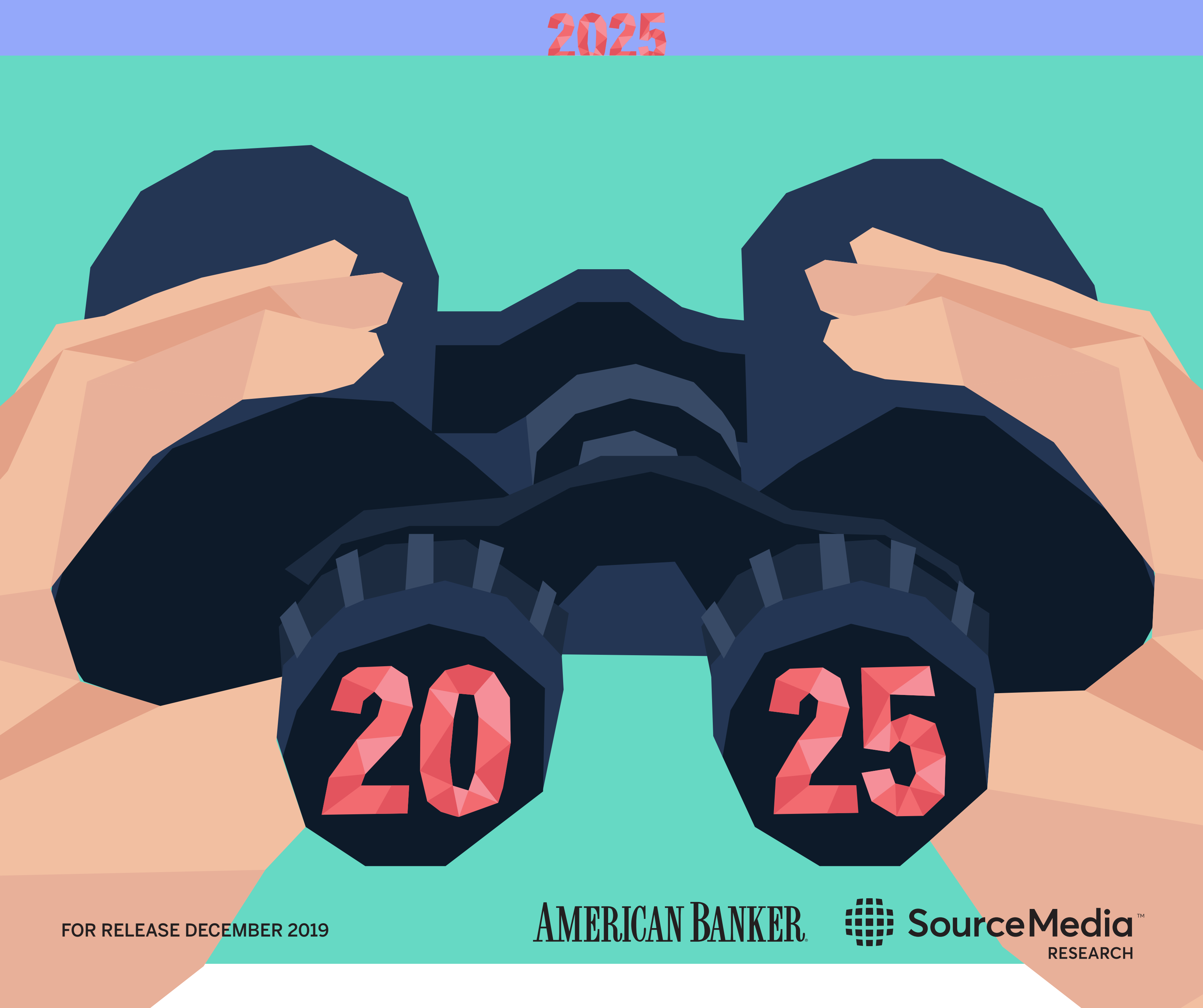
Financial services 2025: The pursuit of a moving target that's moving faster

Some key catalysts for the next evolution of financial services are already obvious to the industry. But there are exogenous forces, both demographic and economic, that could pose existential threats to aspects of the business as conducted today. Inside, an examination of those potential sources of upheaval and ideas on how the industry might adapt.



FOR RELEASE DECEMBER 2019

AMERICAN BANKER

SourceMedia™ RESEARCH

Financial services 2025: A moving target that's moving faster

INTRODUCTION

Over the past 10 years, the financial services industry has undergone a radical adaptation as mobile technology enabled and accelerated fundamental changes in the competitive landscape and the expectation sets of existing and potential customers.

That adaptation is far from over, of course. But companies aiming to address the expectations and likely realities of the future may well find themselves contending with an market that is evolving in ways that are more complex – or at the very least less linear – than those that marked the recent past.

Some of the key catalysts for the next evolution of financial services have already emerged as challenges (and opportunities): Into this category would go developments like real-time payments, the ongoing digitalization of banking and commerce, and the entry of nontraditional players to core business lines. But others are exogenous to the industry and arguably pose existential threats to some aspects of how financial services are conducted today. The rise of millennials and Gen Z is just a small part of this. Consider also the implications of consumer views on homeownership, as well as potentially seismic shifts in key economic sectors like energy, real estate and retail.

This report aims to assemble a picture of how those forces are likely to reshape financial services both from a provider perspective and from the point of view of the end user. It also includes an assessment of the manner in which regulation will have to adapt in order to keep pace with the ever faster rate of change the industry adopts in order to itself keep pace with the markets it serves.

It is our intention to treat this as a living document, one that will be updated from time to time as events warrant (and as the forecasts and analyses within come to pass or become overtaken by events.)

TABLE OF CONTENTS

ABOUT THIS REPORT

Issues + Actions reports are produced by the editors of *American Banker* and *PaymentsSource* in partnership with SourceMedia Research. The reports draw on proprietary research that probes the activities, experiences and perceptions of C-suite and other senior-level banking professionals.

In addition to the survey conducted with 53 bank executives during October to November, 2019, website research and industry interviews were also conducted for background material purposes. In selected charts data from the 2018 cross-border B2B payments report was also included which was based on a survey conducted in October 2018.

The report examines how financial services executives are responding to, and capitalizing on, the fundamental forces that are changing the industry. Each report provides exclusive and authoritative analysis and insight on a topic of vital interest to the operation of a banking company. The target readership includes senior executives, line-of-business leaders, marketers and technology providers seeking deeper, more actionable industry perspectives, whether as clients or competitors. The reports are available for purchase singly or by subscription.

American Banker is the leading resource for commercial banking professionals and *PaymentsSource* is the leading information resource for payments professionals. *American Banker* and *PaymentsSource* are SourceMedia brands and support a full line of professional content as well as research, data and conferences.

For more information, contact Customer Service at 212-803-8500.

1. FIGHTING 'DUMB UTILITY' STATUS

U.S. banks' battle to retain relevance in the daily lives of their customers and defend their current levels of profitability will face significant tests in the coming years.

Certain privileges enjoyed by banks – such as the ability to connect directly to the U.S. payment system and the right to accept government-insured deposits – will likely endure, at least in the intermediate term. But the value of those advantages will shrink as innovators find new ways to attack banks' business models.

The major culprit will be the rapid evolution of technology, which will allow data-savvy bank partners to siphon off a larger share of revenue while relegating the banks to a behind-the-scenes role in customer relationships.

Meanwhile, the rapid customer adoption of mobile banking — which represents the culmination of the industry's decades-long march toward nationwide scale — will further erode the value of local franchises.

"We're in the beginning of a digital disruption wave that will challenge banks at their very core," said Nigel Morris, a venture capitalist at QED Investors who co-founded Capital One Financial in 1994.

As the speed of technological change increases, banks' main defenses may lie in the high level of regulation the industry so often rails against. That barrier has made it difficult for the Amazons and Facebooks of the world to break through. It has also led some tech firms, including Google, to partner with banks, rather than try to displace them entirely. But even these types of arrangements offer only limited protection.

Citigroup is "very conscious around not being the dumb utility," Citigroup's chief executive, Michael Corbat, said at an industry event late last year, speaking of its new partnership with Google on consumer checking accounts. He said the company is intent on "not giving away unconsciously the client-customer ownership that's there."

Corbat's comment aptly sums up the risk as banks move forward. In trying to adapt and survive in an increasingly tech-dominated world, they may unintentionally give up their most valuable commodity — their relationship with the consumer, and the data that comes with it.

Banks are of course awash in data that holds insights about their customers. "We're sitting on over 28 Libraries of Congress," Wells Fargo's chief data officer, Zac Maufe, said at a recent conference.

But traditional financial institutions are, by and large, poorly equipped to exploit the mountains of data that they possess. The data often sits in silos. Cleaning it up and combining it in ways that enable deep learning both present big challenges. Few U.S. financial institutions have been willing to make the massive, multiyear investments that would be necessary to install a modern technological core.

Moreover, luring the best tech talent is an ongoing struggle, particularly for banks that are outside of the industry's top tier and in cities that highly compensated workers find less attractive.

At the same time, banks are facing increasing pressure to accommodate customers who want to share their own banking data with other companies. Banks have pushed back on those demands in recent years, which has led to friction with data-hungry fintechs.

But as more banks have begun to embrace application programming interfaces, which enable different kinds of software to talk to each other, the dynamic is changing.

In the U.K., the government has mandated that banks enable open banking, which means that customers can access other companies' products from their primary bank's app. Though a similar regulatory fiat seems unlikely in the U.S., technological and market forces are pushing banks on this side of the Atlantic in the same direction, whether they like it or not.

"Customers should be able to make an informed decision about what data they're sharing," Don Cardinal, managing director of the Financial Data Exchange, which is promoting a common interoperable data standard, said at a recent congressional hearing. "At the end of the day, it's their data."

Banking profits remain robust — last year, industrywide net income totaled $237 billion — in large part because of what amounts to a government-enforced moat around key business lines. Among the most important edge that banks have over less regulated companies is their right to accept deposits backed by the Federal Deposit Insurance Corp., since it gives them the exclusive ability to offer a product that remains at the center of people's financial lives, the checking account.

"We're in the beginning of a digital disruption wave that will challenge banks at their very core"

As a result, startups have often chosen to target more peripheral parts of the banking business. Consider the example of credit cards, which have historically been a high-margin product for banks, but have faced new competition in the post-crisis era.

The initial competitive threat came from companies like LendingClub and Prosper Marketplace, which allowed U.S. consumers to refinance their credit card debt in less expensive personal loans. More recently, firms such as Affirm and Klarna have launched more direct attacks on credit cards by offering lower-cost loans to shoppers at the moment they make a purchase.

Still, banks enjoy a degree of protection from these startups, which generally spend a lot of money to acquire new customers, struggle to sell multiple products to those customers, and borrow at higher interest rates than banks.

In the coming years, bigger, better established tech companies pose a more substantial threat. These firms, built in the internet age, are expert at monetizing consumer data. They are masters at designing intuitive, pain-free customer experiences. They already have large user bases, so they don't have to spend a lot to acquire customers. And some are now eyeing the checking account, which could offer a base from which to offer more financial products to customers.

Both Google and Uber announced new checking products this fall. Uber Money is aimed at the company's army of U.S. drivers. A big selling point is that a driver's bank balance will go up immediately after the passenger gets out of the car. "It's free, it's real time and it's fast," Peter Hazlehurst, Uber's head of payments, said in a speech when the product launched.

Google's product is still under development, and its value proposition is less clear. But the company's checking account will be integrated into the Google Pay mobile wallet and likely incorporate money-management features.

Both Google and Uber have no choice but to work with banks, since they lack their own charters. But over time, the tech giants' strategy should dilute the value of a bank license. Customers will increasingly believe they're banking with a tech company, which will give the tech firm leverage in negotiations with potential bank partners. Certain depositories that specialize in banking-as-a-service may still benefit, but the industry as a whole will suffer as they lose control of customer relationships.

"Banks will be around," said Asheet Mehta, a senior partner at the consulting firm McKinsey & Co. "But unless they evolve, I think it's going to be difficult

"Customers should be able to make an informed decision about what data they're sharing" to earn returns significantly above the cost of capital, which makes you a utility-type industry."

It is possible that the U.S. government will continue to constrain tech companies' penetration into financial services. Distrust of the tech sector has been surging. Libra, the proposed digital currency from Facebook, got an icy reception in Washington. A bill from Rep. Jesús "Chuy" Garcia, D-Ill., would bar online platforms with at least $25 billion in annual revenue from functioning as financial institutions.

But the government can only do so much to restrain technological trends. Take, for example, digital accounting platforms, which are already a frequent destination for small-business owners, and which collect a lot of data about their customers' finances. Intuit's QuickBooks and other accounting platforms now offer numerous banking-like features.

The trends described above are working against the U.S. banking industry as a whole. But thousands of smaller, locally oriented banks are in a particularly tough spot.

Between 1992 and 2006, the industrywide return on equity never fell below 12.98%, according to data from the FDIC. In the 12 years since, that metric has never climbed above 12.01%.

Those percentages are averages that mask important distinctions between large banks — relatively well positioned to weather rapid changes in the business climate — and smaller, more vulnerable institutions.

Last year, institutions with more than $250 billion in assets posted stronger returns on equity than those with between $10 billion and $250 billion in assets, which in turn performed better than those with between $100 million and $10 billion in assets, according to FDIC data. Institutions with under $100 million in assets performed worst of all.

The differences are relatively small at the moment — in 2018, about 1.5 percentage points separated the average returns on equity at the largest banks from those at the smallest ones — but an institution's size is likely to matter significantly more five years from now than it does today.

"As technology and scale become more important, it will force more consolidation," said Mehta, the senior partner at McKinsey.

That seems particularly true as fintechs and big banks extend their reach. More than three decades after interstate banking began to gain momentum, any startup that develops a good mobile app can attract customers from coast to coast. At the same time, big banks are finding it much easier to attract customers in locales where they do not have branches.

"The millennials are now the largest generation ever, and they're expecting good technology. And they're not going into bank branches," said Jo Ann Barefoot, CEO of Barefoot Innovation Group.

Still, there are steps that smaller banks can take to set the stage for a thriving future. Small banks have access to a lot of the same technology as their larger peers, and they have the advantage of nimbleness, said Tripp Shriner, a venture capitalist at Point72 Ventures.

In an era where distribution is national, specialization is perhaps the biggest key for smaller institutions. This is the path forged by CBW Bank in Weir, Kan., and Cross River Bank in Teaneck, N.J., both of which have carved lucrative niches by providing services that cater to fintech companies.

Still, with roughly 5,300 banks operating in the U.S., a lot of consolidation seems likely over the next five years. Only so many specialties are available.

2. THE INVISIBILITY FACTOR

Utility status or not, digital banking will become less visible because it will be embedded in other daily activities with the help of AI, voice interfaces and other emerging technologies.

Digital banking technologies — including artificial intelligence, analytics, personal financial management software, internet of things, voice banking, banking as a service and fintech innovation – are converging toward one end goal: invisible banking.

This is banking you don't have to think about. You tap to pay. You drive out of a parking lot and the car pays the parking fee. You tell the bank you're saving for your daughter's college tuition and money is automatically moved from your checking account to a special tuition savings account at appropriate intervals. You're offered a loan or a discount at the moment you need it, at the time you're making a purchase.

In five years, banking will be behind the scenes, embedded in everyday activities.

"You want to get all the hassle away, so banking is becoming invisible," said Benoit LeGrand, chief innovation officer at ING.

That change will not be overnight, but the seeds of it are already sprouting in a number of different areas:

Internet of things

The internet of things has long been promised as the next tech breakthrough, although many efforts — such as Google Glass — have fallen short. Yet wearable devices appear to be gaining ground again (Amazon is launching its own version of tech-enabled eyewear that can access Alexa along with a ring that does the same), and promise to make banking and money movement seamless.

By 2025, Alan McIntyre, senior managing director for banking at Accenture, expects payments to move completely away from cards and phones toward wearables and biometrics.

"Whether it is tapping a ring that you wear or facial recognition, the payment will become more seamless," he said. "The idea of taking the card out of the wallet will seem archaic. What you think of as transactional banking will disappear."

An ING startup initiative, FINN-Banking of Things, develops software that lets smart devices make autonomous payments on behalf of the user.

It can be embedded in smart bottles, so that when a bottle is close to empty, it reorders. It can be installed in a car, so that at a gas station or tollbooth, the payment is made automatically.

"You can load your car with 100 euros or dollars and the car pays whenever it's put in those conditions," LeGrand said. The bank has been piloting the technology with BMW.

NS, the public transportation system in the Netherlands, uses this technology for invisible tickets.

"You walk in, we know where you are, where you entered, on which train you stepped in and where you stepped out, and you're charged for your trip automatically," LeGrand said. "This is what you want."

Voice banking

Alongside those changes with wearable tech, payments, on-demand loans, and other banking activities will increasingly be done by talking to Siri, Alexa, or a car or phone app.

"When you think about the world and how we'll access banking services, we'll talk to Alexa and Siri and get financial information," said Brett King, futurist, author and founder of Moven. "We might use smart glasses from Facebook and Apple. Those operating systems will be the gatekeepers for the way we connect to core banking utility."

King has long espoused the idea of one digital assistant to rule them all. So far, the virtual assistant providers haven't shown a willingness to interoperate to make this happen, though Google says it's working on it.

LeGrand calls banking via Alexa, Google Home, Siri and the like "bionic banking."

"Voice banking through these machines is where we are going," he said. "Why? Because human beings are lazy. First we needed to go to the bank to get cash. Now you can open your computer and do a couple of things, you can tap your phone and pay. The next stage is to say Alexa, transfer two euros to my mom. This is the next step in laziness."

But LeGrand also warns that as people become more reliant on this autonomous, invisible technology, it has to work reliably and there has to be strong customer service. A customer won't be willing to wait 25 minutes for a payment gate to open.

"You need to have someone on the line to help you," LeGrand said. "The more digital we are, the more human touch we will need. You subcontract a lot to machines, which is fine, but when there's a hiccup, you want to have someone to unlock situations fast. It's a bit like oxygen: You don't realize you're using it until you stop having it. The moment is stops, someone needs to give you oxygen very rapidly."

McIntyre also sees a place for in-person conversations five years from now.

"Our research suggests that still the majority of people want to be able to do that navigation with human beings," he said. "There's still a lot people that when they're making bigger decisions want the reassurance of having a human being talking to them."

"Voice banking through these machines is where we are going. Why? Because human beings are lazy"

Financial wellness

The personal financial management aspect of digital banking also appears on track to be more seamless and effortless in five years.

Kristen Berman, a behavioral scientist and co-founder of Irrational Labs and Common Sense Lab, a Duke University initiative dedicated to improving the financial well-being for low- to middle-income Americans, said that the overarching trends in money have had mixed results for financial wellness.

"It's wonderful for people to have access to money, and decreasing the amount of time ACH payments will take us is good," she said.

At the same time, it's easier for people to rapidly spend the money in their accounts, she said.

To cope with this, many PFM or financial wellness apps try to show people where their money is going through visuals like pie charts and traffic lights, so they can start to see where they might be spending too much on going out to dinner or on coffee at Starbucks.

These spending views rely on accurate categorization, which is not always a given.

"I always joke, we can put a satellite in space … but we can't get our transactions categorized correctly," Berman said. "Transfers are still being categorized as spending in apps, which makes people not trust these types of apps to give you insights, which makes this useless. No kidding people aren't taking action. We don't trust the insights that we're being given."

Berman sees this going in two possible directions. Either the technology gets better and people start to trust it or consumers are given the tools to make better decisions using heuristics and a lot of the work is done for them.

She would prefer the latter: Instead of presenting people with categorizations and hoping they form better habits because of it, the customer is helped to make changes.

For instance, a customer could sign up for a goal, such as taking a vacation at the end of the year, and the bank would make automatic deductions from their checking account to a vacation account, based on their income and expenses. A few fintechs and banks offer such automated savings tools already, including Digit, Chime, Qapital, Acorns, Fifth Third and Bank of America.

"I would love a behavioral economics method that would help people to do this," Berman said.

McIntyre of Accenture said that in five years, banks will be giving consumers more in-the-moment advice on things like which payment mechanism to use, who to pay when, how to split payments. Such small decisions can add up to financial wellness.

U.S. Bank and Huntington Bank are already experimenting with this, using technology from Personetics. Bank of America's Erica virtual assistant also is beginning to provide this type of advice.

The overall idea is to stop customers from making bad decisions that are not in their financial self-interest. Fintechs like Chime and MoneyLion already tout the idea that they protect consumers from bank fees.

"We can put a satellite in space … but we can't get our transactions categorized correctly"

Ultimately, banks' improvement in this area will hurt their ability to make fee income, but if they do not improve, they risk losing further business to fintech upstarts.

"The U.S. banking industry still has tens of billions of dollars of insufficient-funds fees and we're getting to a point where technology should save customers from that," McIntyre said. "The challenge is going to be self-cannibalization for the bank. The banks have benefited from customers making suboptimal decisions."

Some banks have already attempted charging monthly maintenance fees. Monzo, the popular U.K. challenger bank with 4 million customers, recently tried that. But customers balked.

Another way banks could make up for lost fee income is they attempt to disintermediate other industries like telecommunications by using the visibility they have into customers' spending patterns to help them get better deals. For instance, a bank could see that a customer is leasing an 18-month-old Toyota Sienna when they could lease or buy a new car with lower monthly payments elsewhere, and thus disrupt auto dealers.

U.S. banks are gingerly starting down this path. Wells Fargo's Control Tower, for instance, gives customers the ability to see all their recurring monthly payments.

The next generation of this idea is to actually help people switch to cheaper providers, whether they're auto dealerships, mobile service companies, or other firms.

For example, ING has a personal financial management app called Yolt that's used by a million U.K. customers (it's recently been expanded to France and Italy as well). ING crunches the customer data it gathers in Yolt to help users make better decisions about the products and services they buy. It will tell them which utility providers could give them a less expensive service, and help them switch.

"We have always a challenger's mindset," said LeGrand. "For us, this is an enormous opportunity to expand, to give new services, innovate, and better service customers."

Banking as a service, APIs and fintech partnerships

The battle over who controls customer data also appears to be ending. For years, banks and fintechs have sparred over the issue, with each side blaming the other as either purposely holding up sharing to keep a competitive advantage or encouraging customers to engage in unsafe behavior to allow access to bank accounts.

But banks and fintechs are increasingly using application programming interfaces to share information.

Banks are also striking deals with companies to offer banking-as-a-service, which can allow third-parties to offer banking products without actually becoming a bank.

Phillip Rosen, CEO of the fintech Even Financial, said that such interactions are the hallmark of the future in which banking becomes embedded in other activities.

Even Financial has a network that connects about 40 financial services firms, including Marcus by Goldman Sachs, American Express, nbkc bank, Social Finance, LendingClub, Prosper, Upgrade and Avant, with consumer sites like the Penny Hoarder, the SmartWallet and ClarityMoney through APIs. Consumers searching for a product not only get an offer suitable to them; they can fully apply for the product right then and there.

Rosen envisions the embedding of banking in multiple places, the same way apps have become interoperable. They used to operate independently.

"Now you go to your phone and if you have something scheduled on your calendar, you're probably going to see a notification saying here's the shortest route or there's traffic," Rosen said.

BBVA, meanwhile, has been actively engaging in offering banking as a service, and expects to see those efforts grow. The bank is working with retailers to embed its services, like quick online loans, in their websites at the point of checkout.

For example, the bank might offer short-term loans through Target. The customer may believe the loan comes from the retailer, not BBVA.

But in an interview earlier this year, Javier Rodriguez Soler, the chief executive of BBVA USA, said he's comfortable with the bank being invisible in that transaction. The customer may believe the loan comes from the retailer, not BBVA.

"As long as this customer receives a good loan, and we are helping, I don't mind if he believes Target is giving him the loan," he said.

"As long as this customer receives a good loan … I don't mind if he believes Target is giving him the loan"

3. A NEW LANDSCAPE FOR LENDING

Peter Minshall, a longtime real estate developer and investor in the Baltimore-Washington region, made a strategic decision five years ago to stop buying office buildings and invest in properties that are far less sexy: industrial warehouses.

Demand for office space has been shrinking rapidly as growth in the working-age population has slowed and advances in technology have allowed companies to digitize files that once took up lots of square footage. As Minshall sees it, the pace of this downsizing is only going to accelerate as firms eliminate support staff and permit — and even encourage — more employees to telecommute.

Companies "don't need the volume of space they once needed to operate an office," said Minshall, the managing partner at Washington Capitol Partners. "People don't need to be in an office. They don't need administrative assistants. They can do everything they need to do from a handheld device."

This diminished need for office space is occurring as the explosion of e-commerce and cloud computing has led to soaring demand for warehouse space.

To fill all those online orders, retailers such as Amazon and W.B. Mason not only need acres of space by interstates, but also smaller facilities near population centers that allow for even speedier delivery. Meanwhile, businesses and governments have a seemingly endless demand for warehouses to store, process and distribute data.

This shift is poised to have a marked impact on banks given that commercial real estate lending is a key business line. Lenders will need to pay close attention to the various forces that will drive demand for CRE loans over the next five years and beyond.

Some of the same forces influencing demand for office and industrial space will impact other areas of commercial real estate as well, particularly housing and brick-and-mortar retail. Already strong demand for senior and multifamily housing will increase as baby boomers age and younger generations continue to migrate to urban markets, and the declining foot traffic at shopping malls and big-box centers is putting pressure on property owners — and their lenders — to come up with creative new uses for vacant retail space.

Banks also can expect expanded opportunities in renewable energy. Clean energy lending is already a fast-growing business and is likely to become a bigger part of banks' portfolios in the coming years as more states and municipalities set clean energy targets and companies and households look to reduce their energy bills.

Andy Redinger, the head of the renewables energy group at KeyCorp, said that with solar power costs coming down, the biggest opportunity of all for banks over the next five years could be in financing rooftop solar projects.

Following is a look at some of the demographic, societal and technological shifts that could shape bank lending over the next several years, based on interviews with consultants, urban planners, bankers and other experts.

Aging baby boomers

The country is in the middle of an immense demographic shift in the workforce as waves of baby boomers born between 1946 and 1964 start to retire.

Over the last 10 years, the annual change in working age population growth has slowed considerably when compared to the previous two decades. That slowdown is expected to continue well into the 2020s, according to data compiled by the real estate data firm CoStar Group.

Between 1980 and 2009, annual growth in the working age population — defined as workers between the ages of 25 and 64 — was consistently between 1% and 2%, but the pace has slowed to an average of 0.6% per year over the past decade and is projected to be around 0.2% annually through 2027.

Add in structural shifts taking place across all industries and government agencies and it's easy to see why demand for office space has been shrinking and will continue to decline through the next decade. At its peak in 2005, net absorption of office space totaled 170 million square feet, according to CoStar. Last year, total absorption fell to 100 million square feet.

Nancy Muscatello, a managing consultant at CoStar, said that demand for what known as "class A" office space in dense urban areas remains strong because firms see high-quality properties near public transportation and good eateries as crucial to attracting and retaining good employees. For banks, there is still significant opportunity to finance the construction and acquisition of these properties, Muscatello said.

At risk, she said, are older office buildings in urban markets that are becoming increasingly obsolete and suburban office properties that are far from public transportation and require workers to hop in their cars if they want to grab a decent lunch.

“Quality and location are becoming more and more important,” Muscatello said. “It doesn’t mean that the office market overall isn’t going to be performing well, but there are going to be sectors of the market that are going to perform better than others and are a better bet, especially in an environment of slowing demand.”

These trends won’t play out evenly across the country. Metropolitan markets with strong population growth, such as Austin, Texas, Orlando, Fla., and Raleigh, N.C., will have higher than average growth in the workforce and thus heightened demand for quality office space. The 10 fastest-growing U.S. metropolitan markets of the past decade are in just four states — Texas, Florida and the Carolinas, according to data provided by Gerald Bierling, a researcher at Generational Insights, a Mobile, Ala., consulting firm. The 10 slowest-growing markets are in the Northeast and upper Midwest.

The aging of the baby boomers is also expected to accelerate demand for both senior housing and multifamily rentals in urban locations. Many retirees, particularly the more affluent ones, are selling their suburban homes and moving into luxury apartments “and we see that trend continuing over the next five years,” Muscatello said.

Erika Poethig, a vice president and the chief innovation officer at the Urban Institute, said that for less-affluent seniors who want to remain in their homes, there will be an acute need for financing upgrades that will allow them to age in place. Think walk-in showers, outdoor wheelchair ramps and improved flooring and carpeting that can better prevent seniors from slipping.

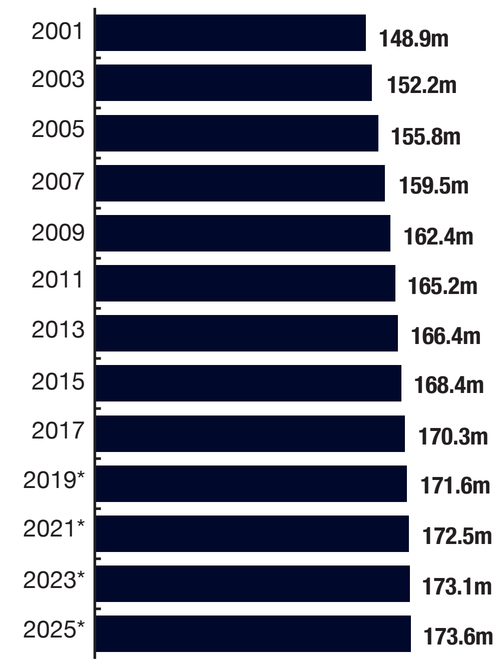
Medicare does provide some grant money for such upgrades but not nearly enough to meet the demand, Poethig said. “Congress has appropriated very modest dollars for that, so there’s a huge issue around whether the housing stock is going to be equipped to be retrofitted and what the financing sources will be.”

The need for affordable housing

The chronic shortage of affordable housing in many urban markets is unlikely to abate anytime soon because there’s simply not enough supply to

Implications for CRE lending

Growth in the working-age population has slowed in recent years and is expected to level off over the next half-decade. The decline in the number of people entering the workforce has resulted in diminished demand for office space



No. of people in the workforce (ages 25 to 64)

* Projected
Source: Costar

meet demand. Nationwide, there are only 31 affordable properties for every 100 extremely low-income renters, according to data from Mercy Housing, a Denver-based community development financial institution.

The shortage is not just in high-cost cities such as Washington, D.C., and Oakland, Calif., where gentrification is pricing out many residents, but also in faster-growing markets in Sun Belt states where housing costs are generally lower.

Muscatello said that in built-out markets, there could be a great opportunity for banks to finance acquisitions and conversions of older, obsolete office space into affordable multifamily units.

"That B and C product could be a driver for more workforce housing," she said. "We're already starting to see a lot of clients looking to acquire" those properties.

Poethig agreed that the older office buildings could be part of the solution, but said that in densely populated markets where acquisition costs tend to be high, developers and lenders will need a fair amount of support from governments — such as tax credits ¬— to get projects done.

"More jobs are being created at the bottom part of the income [ladder] than the top, and it just costs more to build housing than that income group can afford," she said. "In many markets there is always going to be a gap."

In states such as Texas and Florida, the lack of supply is largely because there aren't enough developers focusing on affordable housing, according to Poethig. Banks can help solve this problem by helping established affordable housing developers — typically nonprofits — expand into other cities. She sits on the board of Mercy Housing, which recently set up shop in Atlanta to identify development opportunities across the Southeast.

Banks "could provide lines of credit that will allow affordable housing providers to scale their capacity to grow into other markets," she said.

The e-commerce effect

Brick-and-mortar retail will continue to face a reckoning as e-commerce sales surge, and lenders will need to work with property owners to find new uses for all that vacant retail space, said CoStar's Muscatello.

"There are 71 million homes in the U.S. and only 2 million have solar panels on them... That's just a massive, massive market"

Space that formerly housed electronics or sporting goods stores is already being converted into everything from fitness centers to megachurches. Muscatello said she sees the repurposing of retail space into health clinics and other service-oriented facilities as "a big opportunity" for property owners and the banks that lend to them.

The bigger opportunity, though, will be in financing the acquisition and development of warehouse space.

For decades, banks tended to steer clear of financing industrial projects because office and retail properties generated more consistent income streams and were seen as safer bets, according to Minshall of Washington Capitol Partners.

With e-commerce sales growing at around 15% a year and driving up demand for warehouses, that's no longer the case. Warehouse space that was renting for $4 a square foot a decade ago is now fetching twice as much, giving banks far more confidence to finance construction of new projects, upgrades to existing properties and outright acquisitions. Average sales prices for warehouse space also have nearly doubled over the past decade, from $51.80 per square feet in 2009 to $97.30 in this year's third quarter, according to data from CoStar.

"The dynamics of industrial are such that there's plenty of opportunities for banks to make loans," Minshall said.

He has been in the real estate business for 40 years and said that he sees the industrial market today "as the best investment opportunity of my career." In the last few years, he has used bank financing to buy two old printing plants in the Baltimore-Washington corridor and repurpose them as distribution facilities for retailers.

"If I'm a banker, I'm not targeting office; I'm targeting industrial," he said.

Minshall said that a looming threat to the warehouse market is a dwindling supply of land zoned for industrial use, especially as data centers continue to "muscle out other users." In the United States, square footage devoted to data centers has grown by 25% over the past decade, to 230 million square feet, according to the real estate data firm CoStar, and that pace of growth is likely to continue.

But even in that potential shortage Minshall sees intriguing new possibilities for developers and lenders.

"What's going to happen is that older assets are going to be torn down and sold for their land value, and new, bigger projects will go up," he said. "It's only a matter of time."

A surge in renewable energy

Large and regional banks in recent years have become active in financing large-scale solar and wind projects and demand is only expected to increase.

To give a sense of the demand to come, Mark Haefele, the chief investment officer at UBS Global Wealth Management, pointed to the RE100, a group of 191 companies, including Apple and JPMorgan Chase, with a goal of getting 100% of their electricity from green sources (up from the current 39%).

Haefele said in a note to clients that reaching the target – just for that group alone – would require additional solar and wind capacity that is equivalent to Spain's entire power generation.

And, he wrote, that would take an additional $100 billion of investment in renewable energy, based on an analysis by Bloomberg New Energy Finance.

By 2025, more banks will look beyond the big projects as well, to further expand their financing in areas such as energy storage, rooftop solar panels, indoor agriculture and electric vehicles, according to industry experts.

Alfred Griffin is the chief executive of NY Green Bank, a New York state-sponsored lender that works with private investors, including banks, to finance green projects. He said that demand for energy storage is expected to surge in the next couple of years as the cost of capturing solar energy for use during non-daylight hours comes down and battery technology improves. This presents considerable lending opportunities for banks with expertise in financing renewables.

"Certainly larger banks that have project financing teams are well aware of this and are paying close attention to it," Griffin said.

For giant solar projects, batteries for storing energy until it is needed can be the size of football fields and cost tens of millions or even hundreds of millions of dollars. I'm checking on these details

Any municipality or corporation that has set ambitious goals to reduce greenhouse emissions will need sufficient battery power to store energy

"A lot of the largest investors in the world, pension funds and so forth, are very focused on [renewable energy]"

that can be released when the sun isn't shining, Griffin said. The state of New York, for example, has set a goal of receiving 50% of its energy from renewable sources within a decade and storage is expected to be part of that mix.

In an individual home with rooftop solar panels, a battery might be the size of a picture frame that sits on a wall in the garage. Financing for those smaller batteries can be rolled into rooftop solar installation, which is emerging as a sizable business. Redinger of KeyCorp said that some rooftop solar firms are generating sales of $100 million a month.

He said that Key is financing rooftop projects in two ways: partnering with contractors to provide point-of-sale loans to homeowners and providing working capital to solar providers that lease solar panels to homeowners. A typical solar installation costs around $25,000.

Redinger said that solar power is "starting to go mainstream" and that the demand is being driven largely by the potential for cost savings. With costs of generating solar power continuing to come down, demand is sure to go up over the next several years, he said.

"The residential solar business is growing 15% to 20% a year," said Redinger. "There are 71 million homes in the U.S. and only 2 million that have solar panels on them. That's just a massive, massive market."

Griffin said that electric vehicles will become more mainstream in the next five years, presenting opportunities for banks to finance everything from charging stations to fleets of electrical cars and buses for businesses, municipalities and school systems.

NY Green Bank also has financed some indoor farming facilities, and Griffin said he expects more banks to follow suit as food producers look to cut costs and reduce their overall carbon emissions.

"If you are a resident of New York, your leafy greens are typically being shipped in trucks from California. Now technologies are available and efficiencies have been created so that those greens can be produced locally, are extremely high quality and will last longer in your refrigerator," Griffin said.

Even as banks up their commitments to financing environmentally friendly projects, many still actively lend to oil and gas producers. But Griffin said he expects banks' enthusiasm for fossil-fuel financing to wane over the next five years because there will be greater opportunities in renewable energy. According to the International Energy Agency, wind, solar and other forms of renewable power will attract about $322 billion of investment annually through 2025, almost triple what will go into fossil-fuel plants.

Big banks in particular, Griffin added, will be under heavy pressure from investors to do their part to slow the pace of global warming.

"It's fair to say that a lot of the largest investors in the world, pension funds and so forth, are very focused on this," Griffin said. "They want to see their investees having an impact on reducing greenhouse gases."

4. RETAIL'S BRICK-AND-MORTAR RECKONING

The future of brick and mortar retail may be somewhere in the swamps of Jersey: The just-opened American Dream mall, a decade and a half in development, will soon sport a New York-themed Sea Life Aquarium and an indoor amusement park to augment traditional shopping mall staples.

It's suburban mall culture reimagined as anything but a mall. It's also a sign of how Amazon, Uber and Apple's under-the-hood hold on automatic and personalized shopping, ordering and paying are sparking another revolution that payment processors will have to adjust to in the years ahead. As big box stores, point of sale terminals and cash fade, merchant acquirers will have to consider a broader experience than just an easy digital payment.

"Shopper expectations and purchasing habits are shifting significantly," said Luke Griffiths, general manager at Klarna U.K. "Successful paytech will increasingly need to deliver on convenience and empowerment. Customers expect to get what they want, when they want it, on their terms."

Globally, traditional shopping centers and main street or high street stores are changing culture and design.

Outside of New Jersey, the Philadelphia Fashion District, a renovation of the old Gallery Mall, opened this fall with an alternative mix that includes an interactive candy store, a showcase for local artists, and an entire floor of entertainment that's integrated with the more traditional stores and the Jefferson Station transit terminal.

The European sports retailer Decathlon has created a virtual climate to mimic Mount Snowdon in a direct attempt to link the experience of trying outdoor sporting goods with faster checkout. Barclays is partnering with Decathlon to power the store's shopping and payments technology, which is part of the bank's broader strategy to aggressively experiment with payment technology, placing it in jewelry, gloves, and myriad other connected devices.

"It's about addressing a society where we're shifting from using cash to being cashless," said Will McClelland, a co-founder of Elizabeth Street Ventures, a New York-based early stage investment firm that looks for emerging retail brands that are focused on multi-channel services for digitally-focused consumers, such as the Museum of Ice Cream, an interactive digital ice cream brand that has opened a handful of retail store fronts; or Current, a youth-focused payment app that uses APIs to allow its clients to offer financial education for an multi-channel economy.

These brands are designed to assume a knowledge of digital, with an adjustment for a storefront, the opposite of how most people have adjusted to online retail.

“If you’re born into a digital environment, you are going to assume all of that function is built in,” McClelland said.

For payment companies and fintechs that want to acquire merchants, the pressure will be to include different payment options and mobility. The trend toward providing store staff with viable checkout-free technology and flexible financing options will mature, leaving hesitant merchant acquirers on the sidelines.

A new installment

Klarna’s core product is an alternative to credit card revolving debt. It offers installment payments as a way to encourage larger purchases. The model has attracted more than 130,000 merchants and enough interest from fintech investors to vault Klarna’s valuation to more than $5 billion making it one of Europe’s largest technology companies.

Klarna is at the fore of a new tie-in between retail innovation and alternative payments. As the installment market has become competitive as other fintechs such as Splitit and Affirm loom with their own alternative credit models, Klarna is adding a dash of retail innovation in an attempt to differentiate.

Klarna has opened a series of pop-up stores, including a “House of Klarna” in Manchester, U.K., that featured beauty and lifestyle brands; and a “Pup Up” store in Manhattan’s meatpacking district that included Jess Rona, a celebrity dog groomer who’s called the “Oprah” of dog grooming.

“The pop-ups form an important part of our mission to make shopping as seamless and stress-free as possible,” Griffiths said.

Klarna’s Manhattan pop-up store featured social media links to share dog makeovers and other high end dog accoutrement. That may seem funny, but it’s part of Klarna’s messaging to its payments technology to a social-driven experience.

"Retail payment solutions of the future will need to expedite speedy and hassle-free transactions by streamlining steps in the purchase journey," Griffiths said.

Installment payments at the point of sale will be interesting if only for the category's potential to disintermediate traditional payment providers. Consumers can spread out payments over a period of time in most cases with low or zero interest, threatening traditional credit cards, according to Rachel Huber, an analyst at Javelin Strategy & Research.

Javelin's research shows that 35% of consumers have already used an online credit service to make a purchase in the past 30 days, so the jump to in-store usage is a natural progression, Huber said.

The elephants in the room

In a discussion of the future of retail, it's impossible to ignore Amazon. It's usually seen as a primary threat for both online and offline sellers, given its huge e-commerce business and push into brick and mortar through its Whole Foods acquisition.

"Successful paytech will increasingly need to deliver on convenience and empowerment"

The checkout-free Amazon Go store, one of what the e-commerce giant hopes will be more than 3,000 locations that will open in the years ahead. Checkout-free technology promises a trove of granular data on shopping, product and payment, which is why it's attracted nearly two dozen startups that are building versions of the technology to sell to retailers in the years ahead. Its other retail plays include its expansive delivery strategy and its own nascent supermarket chain.

It isn't just Amazon.

Ride-sharing apps like Uber and Grab are adding financial services to their core offerings; Walmart has built laboratories to develop retail innovation; and Facebook has made moves beyond its controversial Libra cryptocurrency project, such as centralizing its social payment apps, that will make it a power in the retail industry in the years ahead.

None of these giants show any signs of slowing their moves into shopping and payment technology, using their enrolled user bases to accumulate data that de-emphasizes the payment process in favor of enrollment and check-in.

This data provides an advantage that can make digital or social media companies much more influential in the brick-and-mortar channel in the decade ahead. Despite the e-commerce revolution, storefronts remain vital places to build brand awareness and relationships, according to John Bennett, vice president of operations and corporate development at Signifyd, a San Jose, Calif.-based e-commerce technology company.

For example, Bennett mentioned Stance, the online/social apparel company that works with celebrities such as Rihanna and James Harden. Stance has opened stores in New York, Southern California and elsewhere.

"If you buy online and go into a store for a pickup and return, the average lifetime value of that consumer is higher," Bennett said. "You're almost willing to take a loss online to get them into the store."

Making contact

The intersection of point of sale technology, online shopping and nontraditional user experiences is perhaps best demonstrated by the Apple Card, which launched in 2019 in partnership with Goldman Sachs.

The Apple Card uses Apple Pay's enrolled base to provide support for the App Store, streaming content and in-app and contactless payments through a relationship with Apple. And like Amazon, Facebook and Walmart, Apple's scale and brand recognition make it a force based on that alone.

Apple's credit card puts the technology company in a position to compete with both banks and fintechs in the next decade by offering to enroll and authenticate users in multiple retail environments and experiences. Apple's efforts will also spur deeper advances in contactless payment technology.

"Instant payments at the POS is still in its infancy, but installment loans and contactless are the most ready to deliver consumers value in the near-term," said Javelin's Huber.

For merchants and issuers, contactless provides a better consumer experience and is also more secure because the risk of skimming is gone, Huber added.

"If you buy online and go into a store for pickup and return, the average lifetime value of that customer is higher"

"Contactless has the ability to offer consumers faster checkout times while also priming them for future mobile wallet use," Huber said. "I think of contactless as a backdoor way to get people to finally adopt mobile wallets en masse by introducing them to the technology through a proven, trusted form factor."

These contactless cards, including Apple Card, are the "new bridges" that will promote digital wallet usage in the years to come, according to Phil Tollison, group president of card processing solutions at Jack Henry & Associates.

"As the shift begins, consumers will expect point of sale options to be readily available," Tollison said. "Phones, tablets, wearables, contactless cards and even voice need to be supported as the point of sale, as the cardholder expects merchants to be able to use their channel of choice."

5. THE NEXT ITERATION OF REAL-TIME PAYMENTS

Instant availability of payroll funds, insurance payouts, disbursements, mortgage transfers and property sales and emergency funds access will be at the core of how payments look in 2025. It's a change likely to drive both fintech development and payments industry consolidation.

The avalanche is already beginning, as waves of larger financial institutions go live with The Clearing House's Real Time Payments (RTP) network. The first community bank is piloting RTP and dozens more smaller institutions are poised to follow in early 2020.

Banks aren't the only ones that stand to be disrupted. Real-time payments can force significant changes in the way the federal government handles payments in the next few years, according to Ronda Kent, assistant commissioner for payment management who is chief disbursing officer of the U.S. Treasury's Bureau of the Fiscal Service.

She noted that 95% of U.S. government payments are delivered electronically, primarily via ACH.

"As we look out at today's payment landscape there are two dominant features — changing technology and changing consumer expectations. The Fiscal Service envisions a future payment industry where everyone expects to be mobile and connected," Kent said.

There may be quite a few unintended consequences from the move to RTP, and one of the first areas where these will come to light is small business, where benefits and costs are often magnified, said Farhan Ahmad, founder and CEO of Bento for Business, a payments platform for SMBs.

"The goal for small businesses is optimizing payments for a variety of reasons, and for many companies accuracy and control will still be more important than being instant five years from now," Ahmad said.

Small businesses in particular will move slower in adopting real-time payments because of the potentially high cost of errors and fraud in instant, irreversible payments, he predicts.

"We now have millions of transaction through [real-time networks] and by 2025 we think it will be billions"

"Main street businesses will put control and visibility ahead of speed, and they will adopt RTP only where it makes sense," Ahmad said.

"A lot of smaller banks were skeptical about who was driving RTP, but now they have come to the realization they trust the guiding principles behind faster payments, and as they watch big banks adopt RTP they will follow," said Rusiru Gunasena, senior director at Jack Henry & Associates, which is enabling the first community bank RTP pilot through its JHA PayCenter hub.

With the Federal Reserve proposing to develop its FedNow instant-payments network by 2024, it's created a swirl of debate about potential interoperability and even necessity that seems to be accelerating RTP adoption. The spread of the bank-run Zelle network will also play a role.

"We now have millions of transactions flowing through the Zelle and RTP networks, and by 2025 we think it will be billions, with broad choice in the way payments are sent and received," Gunasena said.

Surprising use cases will emerge for RTP over time. Few expected that rent payments would be one of the strongest categories of Zelle payments, Gunasena said. He expects to see real-time bill payment catch on in the next few years as consumers and businesses cut out slower paper- and ACH-based processes for faster clearing and settlement.

Ride-hailing and other gig economy employers have been early RTP adopters, and Gunasena expects that within five years real-time payroll will spread to other industries.

"People want to get paid as soon as the job is done, and with RTP that will be possible," he said.

Real-time payments enable richer data to accompany payments for invoices and remittances, which may radically improve options for B2B payments. New RTP options could also hurt third-party software providers and consulting firms whose role until now has been helping corporations speed up legacy payments with their own makeshift tools.

"Real-time payments will dramatically disrupt financial services in the U.S.," predicted Suresh Ramamurthi, chairman and CTO at CBW Bank, an early backer of the digital bank Moven, which has also partnered with Ripple Labs.

"We will see a big emphasis on real-time risk management. Real-time data will support this"

Real-time payments could be the fatal downfall for legacy payments like checks, and ACH debit payments will also be greatly impacted, Ramamurthi predicts. Banks still fearing fintechs will suddenly see the benefit of strategic partnerships to ensure success in faster payments, he said.

“Banks will be forced to create APIs enabling customers to push funds for bill payment, and we will see a big emphasis on real-time risk management,” Ramamurthi said. “Real-time data will support this, enabling financial institutions to analyze nearly every aspect of a transaction within seconds, including what other payments a customer has recently made and potential concerns around a specific transaction.”

Omaha, Neb.-based banking software provider Baldwin Hackett & Meeks doesn’t expect real-time payments will put many companies out of business, and it won’t necessarily go as smoothly as some predict.

“RTP has been a long time coming, but it’s going to be a long time until it replaces existing practices, and even if FedNow rolls out it won’t be without a certain amount of struggle and serious, extensive negotiations among major players in the banking industry,” said Jack Baldwin, BHMI’s chairman.

6. THE REGULATORY RACE WITH TECH

Nearly 3,000 miles separate Silicon Valley and Washington, D.C. Comparing the pace of progress in the two locales, they may as well be different solar systems.

Consider the Dodd-Frank Act in 2010. The post-crisis law created a consumer protection regulator, eliminated a thrift regulator, empowered the Fed to tighten its supervision of big banks, and launched a committee of regulators to combat systemic risks, among other changes. Against the history of bank policymaking, Dodd-Frank was a big deal.

Yet it was merely a drop in the bucket next to the tectonic movements in digital technology. In 2010, bitcoin and Venmo were in their infancies and Apple's cellphone market share trailed Nokia's.

With policymaking moving as slowly as it does, regulators and lawmakers face a huge task heading into a new decade. Given the goals of Google, Amazon, Apple and Facebook to get deeper into financial services, the tension between those who want to innovate banking faster and a regulatory system designed in many ways to slow change will only intensify.

"Financial services are regulated as a sector. Now you see Google and Amazon — these big-tech, commercial entities — starting to blur that line," said Kelly Cochran, a former official at the Consumer Financial Protection Bureau who is now the deputy director of FinRegLab.

"Does the financial sector stay distinct? Does financial data stay distinct? If so, how does that happen when all this line-blurring is going on? I'm not exactly sure how it will play out. But I strongly suspect that's going to be the central question over the next five years," Cochran said.

A broad regulatory reform push by 2025 to address fintech appears unlikely. Instead, observers see piecemeal changes perhaps in response to singular market developments or crises, while agencies will continue a process already underway to digitize the regulatory process and streamline their assessment of banks' fintech solutions.

"We'll certainly have organic change. We might have crisis-driven change. But I think what actually is going to happen and is needed is something in the middle," said Jo Ann Barefoot, a former regulator and congressional staffer who heads the Alliance for Innovative Regulation. "That is, not structural change in the sense of creating a new Department of Financial Technology Oversight … but rather new modes of working by the regulators."

With the past five years as a guide, there is little doubt that the steady advance of digital technology, automation and artificial intelligence over the next five will further reshape how consumers handle their money. Data-focused tech companies will continue to venture into financial services, further obscuring the lines between financial and commercial companies.

That evolution is certain to intenify policy debates over new proposed charter types, regulatory frameworks and activity restrictions. The growing dominance of data in financial services will lead regulators and lawmakers to zero in on who owns that data, how to protect consumers' privacy and the risk of criminals using financial technologies to launder money.

But comprehensive regulatory reform? Don't count on it.

"It's very unlikely that there will be this 'aha' moment — a Big Bang or sweeping change in policy towards financial technology," said Michael Barr, the dean of the University of Michigan's Gerald R. Ford School of Public Policy and a former Obama Treasury Department official.

"It's much more likely that you'll see a series of interventions, maybe around many mini-crises, or maybe around many mini-possibilities for innovation or mini-realizations about important areas," Barr said.

There appears to be a sincere desire among regulators to understand both digital products offered by banks and new compliance tools, as well as utilize their own data-focused tools to make regulatory oversight more efficient.

Agencies have moved to build in-house units focused on innovation. Examples of progress include the OCC's work to develop a specialized fintech charter (although no firm has yet applied as the charter has hit legal roadblocks.) The CFPB has advanced vehicles to give fintech startups running room to test products without the looming threat of an enforcement action. FDIC Chairman Jelena McWilliams, meanwhile, has been credited with bringing a new innovation-focused attitude to her agency, illustrated by her participation in a recent transatlantic "tech sprint" — in which teams demonstrated new anti-money-laundering tools — co-hosted by the Financial Conduct Authority.

"Privacy is something that Congress has been trying to do for many, many years, even before ... more intrusive technology"

“Candidly, the FDIC was probably the most cautious of the regulators a few years back,” said Barefoot, whose alliance helped put on the tech sprint. “And now” McWilliams “has set a goal — these are her words — of transforming how they supervise banks during her term, which has three and a half years left, and doing it in a way that will survive long after she’s gone. … Increasingly, we are seeing bold leadership.”

Adrienne Harris, who was a special assistant to President Barack Obama at the National Economic Council, said officials have to thread the needle of protecting the financial system from mishaps while still cultivating innovation.

“From the innovation offices to other types of engagement that that we’re seeing from policymakers, a lot of this will continue to develop organically as all the stakeholders are trying to find the right balance between mitigating risk and making sure the market’s able to seize opportunity responsibly,” said Harris, a policymaker-in-residence and Gates Foundation senior fellow at the University of Michigan.

But an incremental, organic approach has limitations. Analysts say a better scenario is for the legislative and executive branches to develop a more comprehensive framework to enable innovation while safeguarding the system from new risks.

“If we had sufficient political attention and will not just in the Congress, but in the regulatory agencies, to get together in a concerted way, we’d be much better off as a country — if we pushed forward aggressively to have an innovation policy on fintech that balanced all these issues, that took care of consumers, that was pro-innovation,” Barr said. “As a predictive matter, how likely is that? I don’t think very likely.”

A structural policy already in play that appears likely to grow more complicated in the next five years is the blurring of lines between banks, other types of financial companies and commercial firms.

The aim of tech giants to be more involved with consumers’ money highlights the fast-growing emphasis on consumer data as a commodity in the financial services sphere. But that leads to questions about who regulates the use of data across different sectors, not to mention who owns the data and how portable it should be. Meanwhile, longstanding efforts to pass legislation strengthening data security and privacy have yet to succeed.

A future policy debate could revolve around whether an existing agency such as the CFPB or the Federal Trade Commission is given new powers to oversee the use of consumer data for financial purposes, or whether Congress creates a new agency for that purpose.

"One of the advantages to the Federal Trade Commission structure right now is that it has both competition and consumer protection within the same agency," Cochran said. "There are some real advantages when it comes to data issues to having both of those lenses being used at the same time."

Factors such as a massive data breach or concerns about the reach of a private-sector cryptocurrency could force Congress to finally enact strong cybersecurity standards or take steps to protect consumers' privacy.

Amy Friend, a former staffer on the Senate Banking Committee and former general counsel at the OCC, recalled how — even before the debate over Dodd-Frank — the financial crisis spurred lawmakers finally to pass a sweeping credit card reform bill in 2009. At the time she worked for then-Chairman Chris Dodd, D-Conn.

Now, areas such as privacy and data portability are "ripe for legislation," said Friend, now a senior adviser at FS Vector. "Privacy is something that Congress has been trying to do for many, many years, even before where we are right now with more intrusive technology."

But Friend acknowledged that the 2008-10 financial crisis was like a "100-year flood," and said it's unlikely the next five years will produce anything that results in sweeping financial reform.

"Creating the CFPB" in Dodd-Frank "was an enormous heavy lift," she said. "Is it possible that we have a catastrophe involving fintech? What's more likely is, if something needs to be regulated more comprehensively, they say, 'Look at CFPB; it already has really broad jurisdiction.' Or they could make the OCC a chartering authority. Creating a new agency is just really hard."

The broad powers given to the CFPB, and the authority of the Financial Stability Oversight Council to designate nonbank firms for tougher supervision, are tools that could be adapted for a future crisis related to technology or otherwise.

"I don't think you need to throw the baby out with the bath water — to start from scratch to get a new regulatory system," said Mehrsa Baradaran, a banking law professor at the University of California, Irvine. For example, Baradaran said, if a fintech-related product is widely seen to be discriminating against certain consumers, the CFPB would already have the legal mandate to address that.

"Look at the function … and then pick a regulator. You actually don't need to have some tech expert that looks at discrimination," she said. "You actually have to know a little bit about how discrimination works, not necessarily just how the tech works."

Still, Barefoot said, the regulatory agencies will need to hire more tech- and data-oriented personnel in the coming years to complement their policy experts, both to respond to innovations in the industry and hone technology for their own supervisory process.

With regulators setting out to be more innovation-focused, a variety of nongovernmental groups are trying to aid the process, conducting projects looking at the future of financial policy for both the policymakers and financial services companies.

Harris and Barr are involved with the University of Michigan's Center on Finance, Law and Policy, which has developed projects looking at the future of central banks and small-business consumer protections tied to fintech, among others. The center's Central Bank of the Future deals with how those central banks might evolve so that financial inclusion becomes a core part of their mission.

"Part of our task is to think about technology that those institutions could leverage in the 'regtech' or 'suptech' arenas, ways they might change their processes, how they might even change their explicit mandate such that they would be in a position to better promote and foster financial inclusion around the world," Harris said.

Barefoot's group is developing what she called a "regtech manifesto" on steps to make the regulatory system more innovative, as well as a legal memo in concert with the Buckley law firm on the statutory impediments for regulators to incorporate more tech-focused tools.

"We have to get the information in the regulatory system into digital form so that we can see it. The information that we use to oversee banks … is mostly locked up. It's opaque," she said. "They need smarter data. They have to become data-centric. I'm optimistic there is fast-developing interest in this."

"One of the advantages to the FTC structure is that it has both competition and consumer protection within the same agency"