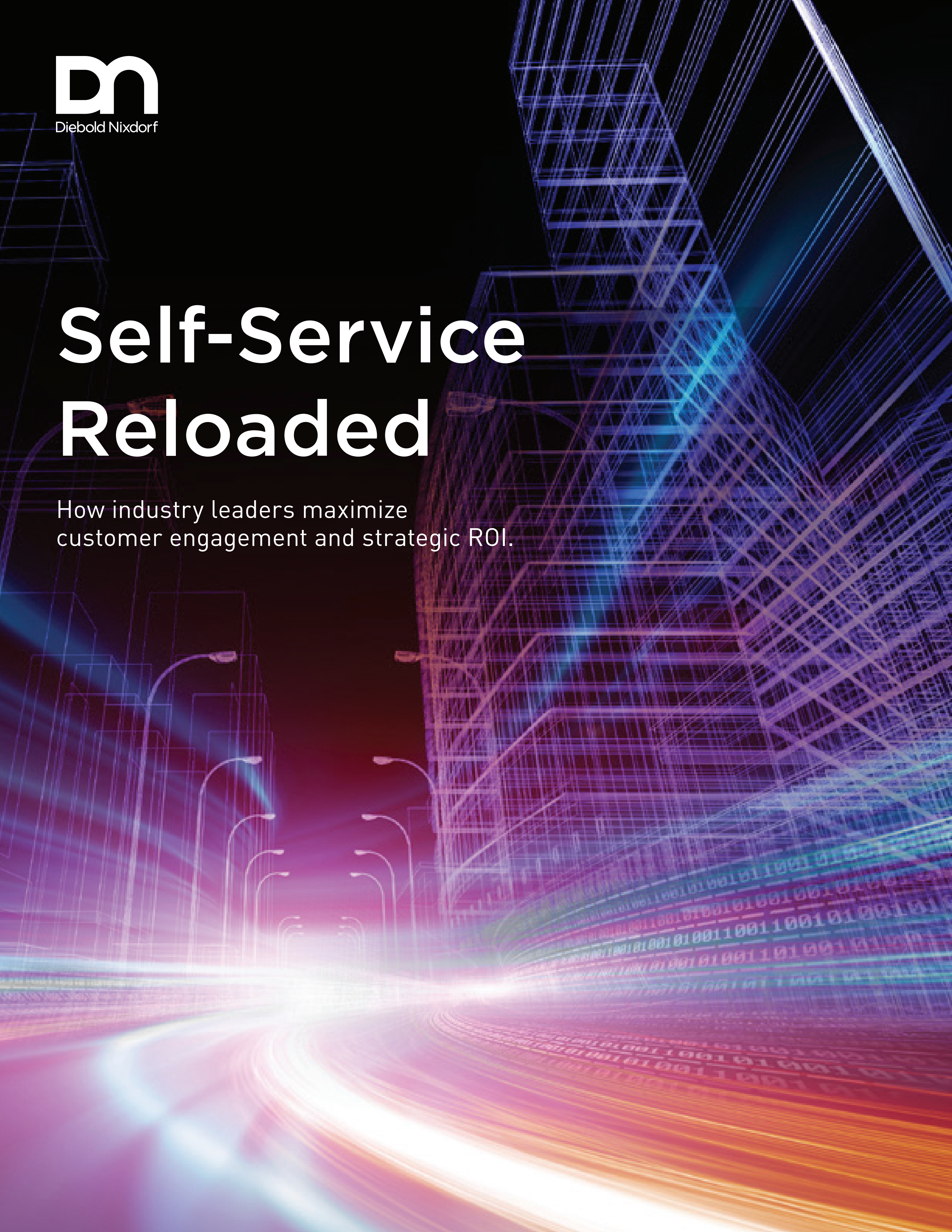


Diebold Nixdorf

Self-Service Reloaded

How industry leaders maximize
customer engagement and strategic ROI.

Table of Contents

Introduction

Self-Service & Cash Automation:

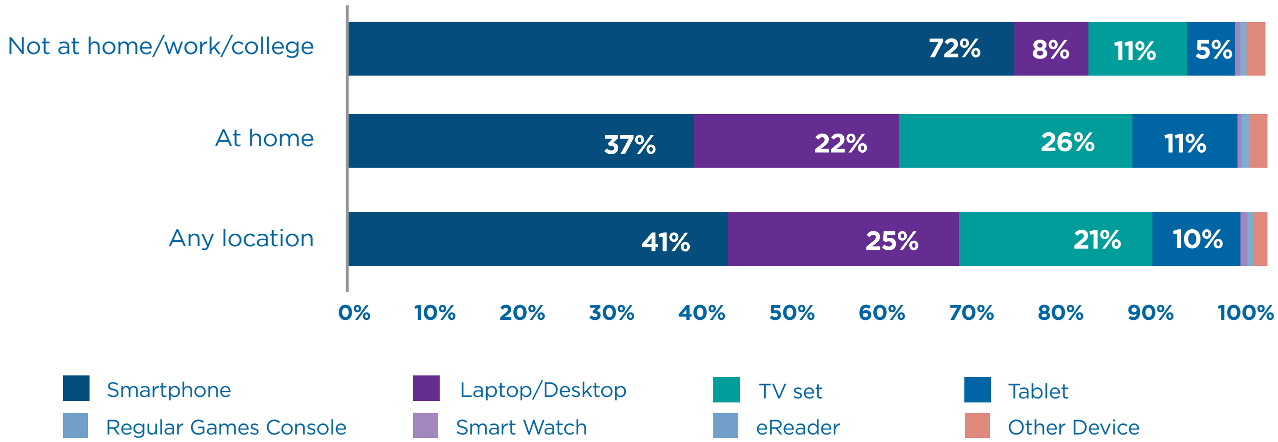
The Critical Pillar of Winning Digital Strategies

Key Takeaways

1. People with internet access spend the equivalent of an entire day each week online, mostly on smartphones.
2. Cash in circulation has grown in most markets—and projections show it will continue to remain relevant.
3. The self-service channel sits at the intersection of physical and digital financial channels; it remains a critical on- and off-ramp for cash in circulation, and can play a major role in your digital strategy moving forward.

On average, people with internet access spend the equivalent of an entire day each week online[1]. And predominately, smartphones are consumers' tools of choice.

Proportion of Time Spent Online, by Device and Location[2]



Critically for financial institutions (FIs), as internet usage has exploded and mobile phone access has skyrocketed to more than five billion people around the world (with research showing mobile internet access will reach five billion users by 2025[2]), cash in circulation has also grown.

There is an estimated $7.6 trillion in currency circulating the globe with usage forecasted to grow through 2022[3]. Cash use continues to be seen around the world from developing to developed economies. In fact, despite new avenues for payments and transactions, the number of notes in circulation has doubled since 1996[4].

Interestingly, cash plays a role in the digital realm as well. Many key digital-first players have acknowledged the importance of cash in their retail strategies. In 2017, Amazon started accepting cash payments in the U.S., Britain and Mexico[5], and in 2018 Uber incorporated cash payments into its services[6]. Whether it's driven by consumers' desire to pay however they want, or a response to consumer security and fraud concerns related to paying electronically, the fact is, cash is relevant and remains important.

And as long as cash is available, the ATM remains a critical on- and off-ramp for cash in circulation. The self-service channel is the most efficient way to provide easy access to cash.

FIs, then, are tasked with responding to consumers' new, digitally-empowered behavior—which includes channel-hopping at will and the desire for more seamless, end-to-end experiences—while searching for new ways to more efficiently manage cash in circulation.

It is imperative that FIs shift their perspective on self-service in two critical ways:

- **Realize the opportunity inherent in the ATM to be not only an extension and even a replacement of the branch but the "face" of your brand—and the primary touchpoint.**
- **Recognize new opportunities and avenues to reduce costs and drive efficiencies across the entire self-service network, while integrating it more seamlessly into the entire banking ecosystem.**

Physical endpoints are now mission-critical, because those physical endpoints are enablers of, and connection points to, the digital experience and in many ways augment or replace FIs' traditional physical presence. If their ROI is properly realized—from a consumer perspective and a process perspective—they are perhaps one of the greatest tools bankers have at their disposal to engage, retain and grow a customer base for the digitally-enabled future of banking. ATMs are just not your parents' cash-and-dash machines anymore—and bankers who ignore that fact will watch as one of their most opportunity-filled channels is reduced to a utility.

In this guide we'll explore some ways to avoid that fate.

> "Overall we serve 60 million households. Nine percent of our customers use only the branch—a very small number. Twenty-five percent use only the digital channel. But 66–70% of our customers use a combination of both. So that just tells you how important this strategy is and assuring that it's a seamless, frictionless experience—regardless of where the customer gets serviced."
>
> —**Howard Boggs**, Head of ATM and Teller Technology, JPMorgan, U.S.A.

Chapter 1

Self-Service:

The Modern Day Convergence Point

Key Takeaways

1. Cash is a mainstay as a form of payment around the globe; it's used in 77% of transactions.
2. Mobile-first consumers use the ATM as a primary financial touchpoint.
3. Your self-service strategy should be anchored around three pillars: cash automation, journey thinking and reducing Total Cost of Ownership (TCO).

The manner in which financial services are consumed and delivered may be evolving, but the need for physical cash isn't. With note circulation growth sustained over previous years, forecasts for continued growth, and younger generations seeing a higher preference for cash, the ability to address this need is imminent and growing.

The evolution of payments is certainly not linear, but we're seeing the beginnings of a global market made up of two primary payment form factors: cash and pure digital.

Emerging economies are inventing and implementing new technologies that are enabling them to leapfrog the developed world in their evolutionary arc and essentially cut out the middlemen—checks and credit cards—by jumping straight to mobile payments that integrate directly into their cash-based economies.

Smartphone consumption is the incoming tide that will rise many boats, including mobile payments and P2P transactions. Digital wallet use is projected to hit 2.1 billion users this year, a 30% increase since 2017[8]. In fact, the United Nations reports that this year, digital currency and mobile apps could overtake credit and debit cards as the world's most popular digital payment methods[9].

Meanwhile, cash payments are prevalent, but varied[10]: In Spain, Italy and Germany, more than 80% of total point of sale (POS) payments are done in cash. In France, cash is used for 69% of POS payments whereas in Netherlands and some Nordic countries the share has dropped below 50%.

The ATM remains the only channel that provides cash access anytime, anywhere, at a lower cost—and it's increasingly mobile-friendly, API-integrated and capable of facilitating the movement of cash between the physical and digital worlds.

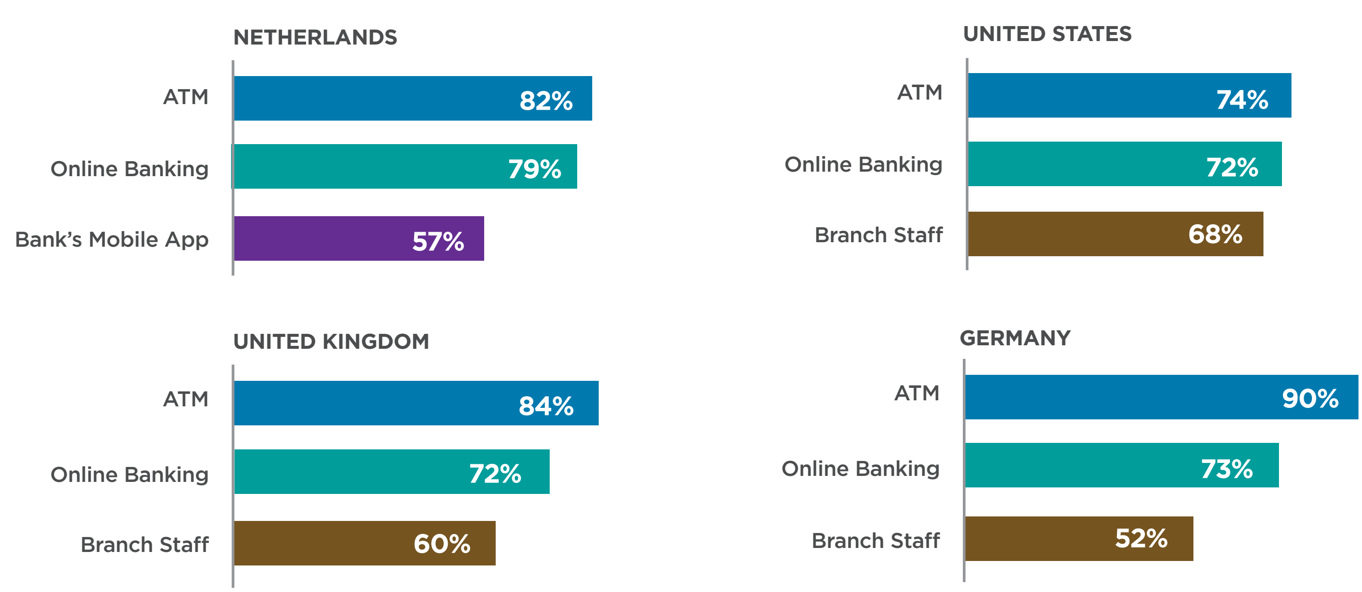
Mobile-first consumers will use the ATM as a primary touchpoint—not the branch.

Research shows that digitally savvy consumers tend to use banks' self-service channels even more frequently: Mobile banking users actually conduct more transactions through traditional self-service channels like the ATM than non-mobile banking users, averaging 10 transactions per month—25% more[11].

When Diebold Nixdorf asked consumers about their preferences for performing everyday banking tasks, the ATM outperformed both mobile banking and the branch around the globe (See chart below).

Self-Directed Touchpoints Have Outstripped the Branch for Everyday Banking[12]

"Thinking about your primary bank, how important are the following touchpoints to you for everyday banking? E.g. withdraw or deposit cash, transfer money, set up standing orders, etc."



Global Spotlight

Airbank—Czech Republic

Simplicity is one of Air Bank's key values. This philosophy led the bank to introduce contactless ATMs, which enable their consumers to withdraw cash, easily, comfortably and securely, with a very similar process to the way they conduct contactless transactions in shops and other places. This new contactless solution, which eliminates the need for a card reader, improved the customer experience and reduced security threats at self-service terminals at the same time.

"Customers want their bank to act openly and they expect a friendly customer experience. We therefore want to do things in a different way than traditional banks. With our cashless branch concept we can fully concentrate on our customers and, in combination with a new self-service experience, we have successfully set ourselves apart from other banks."

—**Jaromír Vostrý**, Product Manager for Payment Cards, Air Bank

"The new digital branch is completely built around the consumer experience. With Diebold Nixdorf's technology and services, we are able to reimagine the consumer journey and introduce new solutions and services to the market."

—**Nori Lermen**, Executive Director, Saque e Pague, Brazil

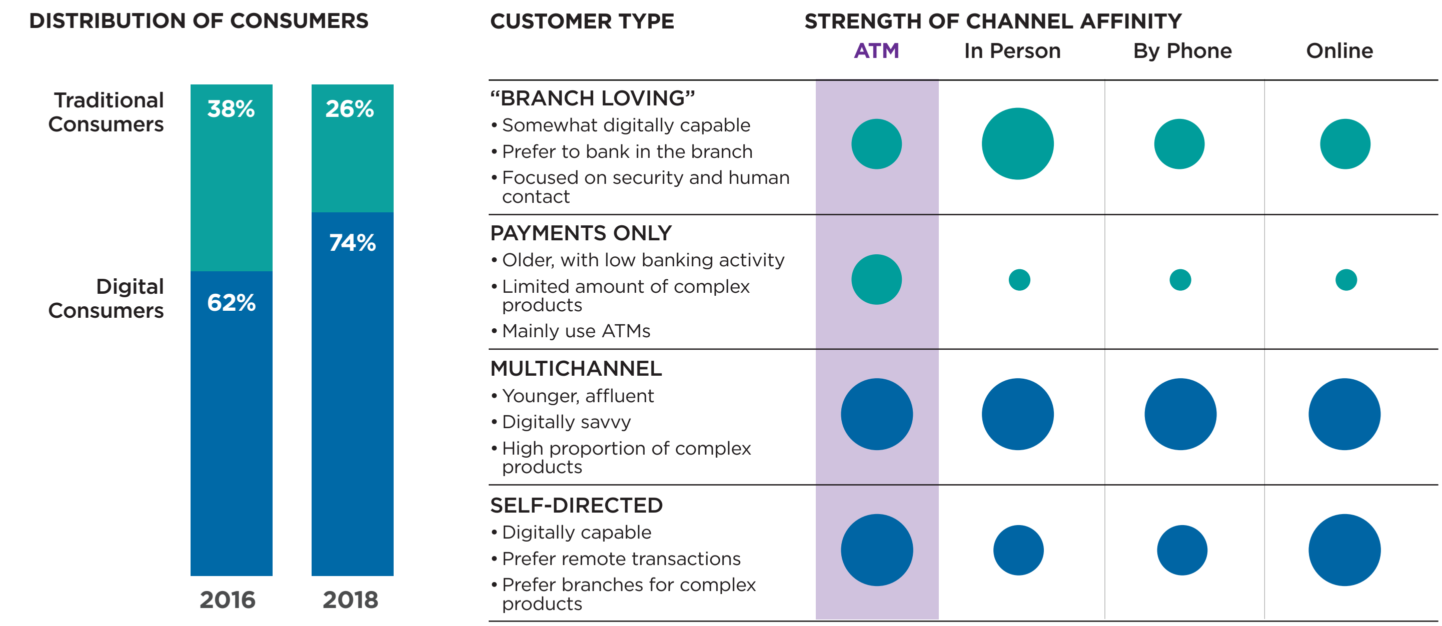
Self-service is an embedded and vital touchpoint in consumers' financial lives, with the ability to enable not only transaction migration and merchant automation but the integrated innovations consumers expect from modern screens and devices:

- Personalized interactions
- Targeted marketing
- Mobile cash access (i.e. cardless cash withdrawals)
- Digital onboarding and product sales
- Assisted services that incorporate multiple channels (i.e. teller tablet or video)

The paradigm shift is happening.

Consumers and self-service devices are evolving in tandem, and FIs are the ones that must keep up.

ATM Channel Has Strong Affinity with All Customer Segments, Independent of Digital Maturity[13]



68%

Consumers who say their FI's personalized approach led them to deepen ties with the bank by purchasing additional products or services[14].

Rethinking the Self-Service Strategy

Self-service should be the primary vehicle to automate cash processes—and the goal should be as close to 100% automation as possible. Journey thinking can help FIs drive strategic changes to the self-service channel, but it doesn't end there. TCO should be examine closely, and new efforts must be made to drive efficiencies and reduce costs.

1. Automate Cash Processes

FIs are constantly pressured to optimize the cost of their physical footprints. Branch size and location, placement of ATMs, where to open and where to close locations all impact the business model and shifting cost basis the industry is challenged with.

Self-service is one asset FIs have in their arsenal to achieve a "right-sizing" approach as the branch model evolves.

ATMs enable transaction migration, extend transaction sets for consumers and automate cash processes, making them an integral tool "in the branch." However, the modern ATM goes beyond this function and can now act "as the branch," with FIs using this physical asset as an extension of their distribution strategy; as a market entry position to introduce the brand and provide flexible access to financial services and cash without building a full branch, as an extension to services offered in a branch outside of normal branch hours, or, as a leave-behind strategy for markets and locations where branches are no longer viable.

Strategically, the ATM is a key tool in enhancing brand perception, providing access to financial services and extending the digital capabilities of a financial institution by bridging the physical and digital worlds.

2. Focus on Seamless Journeys

Journey thinking, along with leveraging Big Data, are top priorities for financial executives around the globe. At a recent DN customer event, delegates identified which trends they see as most critical[15]:

- 50% of the participants voted "Remove Friction from the Customer Journey" as the top trend.
- The use of Big Data and AI were ranked No. 2 with about 24% each.

Researchers paint a similar picture: In the the Retail Banking Trend Report, the same two topics were ranked first and second. Interestingly in 2018, Journey Thinking was No. 1 and in 2019 Big Data has top priority. Self-service is a critical touchpoint in consumers' journeys, as noted on pg. 12.

3. Reduce Costs & Drive Efficiencies Across the Self-Service Channel

This prevalence of cash begs the question, if cash is so heavily used across the majority of the world, how effectively are consumers able to access their money? Ironically, the cost per transaction increases when the total number of cash transactions decrease, as the handling of cash requires transport, handling and interest charges on 'inactive' cash. As long as there is cash in the system, it will remain costly if not managed correctly. Recycling capabilities at the self-service channel can help greatly reduce these costs.

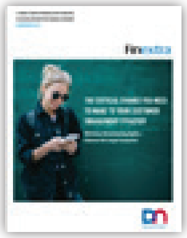
> “As long as cash is around, financial institutions need to provide cash services. When implemented properly, self-service offers the most efficient way to provide easy access to cash—but the channel must be embedded in a digital strategy that facilitates seamless journeys, including consumer, small- and medium-business (SMB) and staff journeys.”
>
> —**Norbert Knievel**, Head of Banking Thought Leadership, Diebold Nixdorf

Today’s ATMs offer cardless and contactless transactions, as well as teller assist when needed. See how teller assist can enhance consumer experiences and help bridge physical and digital channels inside the branch.

Watch the Video

Webinar:
Master the Customer Journey—Get agile, get lean and enable flexibility.

Listen to the Webinar



If you want to learn more about how banks embrace journey thinking, download our whitepaper, “The Critical Change You Need to Make to Your Customer Engagement Strategy.”

Download the Whitepaper

Self-service is a critical touchpoint in various journeys:

Consumer Journeys

- Consumers are used to controlling their own journeys in their digital world, leveraging apps on their mobile devices and engaging with a variety of providers.
- Enhancing and managing consumers' end-to-end journeys are keys to FIs remaining relevant in the eyes of the consumer.
- FIs must remove challenges and friction along every step of the journey, and anticipate consumers' needs by "knowing," "showing" and "wowing" them at each stage.

Small & Medium Business Journeys

- SMBs are an important client base for FIs.
- In many cases their business is still extremely cash heavy and they have a strong desire for cash services.
- In many countries SMBs account for about 70% of all cash-in transactions within the branch.
- Frictionless cash-based journeys for this segment are important—and when migrated fully to self-service, can help reduce cash-related costs and create a closed-loop recycling environment that moves cash-in money through the system more efficiently.

Staff Journeys

- Today, we focus so much on the consumer, and on improving their experience through data.
- Bank staff need the same context when engaging with consumers.
- The transformation and improvement of staff journeys goes hand-in-hand with improving consumer journeys: When it's easier for a staff member to serve a consumer, everyone's experience is better.

Chapter 2

Driving Cash Automation Efficiency

Key Takeaways

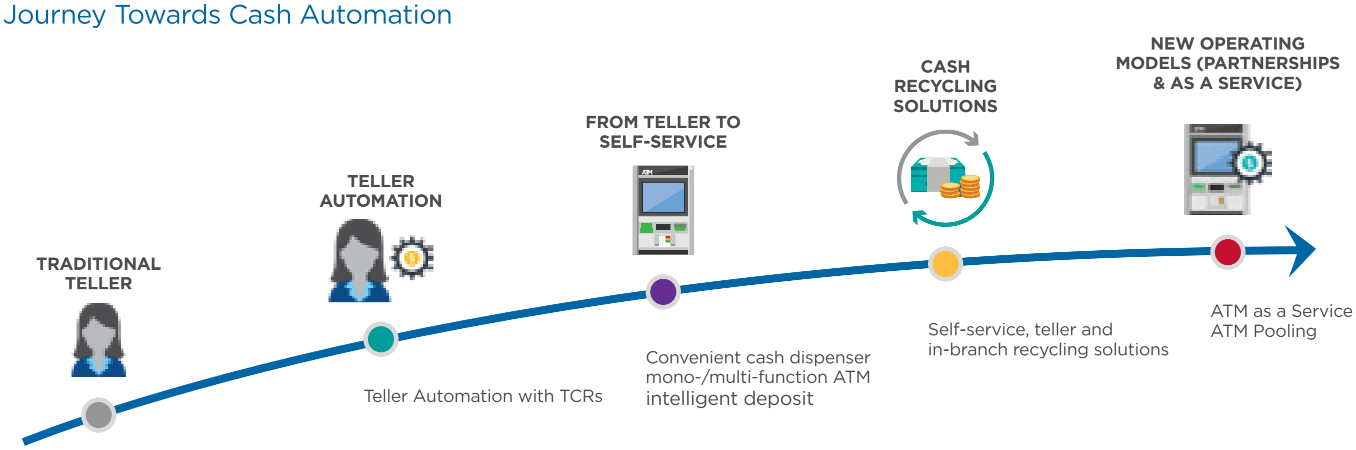
1. Optimizing the cash cycle can reduce cash replenishment responsibilities by 75%.
2. Introducing cash recycling opens up a new world of opportunities to drive efficiencies in the self-service channel.
3. The industry is embracing innovative new models such as ATM pooling and ATM as a Service to meet emerging demands.

Meeting the human need for cash and FIs' desire for efficiency calls for powerful insight, informed advice and exceptional technology.

Easy access to cash—anywhere, around the clock and around the world is essential. Failure to meet this demand can have serious consequences, with loss of goodwill and opportunities for consumer engagement. But handling cash holds hidden costs, including transport and handling. Equipment and technology alone cannot minimize these costs effectively. Although self-service is already automated per definition, there are still big optimization potentials that can be exploited by many FIs.

For this reason, FIs and other ATM providers are putting cash management at the center of their retail strategies. The answer lies in end-to-end optimization of cash processes, which can deliver significant benefits—including at **least 20% savings in TCO**, increases in sales and consumer service, greater consumer satisfaction, **and up to 75% reduction in cash replenishment efforts.**

A Journey Towards Cash Automation



There are four primary steps in the cash automation journey:

Step 1: Teller automation

Step 2: Transaction migration

Step 3: Recycling

Step 4: Partnerships & as a Service

Step One: Teller Automation—Cash Recycling at the Teller Line

The teller experience has dramatically evolved. Now, teller automation solutions such as Teller Cash Recyclers (TCRs) with retail channel integration enable 90% of transactions to be automated, delivering faster and more convenient transactions and an enhanced service experience that maintains the human dimension—a key element in terms of consumer interaction and satisfaction. According to RBR, TCRs now account for almost 80% of all teller assist units and an additional 31,000 units are set to be installed by 2023[16]. Nowadays, the range of solutions can create a variety of counter formats, from teller-operated solutions to consumer-operated solutions with teller assistance. Secure, tablet-based applications also free staff to roam the branch, enabling the creation of secure and attractive open-plan branches. Ultimately, automation saves both time and money, while delivering a secure, reliable and user-friendly experience to consumers.

> "The efficiencies we've gained have made us realize how beneficial this technology really is. Cash-in and cash-out transactions are both faster, and we've seen a reduction in daily vault interactions by about 10%. Now tellers can do multiple transactions in half the time, and they can shift their attention from counting cash to making the member (our customers) feel valued, and helping them with their questions."
>
> —**Keith Wilson**, Senior VP of Branch Administration, Founders Federal Credit Union, U.S.A.

Step Two: Transaction Migration from Teller to Self-Service

Even more beneficial is the migration from teller to self-service. Cash dispensers help retail banks and other ATM deployers enhance consumer access to cash 24/7 without the limitation of business hours. In addition, freed up tellers have better opportunities for relationship building and increasing consumer retention.

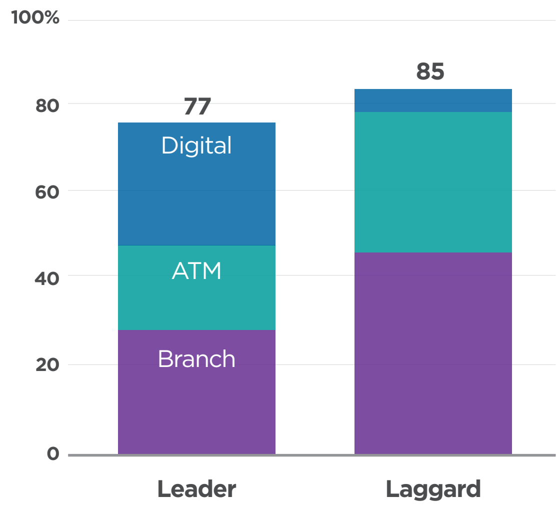
Plus, moving transactions away from the teller line greatly decreases costs. While branch transactions can cost as much as $4 each, self-service channels are just a fraction of that price; online and mobile transactions cost less than a quarter[17].

"A decade ago, 90% of our branch locations conducted transactions primarily through the teller line—it was a totally manual process. Today, less than 8% of our branches operate that way. We have 360 branches across the Nordic countries and only 30 of them have manual tellers inside the branch—they are spread out through Finland, Sweden and Denmark. None of our Norwegian branches requires tellers today."

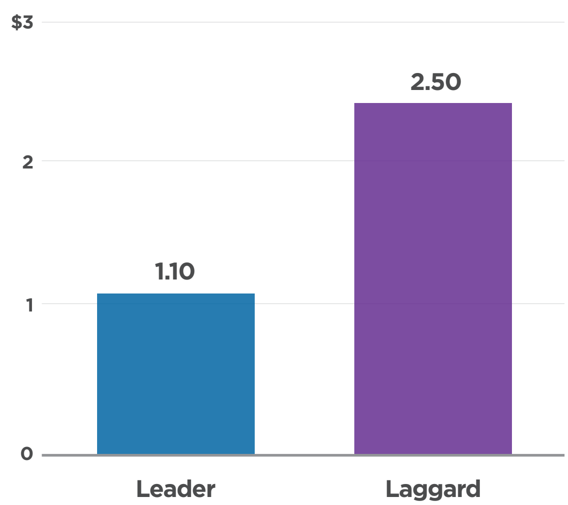
—**Morten Olsen**, Head of Branch & ATM Development, Nordea, Denmark

Some FIs have Managed to Accelerate the Migration to Digital[18]

Percentage of US respondents who made deposits in the past quarter by channel



Estimated average cost per US consumer for a deposit transaction in the past quarter



Nearly 3 out of 4

FIs that say CIT costs account for more than 10% of their ATM network TCO[19].

Step Three: Cash Recycling at the Self-Service Channel

Globally, cash automation ATMs have already reached a satisfactory level for withdrawals, whereas the deposit side offers a lot of potential. Convenient, secure cash deposits are important not only SMBs. 24/7 cash-deposit services and direct crediting are on the way to becoming global standards. In fact, cash deposits effect, on average, more than 50% of the cash handling efforts in a branch.

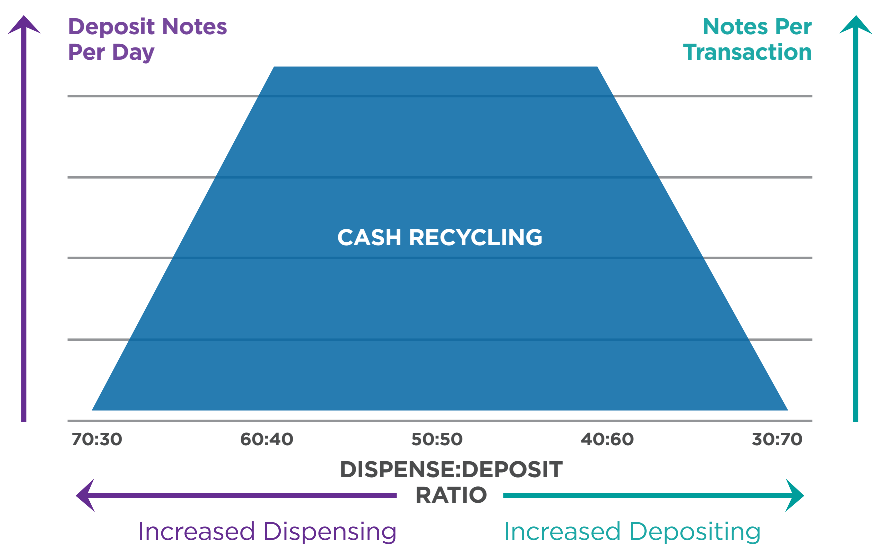
Therefore, the biggest lever for reducing cash management costs is the automation of cash deposit transactions. This can be achieved by introducing Cash Recycling System (CRS) technology.

Ranging from simple functionality to intelligent systems in a cash recycling scenario, your own consumers are replenishing your ATMs for free: the closed cash cycle in these systems makes deposited cash available again for withdrawal (following a note validation), enabling banks to significantly reduce their workload and expenses.

In this environment, SMB clients and others with large cash deposits can be directed to use self-service with new and flexible functionality, thus ensuring the steady flow of cash in and out of the system in addition to the highest standard of security (as manual cash handling increases security risks).

Cash replenishment and pick-up processes can be tremendously optimized to help reduce the TCO of the self-service system. Combined with innovative software and end-to-end cash management services, these systems guarantee audit compliance and maximum transparency of all cash inventories, while transforming the experience of business customers, branch staff and end users.

The Cash-Recycling Sweet Spot[20]



What are the benefits of recycling in the self-service channel?

- **For bank employees:** less time on repetitive cash-handling tasks.
- **For businesses:** more time for staff to have personal interactions, serve as high-end consultants and improve cross-selling. Significant cost reduction in replenishment efforts.
- **For consumers:** more responsive service (24/7, direct crediting) that increases confidence, trust and loyalty.

Successful cash recycling at the self-service channel does require the migration of cash deposits from the counter to self-service. As shown on pg. 16, a certain withdrawal-to-deposit ratio must be in place in order to benefit from cash recycling. The migration of business-customer deposits from counter to CRS is necessary in most environments to achieve the optimal balance. In strong recycling markets such as Turkey and Germany, as well as growing recycling markets including Spain and Russia, FIs have successfully migrated cash-in transactions to self-service.

A balance of cash-in and cash-out in a system's closed cash cycle should lead to perfect cash management, and costs for refilling ATMs or emptying deposit machines can be reduced dramatically.

An additional huge step forward in branch efficiency is in-branch recycling. Using a universal storage solution such as swappable cassettes, operators can create two scenarios of closed cash cycles in-branch: self-service or self-service and teller. An audit-compliant, closed-cash cycle considerably reduces error frequency, balances cash-negative and cash-positive environments, and can generate at least 20% savings in cash handling costs. As cash is recycled, it also eliminates the need for a vault or night safe, reducing both complexity and risk.

Global Spotlight

Garanti Bank—Turkey

Garanti Bank started with the implementation of cash recycling ATM systems in its branches in 2015 and has now fully transformed its ATM fleet to cash recycling. The decision to move towards recycling made sense due to their average deposit-to-recycling rate of 97%. Through the new technology, the bank's average number of ATM visits for cash replenishment decreased by 50%.

Garanti, as a leading digital bank, sees modern technology as a tool for providing optimum service across all channels. In this respect, the bank also built a strong bridge between mobile and the ATM, including cash withdrawals and deposits with QR.

"As Turkey's innovation leader, Garanti Bank believes in the benefits of recycling technology. We transformed our network with recycling ATMs in order to reduce costs while improving customer experience and availability."

—**Bora Uluduz**, Director, Garanti Bank

The SMB Opportunity

Small and medium businesses (SMBs) are the backbone of modern economies; they account for about 90% of businesses and more than 50% of employment worldwide[21]. It's an important customer segment for retail banks, but many SMBs don't feel appreciated by their FIs.

- Only 37% of small-business banking customers believe that their bank appreciates their business.
- Just 32% say their bank understands their business[22].

The branch remains an important touchpoint for SMBs, as the majority of small businesses are still branch-dependent and, for those with a physical store presence, cash is a prevalent method of payment. In fact, DN analysis has found that at some FIs, SMBs account for up to 70% of all branch-based cash deposits.

- 43% of SMBs have used their branch in the past three months[23].
- 61% of small-business banking customers are classified as branch-dependent, and are much less likely than retail bank consumers to fall into the digital-centric or digital-only category[24].

For this critical segment, digital-only solutions will not suffice; they require an omnichannel banking experience to meet their business-specific needs, including large cash deposit and withdrawal capabilities, enhanced cash management support, immediate crediting, cardless account access and more. Migrating these clients to self-service is a key success factor for cash automation. The costs to the FI are significantly lower than transactions conducted at the teller line, and the cash that an SMB deposits at a recycling self-service terminal can be reused for immediate cash withdrawals, creating a closed-loop system and a potentially dramatic reduction in CIT visits.

Step Four: New Operating Models including Partnerships and "X as a Service"

Some FIs are taking the next step as they seek greater flexibility and speed-to-market, and look to focus their strategic directives on consumer relationships. These organizations are reaping the benefits of industry partnerships, ATM white labeling and "as a service" models including ATM as a Service and Cash as a Service.

"A single source for all our cash supply services means we benefit in several ways: Fewer funds will be tied up when our ATM network is renewed, we will need fewer resources to meet legal requirements and all the service providers involved will be controlled centrally. As a result, the management team can concentrate more intently on issues related to the digital transformation."

—**Uwe Hasse**, Service Provider Manager, Degussa Bank, Germany

ATM & Cash as Service

Cash operations account for up to 10% of an FI's **total** operating costs. This is the reason why FIs are shifting day-to-day, in-house ATM cash management and operations to partners like Diebold Nixdorf.

Cash-light markets are at the frontier here, because in markets with declining relevance of cash and declining cash transactions the costs per transaction are even more expensive. Although many of the FIs based in this region have already implemented cash recycling technology to optimize their cash processes, they continue to seek new ways to create even better efficiency within the ATM channel.

ATM Pooling

ATM Pooling and sharing is another trend seen frequently—but not only—in cash-light markets. In a pooling scenario, FIs create partnerships or even form new companies to operate a joint ATM fleet.

In the Netherlands for example, Geldservice Nederland (GSN)[25] was set up as a joint venture between ABN AMRO Bank, ING and Rabobank to provide logistical services such as cash collection, counting and distribution. The intention is to transfer the ownership and operation of ATMs of the participating banks to GSN. Bankdata[26] from Denmark is another example where a group of banks founded a joined technology services company.

Branch Pooling & Branch as Service

In other Nordic markets, as well as the UK, a next step is on the horizon. FIs are moving beyond a shared ATM infrastructure and exploring shared physical branches, especially as it relates to efficiencies in cash handling and other transactional services.

FIs in the UK have begun to explore pooling models as a reaction to criticism over branch closures and the raising demand from SMBs for traditional financial services. Recently three of the nation's largest traditional banks, Royal Bank of Scotland, Lloyds Banking Group and Barclays, introduced shared banking hubs with extended opening hours and limited services specifically to enable SMBs to pay in large volumes of coins, notes and checks and to complete cash exchange transactions [27].

> "More financial institutions worldwide are recognizing the advantages of 'as a service' business models compared to managing these types of complexities in-house."
>
> —**Olaf Heyden**, SVP, Services, Diebold Nixdorf

With shared "White Label" ATMs or branches, FIs benefit from the shared infrastructure in terms of efficiency and reduced costs. On the other hand they might lose their branding and differentiation. Here open and highly customizable software plays a key role. Based on the card the consumer inserts into the machine, the user interface changes to share their specific bank, preferences and settings.

The Ongoing Journey of Efficiency & Growth

Every organization is at a different point on the automation journey—and what makes sense for one FI won't be valid for another. As the world moves further and further toward a connected-commerce ecosystem that blurs the traditional lines between channels, FIs must work to optimize those channels. The overall goal must be to ensure efficiency without losing the human touch. Cash recycling enables banks to move the last of their "everyday" transactions to the self-service channel so that branch staff can fully focus on building relationships and conducting more complex transactions.

1 out of 3

On average, for every three Euros withdrawn, one Euro was deposited at an ATM in 2017[28].

> “We have listened to what our business customers really want from our cash services. We are creating an infrastructure that allows small business owners and entrepreneurs to do what they do best—run their business[29].”
>
> —Alison Rose, Deputy Chief Executive, NatWest, UK

Updating E2E Cash Cycle Management

Today we use modern apps for many functions, but most in-house cash management tools are still based on Excel spreadsheets. This antiquated, inefficient method may increase the overall cost of managing cash and make it impossible to handle more complex, modern cash recycling systems.

Cash cycle optimization software can provide a savings of at least 15%, as the entire cash supply chain is optimized and monitored from start to finish. Sophisticated, just-in-time optimization solutions provide tangible cost savings and shorten the entire cash cycle, enabling FIs to achieve optimal demand-based replenishment intervals and volumes in self-service systems across branch networks, including cash recycling systems, ATMs, automated teller safes and petty cash.

Optimization should begin with a critical, comprehensive self-assessment to understand where the organization stands today. Based on the outcome, sustainable improvements can be identified in terms of organization, technology and processes. Tapping into algorithmic solutions should come next, enabling an increase in cost efficiency, a reduction in manual efforts and an enhancement of the technological footprint. At the same time, improved monitoring and controlling activities can increase reliability and release resources for the actual core of business operations.

With modern-day cash cycle optimization software, the endpoint application is feeding the back-office application in near real-time. In many organizations, the information is available today; FIs just need the necessary connection points to be able to access and take full advantage of the data.

Learn More

Global Spotlight

bankdata

JYSKE BANK

Bankdata & Jyske—Denmark

Bankdata powers financial technology services for a group of 11 Danish banks, including majority stakeholder Jyske Bank. The company serves as a strategic partner to the banks, but over the years their staff took on more and more of the management responsibilities for the banks' network of ATMs and self-service devices.

With staffers tied up managing daily operations and technical support, strategic advising and the development of new solutions were becoming luxuries. Jyske Bank and Bankdata spearheaded an initiative to restructure the approach through a partnership with Diebold Nixdorf. Today, that comprehensive service partnership has lifted the day-to-day channel management burden, enabling Bankdata, Jyske and the 10 other banks to focus on what they each do best.

"If you look at the time usage of the team that was running the ATM network, they were probably devoting around 60% of their time to managing the network, and 40% to developing new functionality. This partnership means they'll have a much greater opportunity to focus on new features that can help us future-proof our banks and our channels for many years to come. We're excited to be able to support the strategic IT requests of our 11 partner banks, speed our time-to-market with new functionality and support the latest technology in the most optimized, efficient way possible."

—**Asbjørn Møldrup Pedersen**, Head of ATMs, Bankdata

38% CAGR

The percentage that the global 'as-a-service' market is expected to grow by 2020[30].

Chapter 3

Cash Recycling:

An Exploration of Cash Optimization around the World

Key Takeaways

1. Worldwide, the cash recycling market has grown by 76% since 2013, but usage varies widely from region to region.
2. The German cash recycling network has grown considerably over the last two decades, offering valuable lessons for FIs that are considering recycling.
3. Recycling is expected to grow in the U.S. and other novice markets. Education and training is key to a successful implementation.

The share of ATMs with cash recycling functionality in use continues to increase worldwide, as FIs look for ways to drive efficiencies and reduce their self-service TCO.

Deployment of recycling is a key component of branch transformation and transaction automation initiatives, and overall the global recycling technology penetration rate of total ATMs in 2017 is 24%, up from 16% at the end of 2013[31]. These numbers underpin the parallel trends among segments:

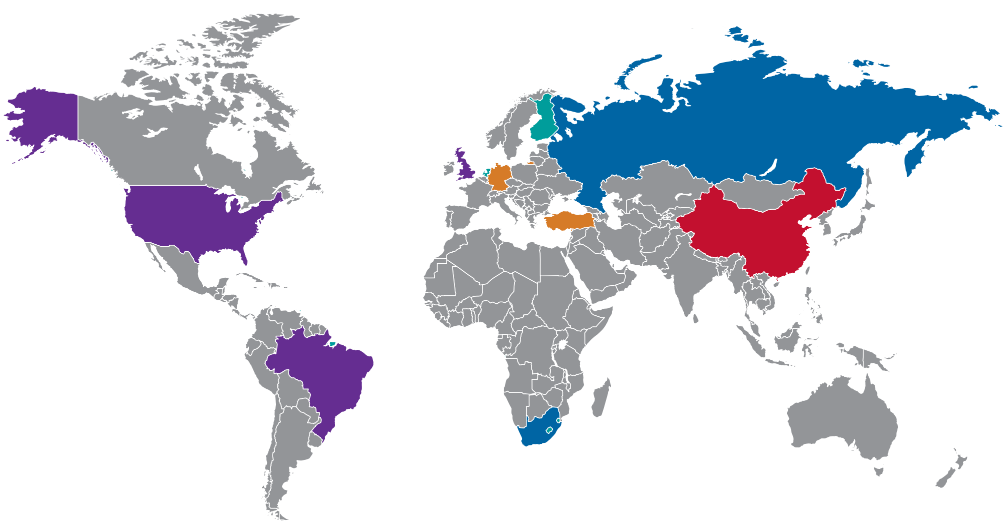
- Consumers have a growing demand for cash availability and seamless financial journeys.
- Business clients are seeking additional services like 24/7 deposit functionality.
- FIs require enhanced business process efficiency and cost reduction of cash handling.

Successful cash-recycling scenarios can be found around the globe, and overall, active cash recyclers have increased by approximately 76% since 2013. But in some regions, adoption has outpaced the global averages. In many Asian countries, recycling adoption rates are above 40%. In Japan, nearly all ATMs offer recycling functionality. In Europe there are several mature recycling markets including Germany and Turkey, with recycling rates between 30-40%. In Belgium the rate is above 40%.

Alongside these mature recycling markets, countries such as Russia and South Africa are witnessing rapid growth in the recycling market. While current rates hover around 5-15%, the speed of adoption to recycling has been tremendous.

In markets such as the U.S., Brazil and the UK, FIs have not fully adopted recycling yet. The share of recycling is typically far below 5%. Continuous discussions with FIs in these markets paint a similar picture: More and more FIs in these novice recycling markets are ready to explore the benefits of recycling.

A Global Sample Set: Emerging vs. Established Recycling Rates[32]



Emerging Recycling Regions Include:

- **<5%** | U.S., Brazil, U.K.
- **5–15%** | Russia, South Africa
- **16–29%** | Finland

Mature Recycling Regions Include:

- **30–40%** | Turkey, Germany
- **>40%** | China

No. of ATMs installed: approx 3.3 million
ATMs that are actively recycling: approx. 775,000 | Share: 24%
Recycling data are for 64 major ATM markets, which represent 97% of total global ATMs

RBR 2018, Global ATM Market and Forecasts to 2023

4,000

The number of recycling ATMs Russian Post Bank implemented over a five-year period, after their research found that a single CRS operated continuously for seven months, handling around 150,000 notes without a single CIT visit to replenish or remove cash and without any services calls needed[33].

> "Cash recycling systems help our organization reduce cash handling costs as well as increase the ATM channel's overall performance and availability. We are investing in cash recycling technology to increase efficiency in our self-service channel."
>
> —**İlker Yeşil**, Executive Vice President, VakıfBank, Turkey

In this section, we'll explore the evolution of cash automation in a mature German cash recycling market and share insights on why there are strong indications that recycling is gaining momentum in the untapped U.S. recycling market.

Mature Recycling Market: Germany

Due to financial crises, new banking regulations and ongoing low interest rates, German banks have been continuously forced drive efficiencies across their operations. This has resulted in quite drastic consolidation within the banking sector. The number of FIs in Germany has dropped by about 50% since 1995.

Today, the German banking system is made up of nearly 1,800 FIs in total—still about 1,000 more than any other country in Europe. These banks are divided into three distinct tiers. The first consists of about 200 private banks. The second tier contains some 400 publicly-owned savings banks (Sparkasse). And the third is made up of 1,100 member-owned credit unions (Volksbank). Together these three "pillars" represent the majority of the German banking system.

Besides consolidation of the banking system itself, the branch network has also been heavily consolidated, dropping from 47,800 in 2004 to 31,900 in 2017, a reduction of 34%[34]. The pace of consolidation has slowed, but is expected to continue.

As cash is still heavily used in Germany, easy access to cash is important for German consumers. For Germans, more than for the citizens of virtually any other Western economy, "money" still means, above all, physical cash. According to European Central Bank estimates, the average German wallet contains notes adding up to just over 100 Euros, more than three times the average in France. Cash is still the means of payment in some 80% of point-of-sale transactions, compared with only 45%—and falling fast—next door in the Netherlands[35].

Throughout the transformation process, self-service technology played a key role within the branch—often becoming the replacement for a branch as banks invested in self-service-only branches as part of their leave-behind strategy.

Comparing the market at the global level, German FIs are quite advanced in cash automation.

Many have taken the four-step approach to the cash automation journey that we outlined in chapter three:

Step 1: Teller Automation. Most German FIs started to automate teller cash processes with TCRs in the 1990s.

Step 2: Migration to Self-Service. In parallel, they started to invest heavily into ATMs to migrate counter transactions to self-service. The number of ATMs doubled from 1994 to 2018[36].

Step 3: Recycling. The first self-service recycling pilots started in the late '90s and mass deployment started after the millennium.

Step 4: New Operating Models. Many FIs in Germany joined forces with industry partners or welcomed "X as a service" models in parallel to introducing recycling.

"The satisfaction of our customers is a top priority for us. Self-service devices enable efficient and convenient cash processes, allowing our employees to concentrate more strongly on qualified consulting services."

—**Andreas Trotz**, Board Member, Sparkasse Paderborn-Detmold, Germany

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13.1%

The CAGR of cash deposit transactions at ATMs in Germany from 2013 to 2017[37].

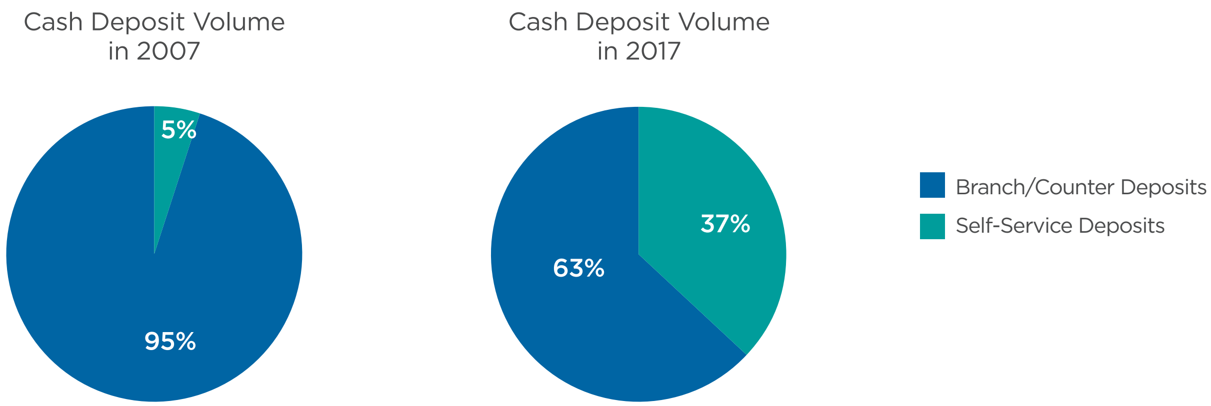
Recycling in Germany

Of the nearly 58,500 ATMs in Germany, recycling functionality is being used in 30% of them. That number rose from 21% in 2013, equating to an increase in recycling functionality of 42%[38]. The growth of recycling share in active ATMs should continue as FIs across the country replace aging cash-out-only ATMs with recyclers.

"Today, devices are almost always replaced by a cash recycling system. At this point, 65% of our cash systems are recyclers."

—**Birgit Suckel**, Head of IT, Volksbank Plochingen

Migrating cash deposits to self-service sets the foundation to implement recycling: The cash deposit volume in Germany increased four times in 10 years[39]



Global Spotlight

Volksbank Plochingen eG

Volksbank Plochingen—Germany

"Following the approval of cash recycling by the German Central Bank, we were one of the first banks in Germany to introduce cash recyclers in 2003. We wanted to offer our customers another option to help them avoid long waiting times at the counter and at the same time reduce cash handling expenses for our institute.

"In doing so, we have learned that it takes time to automate counter processes—customers and staff have to get comfortable with the new approach. Today, our employees have more time for customers and advisory services. Additionally, customers appreciate the 24/7 service and advanced options such as large cash withdrawals.

"The positive feedback from our customers and staff has encouraged us to continue installing more cash recycling systems across our fleet."

—**Birgit Suckel**, Head of IT, Volksbank Plochingen

Cash Cycle Management & In-Branch Recycling

In the early 2010s, Diebold Nixdorf introduced a homogenous ATM and Recycling platform based on an intelligent and standardized cassette concept. The swappable cassettes act as a universal storage solution that allows FIs to move beyond self-service recycling and introduce in-branch recycling.

FIs in Germany started to use this new intelligent cassette technology to move money from cash-positive cash points to cash-negative cash points, and found multiple benefits from the new levels of flexibility:

- FIs can swap cassettes between recycling devices with too much cash, and cash-out terminals that need more cash.
- Some FIs, such as Volksbank Albstadt, have used the technology to optimize their entire cash management process.
- The reduction in CIT visits and overall closed cash-cycle management solutions ecosystem enhances security.
- The FIs see dramatically reduced cash-related costs.

As with the introduction of recycling technology in the early 2000s, the introduction of cash-cycle management technology took time as banks' processes and infrastructures needed to be adapted. Today, the demand for this solution is growing.

> "Today, more and more banks have a homogenous self-service infrastructure, as customer case studies have proven the benefits of looped cash cycles. We continue to see growing demand from banks to implement this approach."
>
> —**Thomas Certa**, Head of Banking Products EMEA, Diebold Nixdorf

> **"Standardized note cassettes make it possible to fill cash from a central teller cash recycler (TCR) and recycling system to a cash-out system, saving time and money."**
>
> —**Joachim Schmalzl**, Head of Facility Management, Volksbank Albstadt, Germany

Global Spotlight

Volksbank Albstadt—Germany

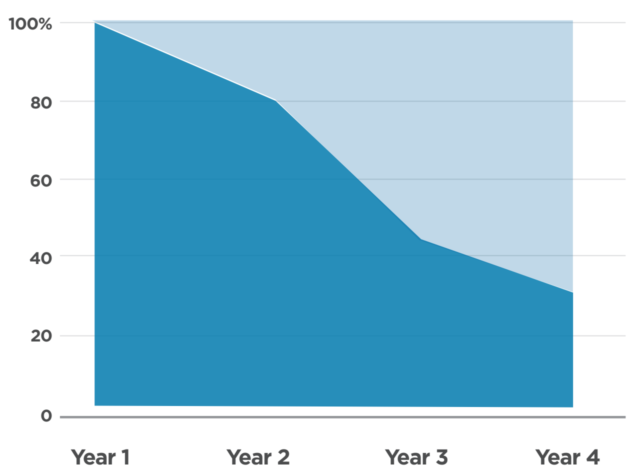
The cash management team at Volksbank Albstadt is responsible for the cash supply across a fleet network that includes 13 cash recyclers, 14 cash dispensers and eight TCRs.

The use of standardized cassettes saves enormous costs and time by eliminating manual cash processing. The cassettes no longer need to be opened to check the status. Instead, they're simply placed in a docking station. If the status is displayed is "OK," the cassette will be filled with cash in the back office TCR if required and can be reinserted on any self-service system, as the cassette sets are not assigned to a specific self-service system.

"We now only need to check 341 of a total of 2,612 cassettes. At an average 39 hours per week, this corresponds to savings of about seven working weeks within a time frame of 26 weeks."

—**Joachim Schmalzl**, Head of Facility Management, Volksbank Albstadt

CIT Cost Reduction Since Introducing Closed Cash Cycle Management[40]



Year 1	Year 2	Year 3	Year 4
0	15.48%	55.95%	71.43%
100%	84.52%	44.05%	28.57%

Savings
CIT costs

Example of savings in the cash center through leveraging intelligent cassettes

Period (weeks)	Cassettes	Counting (minutes)	Total Minutes	Total Hours
26	2,271	7	15,897	265

Working Hours/ week	Savings (working weeks)	Incidental wage costs/month	Incidental wage costs/week	Cost savings/ 6 months
39	7	3.500,00 €	875,00 €	6.125,00 €

Global Spotlight

Sparkasse
Harburg-Buxtehude

Sparkasse Harburg-Buxtehude—Germany

"We started in 2008 with self-service operations and one year later with cash management. Our target was to reach stable costs for operations, along with higher availability, with everything managed through one single point of contact.

Within three months the variable CIT costs were significantly reduced, and we reduced overall cash management costs by 20%. After just 18 months, costs declined by 40%. Following the tremendous cost savings at the beginning of the project, the cost of cash management continuously decreased over the next few years.

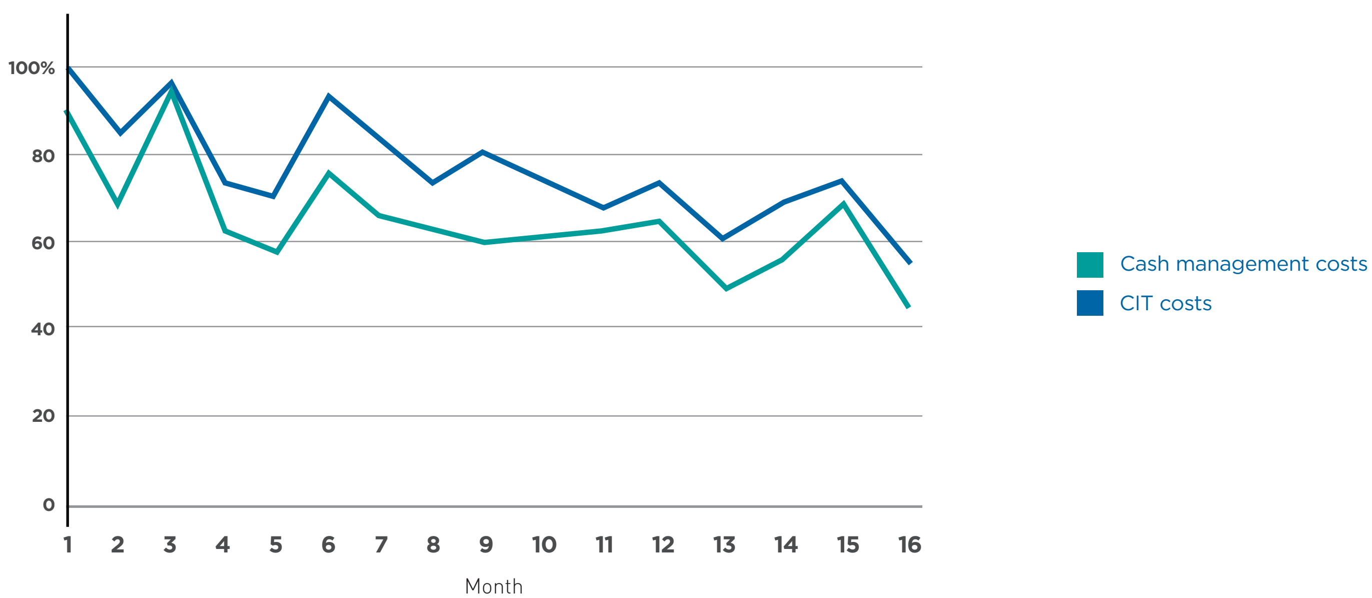
Drivers for additional savings were among other things ...

- More modern cash-out and cash-recycling systems
- Proactive management of cash processes
- Continuous process optimization of all involved parties"

"Thanks to outsourcing cash management processes, our employees can concentrate more on consulting and sales."

—**Dirk Pünjer**, Director of Organization, Sparkasse Harburg-Buxtehude

Costs Declined After Outsourcing Cash Management[41]



Cash & ATM as a Service

While many FIs in Germany still manage their cash processes in-house, more and more have decided to shift their in-house ATM cash management and operations to partners like Diebold Nixdorf. German FIs including Harburg-Buxtehude and Degussa (see chapter 2) have generated additional savings in cash-related processes, and freed up staff and resources for other tasks.

Cash Automation is an Ongoing Process of Improvement

Technology is an enabler of cash automation, but it is critically important that banks introduce it properly. In the context of recycling, FIs must implement the right technology at the right location. Branch employees also play a key role in the success of recycling technology. German banks have found that the most successful recycling initiatives include intensive staff training. On one hand it helps staff to feel comfortable with technology, and on the other hand it enables them to instruct consumers in a knowledgeable manner. But even in mature recycling markets like Germany, new technologies and continuous process improvements still offer new opportunities to generate additional efficiency gains.

"Analysis shows that savings banks in Germany, which already do recycling, can now save an additional €2,000 per ATM per year by deploying our latest recycling technology. This adds up to savings of €10,000 over a period of five years."

—**Ansgar Steden**, General Manager Banking DACH, Diebold Nixdorf

Global Spotlight

Sparkasse
Paderborn-Detmold

Sparkasse Paderborn-Detmold—Germany

Essential success factors for the bank included:

- **In-house cash management:**
The cash logistics of Sparkasse Paderborn-Detmold's 56 branches and 21 self-service sites are conducted through a central cash management center. In addition, they also offer their cash services to other institutions. This increases their effectiveness and optimizes the TCO.
- **Optimal configuration and placement of the self-service systems:**
Cash registers and self-service systems at each of their sites are regularly analyzed and they make sure that the correct self-service system with the right configuration is placed in the proper place (Cash-Recycling-Report). Today, 38% of their systems are cash recyclers.
- **Training of employees and consumers:**
Technology is an important tool for optimizing cash processes. Therefore, their employees are trained intensively in the operation of the equipment so that they can instruct consumers competently.

Here's one current example featuring the latest recycling technology:

- Through a bigger All-In-Box (capacity increased from 2,200 to 4,000 notes) the bank successfully reduced the necessary cassette changes by an average of two per month per CRS.
- Note jams were dramatically reduced through shorter and simplified note paths in the system, to one jam per approximately 100,000 notes.
- Eliminating note jams has been made easier for the staff. Instead of nine hand movements, now only three are necessary. Jams usually only occur in the mechanical head of the recycling system. As the head is not in the safe, it is not necessary to open the safe when eliminating a note jam, saving additional time.

"The continuous optimization of cash processes is a decisive cornerstone in the transformation of our branch network. Our customers have 24/7 access to cash services, our employees can focus more on advising clients, and our TCO has improved."

"We have been using recycling systems for 17 years and have continuously optimized their deployment. Thanks to the latest recycling technology, we expect a noticeable reduction in operating costs per system."

—**Horst Kille**, Head of Organization,
Sparkasse Paderborn-Detmold

THE CASH AUTOMATION JOURNEY

2008

Two million cash transactions at the teller line

5.8 milion self-service cash transactions

Cash-related tasks required 110 FTE

Today

0.9 million cash transactions at the teller line

7.8 million self-service cash transactions

Cash-related tasks require 75 FTE, a savings of 35 FTE

51

Total number of cash recyclers installed

133%

Growth rate of cash deposits at self-service cash recyclers

Emerging Market: the United States

Europe and Asia saw widespread adoption of cash recycling systems a decade ago. Yet recycling has struggled to find a foothold in the United States. For one thing, American consumers viewed cash deposits at the ATM with wariness, and have been slow to adopt the mentality of using a self-service channel in that way.

Additionally, the North American landscape didn't embark on major branch rationalization projects or begin to reduce branch footprints until the 21st century, so the past 20 years have been more focused on branch optimization, while the general feeling was that cash distribution was working well enough.

Thus, recycling has been deployed only sporadically, and often with a cash-in/cash-out configuration as opposed to true recycling of cash-in notes. Many FIs recognize the benefits of TCRs, from improving and streamlining the consumer experience to driving operational efficiency for the teller line, but traditionally, that's where recycling in the U.S. has remained.

However, as American consumers have become more comfortable and trusting of technology, we're finally starting to see a tipping point in the U.S. market: cash deposits at the self-service channel are up, and for many banks this means the necessary cash-in/cash-out equilibrium is present.

Recycling in the U.S.: Why Now?

A few trends are aligning to create the right landscape for large-scale recycling initiatives in the States. First, large FIs have been successful in migrating 40% or more of their deposits to the self-service channel, driving a steady increase in cash-in volume at the ATM over the past several years. As more transactions are migrated to self-service, FIs are looking for ways to drive the cost of the channel down; they've worked hard to remove excess costs from the branch and now must look elsewhere for additional ways to reduce expenses.

Reducing cash handling, CIT and sweeps can equate to substantial savings—leading more FIs to take a much harder look at their processes.

In parallel, new innovations in self-service systems are translating to dramatically higher note capacity. These next-generation ATMs allow for increased "capture not dispense" capabilities, far beyond the capacity of older bulk note acceptors that filled up quickly and required multiple sweeps per week.

Additionally, FIs are recognizing that they must do more to support the lucrative SMB segment. Cash recycling, with new abilities to process and hold more currency, offers a compelling advantage both for FIs and SMBs—businesses can migrate their daily cash drops from the night deposit box to a recycling ATM, supplying cash for the next day's consumers and offering the SMB immediate access to the cash in their account.

On top of these trends, consumers continue to express their desire for enhanced denomination selection at the ATM. For FIs that have traditionally held firm on stocking four cassettes with $20s to ensure availability, recycling offers a viable path forward: Consumer deposits of an array of denominations can, in turn, be used for withdrawals.

Global Spotlight

GTE Financial—United States

Back in 2014, GTE Financial began transforming their branches by pulling out traditional teller lines and night drops and deploying new interactive teller machines (ITMs) inside of their branches. By 2016 they were 100% transformed to ITMs. Cash deposits at their drive thru and walk-up ATMs are heavy.

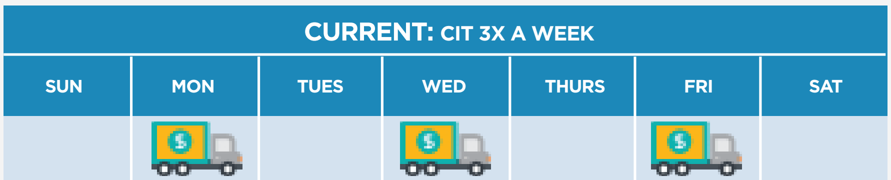
"Due to the addition of ITMs, we have doubled the number of machines (105 total ATMs and ITMs), making cash management more difficult. We have about a dozen machines that require CIT visits up to six times per week, and at least half of our fleet a minimum of four times per week just to pull cash deposits, says Kenny Rywant, AVP of ATMs and Interactive Systems at GTE Financial. "I feel like we could greatly reduce these costs if we could recycle cash at these ATMs. While I didn't fully understand the benefits of recycling technology a few years ago, I'm very interested in it now that we have so much cash flowing through our ATMs and ITMs. We need to continue to come up with better cash management, and recycling technology could be an answer."

—**Kenny Rywant**, AVP of ATMs and Interactive Systems

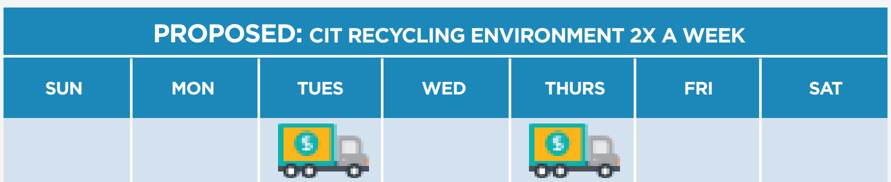
The desire for recycling is there, and a paradigm shift is occurring as many FIs are exploring where and how recycling makes sense in their self-service strategies. While many have long been held back by concerns that they would be unable to transition into recycling in a cost-effective way, due to technical constraints and roadmap support from their switch and/or processor solutions, savvy FIs are taking a fresh look at the business case for recycling through a closer, more customized assessment of their specific fleet data.

As open APIs and new software capabilities emerge, historical challenges are waning as new opportunities for cost savings are discovered. In today's world, new technology enables the management of recycling solutions to be modernized outside of traditional legacy messaging protocols to the switch and processor in ways that were not so easily done even five or 10 years ago.

Annual Savings with ATM Cash Recycling Implemented[43]



3 CIT Visits at $45 per Visit X 52 Weeks = $7,020



2 CIT Visits at $45 per Visit X 52 Weeks = $4,680

Estimated Savings: $2,340 Per ATM Per Year

88%

The cost reduction FIs have seen upon moving withdrawals from the branch to a self-service channel[42].

Consumers desire a wide range of new functionality at the ATM—and their top two preferences can be addressed with recycling technology: nearly 50% say they want cash withdrawals in denominations other than $20s, and one in four say they want real-time transactions in which deposited funds are instantly credited to their account[44].

91%

of consumers say they're not completely satisfied with ATMs that only offer $20 bills. When asked to choose their top two additional notes, 60% of consumers asked for $10 bills and 53% wanted to see $5 bills as an option for cash withdrawals[45].

"Banks outside the US are benefiting from the substantial cost savings associated with recycling cash. With our fleet size in the thousands, we could see real impacts to reduce cash replenishment costs. We need to push for change within the US market to ensure recycling is built into strategic roadmap planning to support US financial institutions for this technology."

—**Senior VP**, Top 5 largest Bank in America

9 out of 10

On average, nine out of 10 notes deposited into the self-service channel are fit for recycling[46].

3–4 Times Per Week

It's not uncommon for machines to be swept far more than they're replenished. In some cases a bank's CIT company may be visiting an ATM 3–4 times per week just to sweep the machine.

Global Spotlight

OneNevada CREDIT UNION

One Nevada—United States

One Nevada is one of the largest locally based, state-chartered credit unions in the state, headquartered in Las Vegas, Nevada. Over the last 20 years, One Nevada has strategically transformed its self-service network to be the face of the credit union and to serve as its members' single-point-of-contact for cash transactions. With a majority of their 49 ATMs located within Las Vegas, the amount of cash deposited into their terminals is quite staggering. Even though cash recycling hasn't taken hold in the U.S. to date, One Nevada is planning to move down this path, as the benefits are far too great to ignore.

> **"We only have one branch location with a traditional cash transaction teller line. In most instances, our ATMs are the workhorses, taking in cash deposits of over a million dollars per week. Due to our location in Vegas, we see heavy cash deposits at our ATMs, requiring twice weekly balancing at each terminal. We could see substantial savings to our CIT replenishment costs if we could recycle this cash. There's a strong enough business case in our mind to find alternative ways to recycle and reduce our dependency on the networks and their possible timelines to support."**

—**Kristen Williams**, AVP Administrative Services, One Nevada Credit Union

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Global Market Lessons learned: What is the Best Way to Introduce Recycling?

Recycling, network optimization and new self-service functionality all take effort to understand and fully embrace, let alone utilize on a regular basis. Staff and consumers must be educated on how to take advantage of new tools and processes.

Take a Deep Dive

30%

Percentage of self-service terminals in the U.S. that are good candidates for recycling, based on DN's in-depth network analysis[47].

Recycling Trends: A Q&A with Thomas Schulze, VP, Systems Americas, Diebold Nixdorf

Is there a difference in the banking cultures between regions with high recycling adoption rates, and those with lower rates?

There are some similarities around the globe in terms of how people bank, but I think there are a few key differences that explain why some countries have implemented recycling more than others. For one, the interbank and switch relationships are very different. P2P and P2B payments in Germany, Europe and Asia have been very simple to conduct for many years—through the use of kiosks for bill pay and teller transactions for P2P payments. This behavior meant that check use has never been as prevalent in these countries as it has been in countries like the United States. Areas without heavy check use were thus one step ahead at the ATM—they could focus on cash and software-based transactions without worrying about check handling.

One behavior change that I think the U.S. can learn from is the way retailers modified their cash-drop processes once recycling technology arrived in Europe and Asia. The retailers readily made the switch from dropping their night deposit in a bank's drop box, to depositing it at a recycling ATM. This behavior change enabled the cash-in required to drive daily dispensing: Merchants fill the ATM, consumers empty the ATM. I believe retailers in the U.S. are ready to make that change, especially as modern ATMs offer larger note capacity, the ability to accept large bundles, mixed bundles, etc., and direct crediting of cash to accounts.

How has the U.S. market shifted in favor of recycling?

Over the past 12-18 months, I've met with dozens of FIs of all sizes, and there is a clear trend of increasing deposits at the ATM. We're seeing deposit increase rates of 20% or more—and when you have these strong deposit levels, the environment is ripe for closed-loop recycling. Second, at DN, our Advisory Services team has built increasingly sophisticated data analysis tools that drill down in very detailed ways to FIs' fleet data. The team can analyze an entire fleet and determine the exact ATM locations where recycling would make sense, based on hard data about deposit and withdrawal rates, and identify how and where CIT visits could be reduced (see pg. 33). Third, consumers continue to desire new functionality and additional withdrawal options beyond $20 bills. Finally, with new innovations in the marketplace, recycling technology can be paired with advanced software to create systems that decrease reliance on the switch, and in some cases completely eliminate the necessity of conducting transactions through the networks. So there are huge opportunities for efficiency and cost savings.

You've spent time in both the German financial market and the U.S. market—what can FIs in the emerging recycling markets learn from countries that have implemented recycling technology?

Education, education, education. Introducing self-service recycling requires a fundamental mind-shift for consumers and bank staff. Consumers have to trust the tech, rather than their teller, and FIs need to implement the technology strategically. In the early days of recycling, FIs would install the technology, and underestimate the amount of education that was required to ensure availability and high consumer adoption rates. Therefore, training staff is an essential component of a successful rollout.

Consumers and SMBs need guidance on how to properly deposit large bundles of notes, and they need to understand the benefits of recycling, from enhanced security to automatic crediting. The other benefit to new adopters is that DN's recycling technology has been around for 20 years now; it has advanced and matured and the kinks have been worked out of the system.

Just remember: recycling is not a quick win. It's an ongoing process of improvement. I encourage FIs to start small with a pilot—which they can do without any changes to the switch. They can use the pilot program to educate staff and consumers, and in parallel make sure the tech decisions they make now will support them in the future.

Chapter 4

Technology: The Enabler of the Self-Service Channel Future State

Key Takeaways

1. Modern ATMs have the opportunity to offer secure connectivity (driven by Open APIs and Open Banking) that enables a true omnichannel experience; self-service can be the face of the branch or even act as the branch.
2. HTML5 is a vital tool for marketing and enhancing relationships with consumers across the entire ecosystem of channels.
3. With new back-end integrations now possible, proactive and even predictive maintenance are emerging as key trends in fleet management.

As the world changes, the self-service channel is growing in importance—it's not only the "face" of the branch, in many cases it "is" the branch. Paired with Open APIs and Open Banking initiatives, it's clear that a "traditional" ATM is simply no longer enough.

With the connectivity that modern ATMs offer, we can now build a banking ecosystem that enables the self-service channel to be far more than just a "cash and dash" mechanism:

HTML5 & Digital Alignment

What many people don't realize is that the ATM should be considered an integral part of an FI's digital strategy. The modern ATM environment enables that physical touchpoint to be connected and integrated into the overall digital capabilities of a bank—it is a natural extension of the digital world; providing all of the same capabilities and functionality while also offering a bridge between the physical and digital worlds.

The further benefit of this philosophy is that the ATM also enables the exchange of physical media (cash, checks, cards, etc.). It is also important to consider how the world of digital applications and enhanced user experiences are presented. The modern ATM environment can leverage technologies such as HTML5; thus promoting "build once, deploy everywhere" capabilities and consistency in user experience while also catering to the unique form factor of the ATM as a device that is unattended with expected availability 24x7x365. The adoption of HTML5 has enabled the same rapid pace of change that the industry has seen in mobile and online platforms, something that was never before possible in the ATM environment.

From targeted marketing capabilities to enhanced functionality and a UX that syncs with consumers' expectations for engaging with a touchscreen, your self-service channel should offer an experience that transcends a single transaction.

IoT & Connected Services

Not only has the world of the ATM become more flexible in how the user experience can be delivered, there are many more ways it can be managed.

Everything today is "connected" and the ATM is expected to become even more connected than in the past; no longer can ATMs be constrained to simply communicate with antiquated switching environments and use antiquated language to exchange information.

The "Internet of Things" (IoT) is coming to the ATM environment. What this means is that management of the ATM environment has evolved dramatically over the last few years.

In this era of artificial intelligence (AI) and machine learning, making sense of the oceans of data in real time is critical. Using connected services to have just-in-time information about the ATM means better availability for consumers and better cost management for FIs. Data-driven efficiency is paramount to equip the business with intelligence that provides improved serviceability and consumer availability. This modern approach is about seeing everything that matters, end-to-end, with IoT-centric, fully integrated and unified data collection to identify performance and/or consumer-impacting issues quickly, precisely and proactively with a holistic point of view—from device to application to infrastructure and database—in real time.

API Economy & App Marketplace

As part of an FI's digital ecosystem, the ATM is now expected to be connected to much more than the traditional transaction sets typically available in the past.

The demands of connectivity today require that consumer functionality be delivered through standard interfaces, using common, reusable tools and in a way that 'fits' with the consumer's current experience with mobile devices.In other words, the ATM is now expected to be connected to the "Application Marketplace"; going beyond omnichannel and offering features and services that extend outside the four walls of the financial institution.

With the expectation of better computing power, better connectivity and more flexible user experience capabilities, ATM deployers expect to now be able to tap into the API Economy and leverage standard, public interfaces to applications both inside and outside of the FI to deliver enhanced consumer experiences and optimized management capabilities at the ATM. These changes are emphasized with Open Banking initiatives emerging around the globe, which have the potential, over time, to change the way consumers access their accounts—they'll no longer be constrained to options like "checking," "savings," or "other," even if they're withdrawing cash as an off-us customer.

Security

The traditional banking experience, particularly around self-service platforms such as ATMs, will continue to exist as it does today. However, evolution in ATM security will require support not only for legacy hardware and applications, but for emerging technologies as well, Security will need to adapt to changing consumer behavior trends and combat evolving threats. Multi-layered, holistic security protocols are fundamental to the self-service channel. New innovations in security, from long-edge card readers to software that qualifies as a "compensating control" solution under PCI DSS Standards, are helping ensure that a self-service terminal is fully protected from threats of all kinds.

Likewise, biometrics and step-up/dual-factor authentication enabled through mobile integration can offer the secondary authentication and authorization to fulfill complex or exception-based transactions without human intervention. A large-sum withdrawal or deposit, for example, which would ordinarily create a policy exception, can now be handled in an automated fashion at the ATM, without forcing a consumer to the teller line.

"Rapid advancements in human interfaces are happening everywhere. As self-service devices, digital channels, biometrics, NFC, ID- and passport-scanner technologies continue to play a greater role in the way people bank, transactions involving consumer-owned devices and wearables will become a cohesive part of the ATM experience moving forward. These advancements are already enhancing the user experience, connecting digital and self-service experiences and increasing the transaction set. In pilot implementations across Asia, the Middle East, Africa and Europe, we are already seeing the full benefits of NFC, biometry and ID reading in our ability to deliver more transactions in a convenient way. The spectrum of options offered to consumers will expand quickly as cardless transactions become the new standard."

—**Jerome Amara**, VP Banking Systems, Eurasia, Diebold Nixdorf

Conclusion

The reality is that cash plays a very relevant role in most consumers' day-to-day lives. Modern ATMs are strategic assets that offer banks a huge opportunity: an established network of physical touchpoints that can function as a proxy for the bank.

An ATM should be part of a transformative branch footprint while the branch is operational, used as a cash recycler that reduces CIT visits and optimizes cash management. If the branch is rightsized or closed, the ATM offers a way for the bank to remain in the community; it can actually "be" the branch.

The bottom line is that FIs must create an engagement model that enables consumers to interact with this sophisticated physical presence the same way they would in their digital world, or in the branch itself. The ATM can be the vehicle that enables consumers to interact not only with their financial institution but also with peripheral or support services and offerings that may be outside of the traditional four walls of the bank:

- **Personalization:** From targeted marketing capabilities to enhanced functionality and a UX that syncs with consumers' expectations for engaging with a touchscreen, the self-service channel should offer an experience that transcends a single transaction.
- **Integration:** The fintech evolution makes silos look antiquated—there's no longer any excuse for channels that don't share information.
- **Availability:** With proactive health checks and real-time monitoring available and fully connected to the entire ecosystem, ATM downtime is becoming less and less frequent.
- **Efficiency:** The financial industry is getting efficiency down to a science. As FIs look for new opportunities to save costs, recycling opens up tremendous opportunities to reduce CIT visits and cash handling, and drive efficiencies across the entire cash cycle. We can create closed-cash loops that help dramatically reduce the cost to manage cash.
- **Future-readiness:** Every bank is on its own journey. Modern self-service terminals can flex to meet changing needs, with swappable components that enable FIs to do things like evolve from a card-and-PIN-based authentication to biometric passwords, and seamlessly move from cash-in/cash-out to recycling, without changing the entire system.
- **Security:** Multi-layered, holistic security protocols are fundamental to the self-service channel. New innovations in security, from long-edge card readers to software that qualifies as a "compensating control" solution under PCI DSS Standards, are helping ensure that a self-service terminal is fully protected from threats of all kinds.

Rethink the Value of the ATM in the Digital World

They Drive Cash Automation Efficiency

They're the most efficient channel within the cash automation journey.

They're a Modern-Day Convergence Point

They're a critical touchpoint for consumer engagement at the intersection of physical and digital.

They Can Be Optimized Through Cash Recycling

Recycling offers reduced TCO and a streamlined cash cycle that helps minimize cash-management costs.

New technologies are enablers for the future state of the self-service fleet

- HTML5 & Digital Alignment
- IoT & Connected Services
- API Economy & App Marketplace
- Security

Six Key Requirements for Self-Service in the Digital World

- Personalization
- Integration
- Availability
- Efficiency
- Future-Readiness
- Security

Whether you look at your ATM channel as a utility or a strategic touchpoint, the lens you choose will inform how your consumers engage with your brand through the evolution of banking. Be more than a utility. Be the facilitator of their entire financial journey.

Are you looking for new ways to optimize your self-service ecosystem? Let's discuss your strategic priorities.

Start the Conversation

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