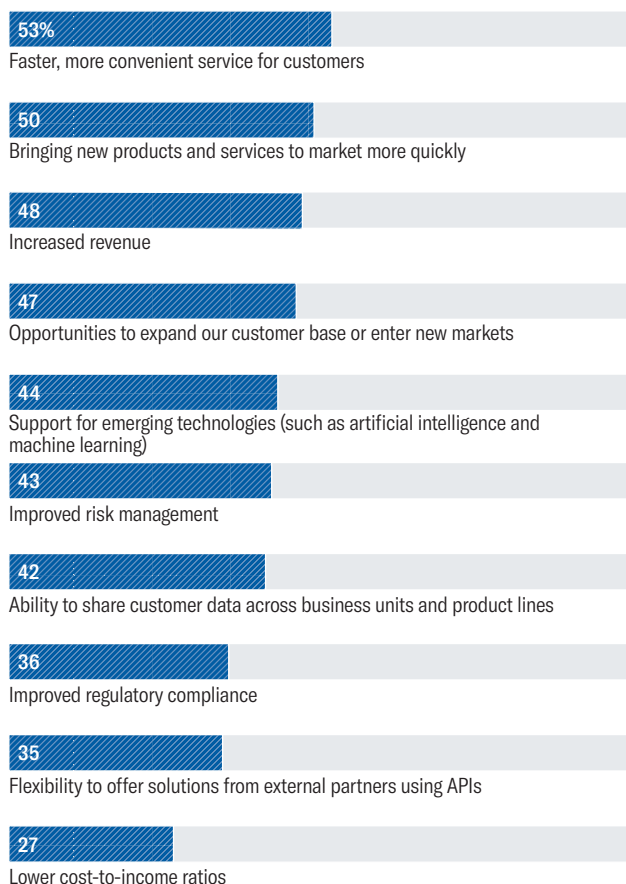
FIGURE 2

### Better, Stronger, Faster

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[SELECT UP TO FIVE]



Source: Harvard Business Review Analytic Services Survey, September 2020



Modernizing decades-old systems is complex and expensive. When the business strategy is to transform how the bank interacts with its customers, the entire way the bank operates is likely to change.

deploying modernized core systems across the enterprise. An equal percentage are in the planning stages or piloting new systems. A large majority of respondents—75%—report that their CEO is behind their efforts.

However, fewer than half of respondents indicate that their initiatives are backed by the CFO (42%) and the board of directors (38%). Without deeper high-level support, modernization efforts may be difficult to sustain. Although 61% of survey respondents say their banks will complete their current modernization program within the next three years, the pace of technology innovation means that core systems will need to be continually refreshed, advises Michael Spires, who leads the technology transformation practice for The Hackett Group, a business advisory service.

“It’s going to take longer than three to five years to do a lot of this stuff. If people had a magic bullet and were able to just refactor everything and put it in the cloud, they would have already done it,” he says. Core modernization investments need to become “part of the culture” of the bank, he adds, meaning that some portion of the core should be refreshed annually—as one would do for a depreciating asset—in order to support regular product and service innovation.

The need for strong, consistent C-level leadership is evident when considering one of the biggest obstacles to pursuing core systems modernization, namely, convincing business leaders that it is both necessary and worth the trouble. When asked to identify the biggest challenges they face, 40% chose convincing LOB leaders that core modernization is needed, making it the most-cited answer. Meanwhile, 34% say core modernization is considered too risky or disruptive, the third most-cited answer. (A lack of in-house expertise to execute core modernization plans ranked second, cited by 39%.) **FIGURE 3**

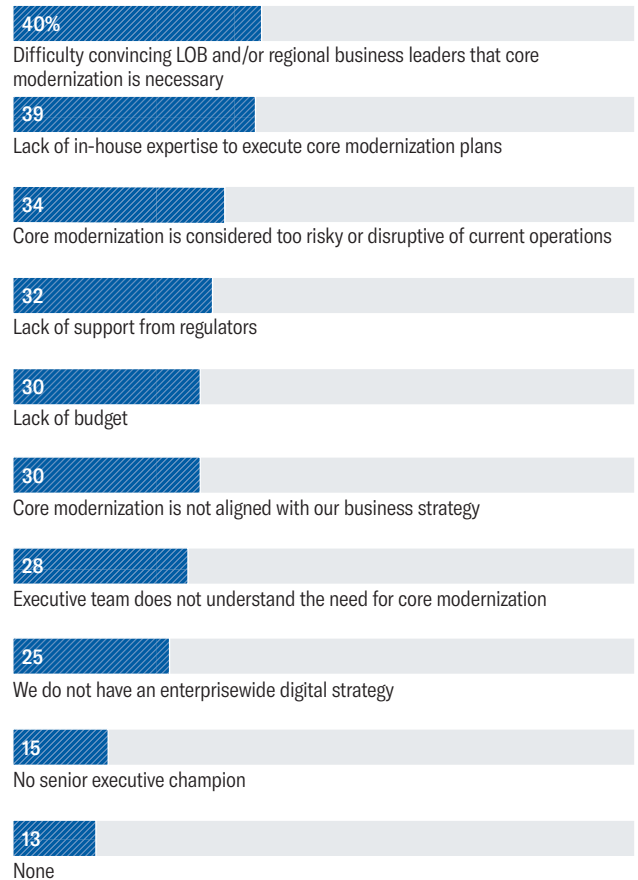
The lingering skepticism among some business leaders may explain why the majority (54%) of survey respondents are focused on bringing the benefits of core modernization to their current customers, saying it is more important to

FIGURE 3

### Tough Customers

The biggest challenge to modernization is convincing colleagues it's needed.

What are the biggest challenges to pursuing retail/commercial core systems modernization at your bank? [SELECT UP TO FIVE]



Source: Harvard Business Review Analytic Services Survey, September 2020

optimize their existing business, while 46% note that enabling new business is more important to their bank.

Typically, business unit leaders and heads of product management who are working closely on these modernization programs “had to go through the wringer of a business case evaluation and are sort of rooted in ‘incrementalist thinking,’” suggests Steven Breeden, a partner with Bain & Co. “[That thinking is] ‘I’ve jumped through all the hoops to justify this; now I’ve got to show near-term P&L value in what we’re doing and not five-year-out value, because I can’t quite predict the future.’”

It falls to senior leaders to provide that vision, says The Finanser’s Skinner, or they risk their banks becoming



**40%**

**of respondents say  
their biggest challenge  
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“irrelevant.” In his 2020 book *Doing Digital: Lessons from Leaders*, Skinner argues that leaders must see their job as transforming the bank from the inside out. Otherwise, they will find it difficult to compete—or collaborate—with companies like Stripe, which processes payments for e-commerce businesses, or e-retailer Alibaba, whose Ant Group established early partnerships for its mobile payment technology in parts of Asia that were underserved by existing banks. In 2019, Quicken Loans, an online mortgage company, ranked as the largest provider of home mortgages in the United States, originating twice as many loans as its nearest traditional competitors.<sup>5</sup>

## The Power of Options

“The base level of what a bank needs to be doing in 2020 is real-time data analytics on customer metrics and providing

insightful, predictive interfaces into the customer’s devices and apps,” Skinner proposes. “Becoming amazing gets into how you can leverage the open banking ecosystem and the platforms that the internet provides to give customers a greater, enriched experience.”

The ability to use open APIs in order to partner with fintech providers, retailers, real estate agents, or other third parties using plug-and-play services is not as great a priority currently for survey respondents as is improving their existing business. Only 24% of respondents cite open banking as a driver of core modernization, ranking it ninth in a list of 10 choices. A somewhat higher percentage (29%) cite readiness for open banking, last on the list of options offered, as one of the most important considerations when choosing their technology approach to core modernization.

Bain’s Breeden observes that global banks as well as banks headquartered outside North America have greater incentives to embrace open banking because regulators in Europe and Asia are pushing them to do so. The EU, for example, requires banks to provide customer data to third-party service providers using open APIs. In the United States, regulatory agencies and industry standards groups are developing guidance for banks, but there are no formal regulations.<sup>6</sup>

“When you get down into the Tier 2 and below banks in North America, you see less of that innovation and more ‘We’re satisfied that we have a digital presence and a mobile application,’” he asserts.

By simply investing in core modernization now, financial institutions prepare themselves to respond quickly and effectively to new market opportunities in the future, advises Hackett’s Spires. Bankers are used to thinking about risk and creating options. Such a strategy can be viewed as a way to manage business risk and provide flexibility in the face of a continually shifting future. “The banks that don’t do some of this stuff are locking themselves into a business model, and they’re shutting off options,” he says.

The need for options may explain why, even though it’s not a big driver, 35% of respondents consider having flexibility to offer solutions from external partners using open APIs an important benefit of core modernization.

## Outside Expertise

The desire for options is also evident in how companies think about what they need from their technology. Fifty-six percent say the flexibility of the solution is the most important consideration when determining their approach to modernization, which was the choice cited most often. Other top factors when choosing a technology approach were optimizing IT operations, cited by 53%, and optimizing business processes, chosen by 51%. **FIGURE 4** These choices reflect an underlying goal for technologists to simplify back-end operations as a necessary step in creating a

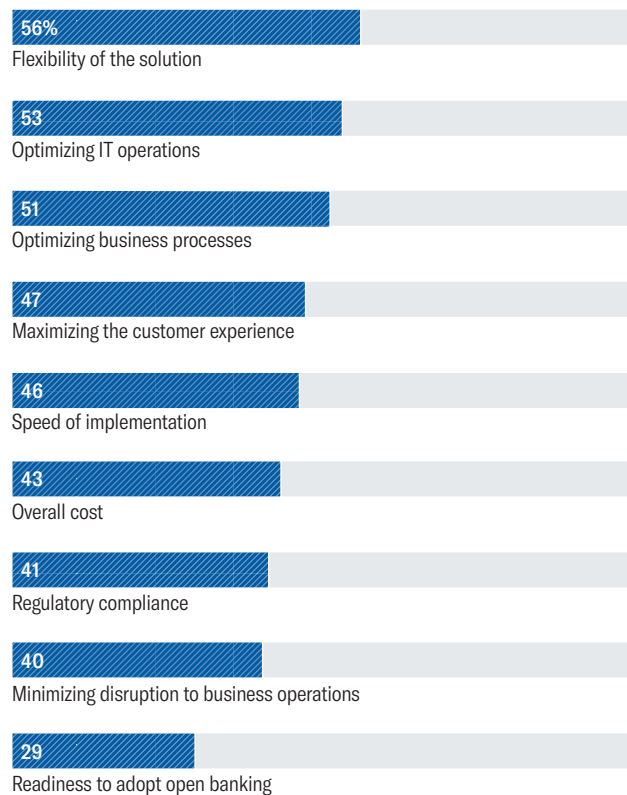
FIGURE 4

### Optimal Options

Banks want technology that improves operations.


For your bank, which considerations have been most important when determining a retail/commercial core systems modernization approach?

(SELECT UP TO FIVE)



Source: Harvard Business Review Analytic Services Survey, September 2020





**Bankers are used to thinking about risk and creating options. Such a strategy can be viewed as a way to manage business risk and provide flexibility in the face of a continually shifting future.**



Seventy percent of respondents are planning to purchase new systems from a core banking technology provider, while 39% plan to build new core systems in-house, an indication that at least some banks are taking a hybrid approach.

technology environment that is prepared to meet modern customers' demands.

When choosing a technology approach, banks face the usual choices, such as buy from a vendor, build in-house, or use a combination of the two. Seventy percent of respondents are planning to purchase new systems from a core banking technology provider, while 39% plan to build new core systems in-house, an indication that at least some banks are taking a hybrid approach.

Spires suggests that relying on internal resources to revamp core systems would be challenging for most banks because (as respondents acknowledge) they lack the in-house expertise. Breeden says most banks will turn to core solutions that make it easy to configure new products without needing "an army of programmers." Only a handful of banks, he adds, have the wherewithal to rebuild their core systems themselves.

These banks "view themselves as sophisticated and advanced engineering organizations that are on a par with the Silicon Valley big tech firms," Breeden says, and they have ideas for how they want to set up their core systems that are different from what they can find in the marketplace.

## Creating a 21st-Century Bank

Most banks have already begun to modernize their core platforms. Getting the maximum benefit from these investments will require leadership and a vision for how the bank will operate in the future. "It's really down to having an executive team with leaders who have technology and digital in their DNA," says Skinner.

In focusing on how they can use digital technologies and their core platforms to serve customers better, banking executives can create the mindset within their organizations that will enable them to get that future right. The emergence of a financial services ecosystem that does not rely only on banks to deliver banking products gives consumers and businesses more choices about how they access and use their money. Banks have more competition but also more ways to be in the mix if they have a modern core at their foundation and can be where their customers are.

When modernizing the core, banks "are not just clearing out the brush," that is, eliminating the complexity and the inefficiencies that hinder current operations, concludes Spires. "You're actually planting new trees." Core modernization provides the foundation necessary for research and development to build a portfolio of new products and services that banks will need to thrive. "If you don't have that capability, really what you're going to end up with is one big, old product," he says, "and it's not going to be very appealing."

### Endnotes

- 1 Sharma, Jaideep, "The Top Mobile Banking Trends for 2020," *Payments Journal*, October 29, 2019. <https://www.paymentsjournal.com/the-top-mobile-banking-trends-for-2020/>.
- 2 Val Srinivas, Jan-Thomas Schoeps, Tiffany Ramsay, et. al., "2020 Banking and Capital Markets Outlook: Fortifying the Core for the Next Wave of Disruption," Deloitte Center for Financial Services, 2019. <https://www2.deloitte.com/content/dam/Deloitte/lu/Documents/financial-services/lu-2020-banking-and-capital-markets-outlook.pdf>.
- 3 Marc DeCastro, Jerry Silva, Martin Stiller, et.al, "IDC Futurescape Worldwide Financial Services 2020 Predictions," IDC, December 10, 2019.
- 4 Hazlehurst, Peter, "Introducing Uber Money," Uber Newsroom, October 28, 2019. <https://www.uber.com/newsroom/introducing-uber-money/>.
- 5 Jason Richardson and Jad Edlebi, "Preliminary Analysis of 2019 HDMA Mortgage Lending Data," National Community Reinvestment Coalition, June 30, 2020. <https://ncrc.org/preliminary-analysis-of-2019-hdma-mortgage-lending-data/>.
- 6 PwC Financial Crimes Observer, "Open Banking: U.S. Is Next," April 2018. <https://www.pwc.com/us/en/financial-services/financial-crimes/publications/assets/pwc-open-banking.pdf>.

## METHODOLOGY AND PARTICIPANT PROFILE

A total of 151 respondents drawn from the HBR audience of readers (magazine/ newsletter readers, customers, HBR.org users) completed the survey.

### Size of Organization

**48%**

1,000 – 4,999  
employees

**31%**

5,000 – 9,999  
employees

**21%**

10,000 or more  
employees

### Seniority

**70%**

Executive  
management

**21%**

Senior  
management

**9%**

Middle  
management

**1%**

All other grades

### Key Industry Sectors

**100%**

Retail/commercial  
banking

### Job Function

**34%**

Finance/risk

**26%**

IT

**15%**

General/  
executive  
management

All other functions  
less than 8% each

### Regions

**52%**

North America

**25%**

Europe

**16%**

Asia/Pacific/Oceania

**5%**

Latin America

Figures may not add up to 100% due to rounding.



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