

Market Expansion Strategy Research for Ultra-Compact Cash Recycling ATMs

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Abstract: H Company (Hyosung TNS), a global financial automation solutions provider holding over 55% market share in Korea and more than 62% in the U.S. retail ATM market, launched an ultra-compact cash recycling ATM in the U.S. market in February 2023. However, two years after launch, adoption rates and sales performance remained below expectations. (1) Background/Purpose: This study investigates the key reasons why H Company's ultra-compact cash recycling ATM has not achieved expected performance in the U.S. market and proposes strategic directions for accelerating market expansion. (2) Study Design/Methodology/Approach: A case study approach combined with data-driven analysis is employed, integrating market environment review, competitive benchmarking (NCR Atleos, Diebold Nixdorf, Genmega), customer segmentation (banking and retail/IAD), and internal performance analysis. Frameworks applied include PEST analysis, SWOT analysis, STP strategy, and the 4P marketing mix. (3) Findings: Three key factors behind slow diffusion are identified: limited acceptance of cash recycling functionality in the U.S. retail market where most transactions remain withdrawal-only; insufficient integration with ATM processing networks and financial systems; and the relatively high unit price (USD 6,500–8,500) compared to low-cost cash dispensers (USD 1,500–5,000). These issues stem primarily from misalignment with market structures and ecosystem incentives rather than product deficiencies. Analysis of 100 trial-produced units (65 shipped, including 50 in pilot operation via eGlobal) and 1,020 Cajera Plus units supplied to Cash Depot confirms that while the technology receives positive market reactions, ROI demonstration and processing/settlement integration remain critical gaps. (4) Originality/Value: Five strategic directions are proposed: expand ATM value-added services (remittances, bill payments, cryptocurrency, lottery); strengthen cooperation with processing companies and financial institutions; redesign pricing and business models via AaaS; enhance customer education and marketing; and develop hybrid operation models connecting retail and financial channels. This study broadens theoretical understanding of ATM industry digital transformation, cash recycling technology diffusion, and the rise of AaaS business models.

Keywords: cash recycling ATM; ultra-compact ATM; ATM-as-a-Service; AaaS; U.S. retail ATM market; Independent ATM Deployer; market expansion strategy; Hyosung TNS; NCR Atleos; Diebold Nixdorf

1. Introduction

1.1. Research Background

ATMs have established themselves as core infrastructure of global financial services, performing an important role providing consumers with 24-hour financial services including cash withdrawals, account inquiries, and transfers. The U.S. retail ATM market has a structure led by Independent ATM Deployers (IADs), with

financial institutions (banks and credit unions) expanding their retail sector through self-operation or alliances with IADs. Retail ATMs provide cash service infrastructure in various cash-dependent locations such as gas stations, convenience stores, large supermarkets, shopping malls, and casinos, and have served as an important pillar of U.S. cash distribution (RBR, 2024; ATMIA, 2023).

However, in recent years, factors such as the spread of digital payments, the shift of financial services online, and increased ATM operating costs have been accelerating changes in the ATM market. U.S. financial institutions are showing a trend of reducing ATM operating scale as they strengthen mobile banking and digital payment services, and ATM operators are continuously seeking ways to reduce cash management and maintenance costs. As of 2023, the estimated number of ATM installations in the U.S. is approximately 440,000, a 5% decrease compared to 2019 (RBR, 2024). Additionally, digital payments (mobile payments, card payments, etc.) account for 75% of all payment methods, and the proportion of cash use is continuously declining (Federal Reserve Bank of Atlanta, 2023).

In this changing environment, H Company developed an ultra-compact cash recycling ATM and launched it in the U.S. market to secure competitiveness in the retail ATM market and provide differentiated value. This solution was expected to provide operators with improved cash management efficiency and reduced cash transportation costs, and to provide retail businesses with customer inflow and additional revenue generation opportunities. However, more than two years since its launch in early 2023, performance has not met expectations. This suggests that beyond simple competitiveness issues, structural constraints and mismatches between market adaptation processes and customer demand exist.

Footnote: Ultra-compact cash recycling ATMs, unlike conventional simple cash withdrawal ATMs, are equipped with cash recycling functionality, designed so that cash deposited by customers can be automatically reused for withdrawal transactions. They are also designed to be approximately 30% smaller in exterior size than regular cash recycling ATMs, which can increase installation environment efficiency due to the relatively small space required when the device is installed.

1.2. Research Objectives

This study aims to analyze the reasons why H Company's ultra-compact cash recycling ATM is not performing as expected in the U.S. retail market, and to present strategic improvement measures to overcome this. For this purpose, the ATM market structure and competitive environment are examined, and the challenges facing the ultra-compact cash recycling ATM are analyzed as follows:

- Examine the current status and trends of the U.S. ATM market, and evaluate the market position and strategies of major competitors (NCR Atleos, Diebold Nixdorf). Particularly, by analyzing how NCR and Diebold Nixdorf are building their market positions through operating their own ATM networks and strengthening processing businesses in the retail ATM market, diagnose H Company's differentiation strategy feasibility.
- Identify the reasons why ATM operators, financial institutions, and retail businesses are passive about adopting ultra-compact cash recycling ATMs. In the U.S. retail ATM market, existing low-cost cash dispensers (Cash Dispensers) still dominate, and the ultra-compact cash recycling ATM may face adoption barriers due to its relatively higher price. Analyze operator perspectives and actual adoption obstacles, and seek solutions.
- Based on the preceding analyses, derive strategic measures for the ultra-compact cash recycling ATM to successfully diffuse in the U.S. retail market. Present the direction for accelerating market entry, including differentiation strategies from competitors, pricing model improvements, enhanced value-added services, and cooperation with financial institutions and ATM processors.

The practical contribution is to show that cash recycling technology in the U.S. ATM market can contribute to reducing operating costs and creating new revenue, providing practical implications for financial institutions and IADs to adopt new operating models. The academic contribution is to analyze the impact of digital transformation of the ATM market and the spread of the AaaS model on ATM operation methods, and to clarify that cash recycling technology can serve as a catalyst for industry development, expanding the theoretical foundation of ATM industry research.

1.3. Research Methodology

This study applied case study and data-driven analysis methods to more empirically evaluate the market performance of ultra-compact cash recycling ATMs and analyze obstacles to market diffusion. Through this, improvements to H Company's product strategy and marketing strategy were derived.

First, through the case study approach, the retail ATM market access strategies of major competitors (NCR, Diebold Nixdorf) were analyzed, and the market performance of H Company's existing cash dispenser ATMs and ultra-compact cash recycling ATMs were compared. Next, using H Company's internal data, sales performance, adoption rates, and operating performance of ultra-compact cash recycling ATMs in the U.S. market were evaluated. Based on these analysis results, marketing strategy elements including STP (Segmentation, Targeting, Positioning) and 4P (Product, Price, Place, Promotion) were reviewed.

2. Environment Analysis

2.1. Market Environment Analysis

Global ATM Market Trends

Although cash usage rates are declining due to accelerating digital transformation in the financial industry and the spread of mobile payments, ATMs are still used as a core channel guaranteeing access to financial services. As of 2023, the global number of ATM installations is approximately 2.962 million, down 2% year-on-year. Bank-operated ATMs totaled approximately 2.410 million (down 3%), while IAD-installed units increased to approximately 551,000, expanding the role of IADs in the market (RBR, 2024). This aligns with the trend of banks outsourcing ATM networks to reduce operating costs.

By region, Asia-Pacific holds the largest share of the ATM market but showed the largest decline with a 4% decrease in ATM installations in 2023, primarily due to the spread of mobile payment infrastructure in China, Japan, and Thailand. In contrast, the Middle East & Africa (MEA) and Eastern Europe each increased 1–2% amid expanded financial inclusion (RBR, 2024). The global ATM market is forecast to decline at a CAGR of -0.7% from 2023 to 2029 (RBR, 2024), driven by installation reductions in Western Europe and North America, though multi-functional ATMs are expected to become a key growth driver in emerging markets through financial infrastructure expansion.

The ATM operating model is also changing. The share of IADs in the total ATM mix expanded from 16% in 2019 to 19% in 2023, with 48% of North American ATMs operated by IADs (RBR, 2024; ATMIA, 2023). Financial institutions are also spreading the AaaS model to outsource ATM operations, with representative examples including Belgium's Batopin, UK's Santander, and U.S. Seacoast Bank's adoption of NCR Atleos services (ATMIA, 2023; NCR, 2024).

Characteristics and Changes in U.S. Retail and Banking ATM Markets

In 2023, U.S. ATM installations numbered approximately 440,000, down 1% year-on-year, with digital financial services expansion and bank branch reduction as main causes (RBR, 2024). The operating structure is banks 46% (approximately 187,000 units) and IADs 54% (approximately 217,000 units), with the retail ATM proportion gradually expanding (RBR, 2024). Banking ATMs provide basic financial services (account inquiries, deposits/withdrawals, etc.) within bank branches, while retail ATMs mainly provide cash withdrawal services at gas stations, convenience stores, etc.

According to ATM Marketplace (2024) and ATMIA (2024), main changes in the U.S. ATM market include: first, a decrease in cash withdrawal transactions through ATMs to 5 billion cases in 2023 (down 2% year-on-year) but an increase in average withdrawal amount to USD 212; second, introduction of ATM Pooling models by some financial institutions and IADs to reduce operating costs; third, a shift toward ATMs providing various value-added functions beyond withdrawals with diversifying revenue models; and fourth, increased cooperation between IADs and financial institutions.

ATM Strategy and Digital Transformation Environment Changes

(1) Financial Sector Strategy Changes and Digitalization

According to ATMIA (2023), financial institutions are continuing to reduce branches and strengthen digital channels, with automated channels such as ATMs and ITMs (Interactive Teller Machines) filling the gap. Bank branches are transforming from simple transaction processing to consultation and sales hubs, while cash withdrawals and deposits are provided 24 hours through ATMs. Local banks and credit unions use shared ATM networks or IAD alliances to maintain cash accessibility and prevent customer attrition. In essence, financial institutions maintain ATMs as core touchpoints in their omnichannel strategies even during digital transformation.

ATM operating methods are also changing, with outsourcing and joint operations expanding from models where banks directly owned and operated ATMs. This aims at reducing operating costs and improving efficiency, with some banks partnering with IADs to build ATM networks in remote areas or providing fee-free services. Simultaneously, strategies to provide consistent omnichannel experiences to digitally acclimated customers through smart ATM upgrades—including contactless cards and mobile withdrawals (Cardless), video consultation, and multi-functional kiosk capabilities—are being strengthened.

(2) Retail ATM Operating Strategy Changes

Retail operations, especially IADs, are seeking strategic changes in response to cash usage decline and profitability pressure. According to Datos Insights (2024), as post-COVID non-cash payment increases and regulations slowed ATM usage, IADs are withdrawing overlapping ATMs and closing unprofitable locations, while also expanding value-added service introductions such as cryptocurrency transactions, lottery tickets, and gift card recharging. Large IADs are evolving into MSPs (Managed Service Providers) managing ATM operations, increasing market share and distributing costs. NCR's acquisition of Cardtronics to integrate manufacturing and operations is evaluated as a win-win strategy expanding cooperation opportunities for both banks and IADs.

(3) ATM Manufacturer Strategy Changes

ATM manufacturers are rapidly transitioning from traditional hardware sales to software-as-a-service (SaaS) and AaaS models. NCR has increased software and recurring revenue proportions, while DN provides integrated management services through AllConnect Services offering ATM remote monitoring, software management, and security updates. Manufacturers are pursuing total solutions combining cloud-based management platforms and data analytics tools with hardware. DN's Vynamic software emphasizes inter-channel connectivity and data-driven operations for ATMs, enabling cash demand forecasting and predictive maintenance. H Company has also been promoted to the #1 ATM supplier in the U.S. market, surpassing NCR, by pursuing expansion into ATM, cash management, and payment areas through an intelligent retail ATM strategy.

(4) ATM Role Changes in the Digital Transformation Era

ATMs continue to play core roles in financial inclusion and omnichannel strategies even amid digital transformation (ATMIA, 2023; RBR, 2023; Federal Reserve Bank of Atlanta, 2023; FDIC, 2024; Datos Insights, 2024). Even as bank branches decrease, ATMs remain essential windows guaranteeing financial access for elderly, rural, and low-income customers who cannot be fully replaced by digital channels. ATMs are evolving into hubs connecting online and offline through features like mobile app withdrawal reservations, cardless withdrawals, and video consultations. Future ATMs are expected to expand as conversion devices between cash and digital currency, with Bitcoin ATMs already proliferating and manufacturers developing CBDC support functions. ATMs are cheaper to install and operate than branches, making them essential channels in smart branches and unmanned stores.

(5) Necessity of Cash Recycling ATMs

Cash recycling ATMs are attracting attention as a technology with higher operational efficiency than traditional ATMs (withdrawal-only or deposit-only). The specific necessity includes: technically, recycling ATMs greatly improve cash management efficiency—existing withdrawal ATMs require frequent cash replenishment, but recycling ATMs reuse deposited cash to reduce CIT (Cash-In-Transit) visits and can reduce cash management operating costs by approximately 20% (RBR, 2020); from a business perspective, banks can automate cash processing tasks previously performed by branch staff to enable 24-hour cash processing services; from an environmental change perspective, despite decreased post-pandemic withdrawal transactions, single withdrawal

amounts have increased and non-face-to-face deposit demand has grown (ATMIA, 2023); and from an ESG perspective, cash recycling reduces cash transportation and thereby reduces carbon emissions.

2.2. Competitive Environment Analysis

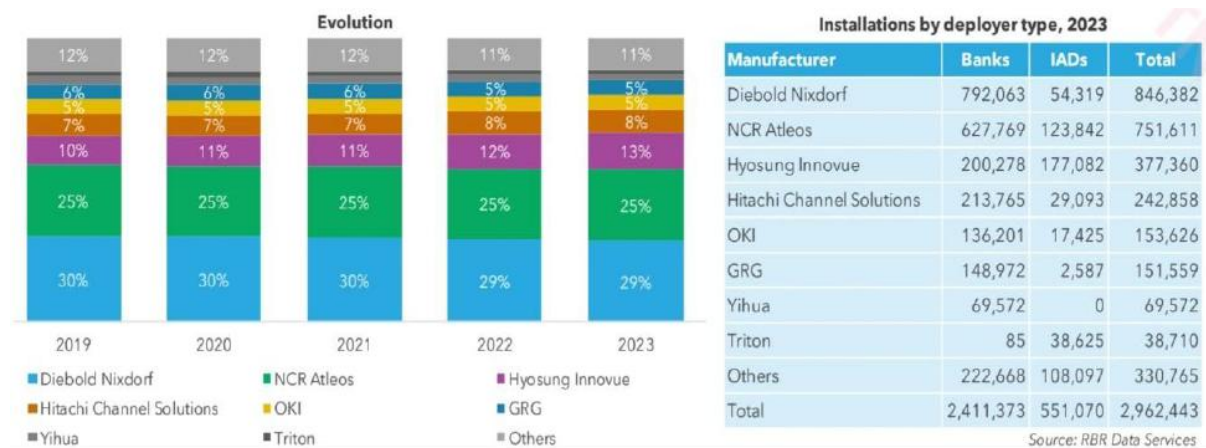
Major Competitor Analysis

As of the end of 2023, approximately 2.962 million ATMs are in operation globally. Diebold Nixdorf is in 1st place with approximately 846,000 units (29%), NCR Atleos 2nd with approximately 751,000 units (25%), and Hyosung Innovue (H Company's U.S. subsidiary name at end of 2023) 3rd with approximately 377,000 units (13%). In the retail ATM sector, H Company holds #1 market share with approximately 177,000 units supplied.

(1) NCR Atleos

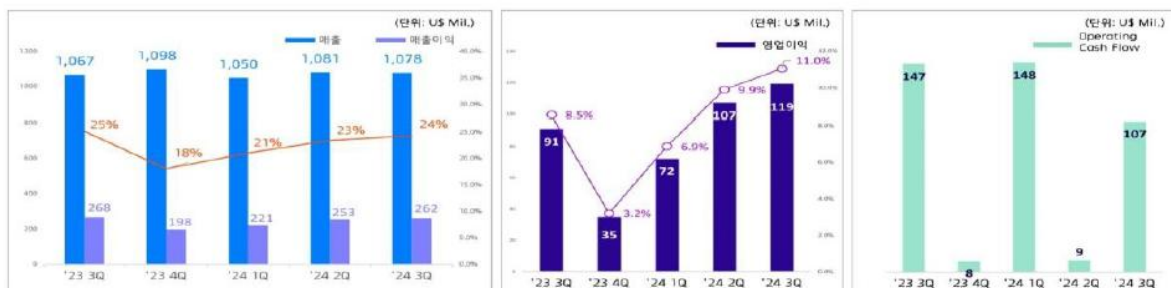
NCR Atleos serves U.S. financial institutions as primary customers, providing withdrawal-only ATMs, cash recycling ATMs, digital banking solutions, and Branch Transformation services. It also operates Allpoint, the world's largest independent ATM network, focusing on improving banks' operational efficiency. Q3 2024 revenue was USD 1.078 billion, up 1.0% year-on-year, with operating profit of USD 119 million, up 30.8% (NCR Atleos, 2024). The financial solutions segment (including ATM and recycling ATMs) showed Q3 2024 revenue of USD 677 million (up 3.2% year-on-year), while operating profit decreased 6.2% to USD 151 million, reflecting the transition from hardware sales to recurring revenue via ATM operating software and AaaS business expansion.

Figure 1. Global ATM cumulative operating units and manufacturer status. Source: RBR Data Service.



출처: RBR Data Service

Figure 2. NCR Atleos Q3 2023–Q3 2024 performance summary. Source: H Company internal data (2024).



출처: H사 내부자료(2024)

Figure 3. NCR Atleos financial solutions segment Q3 2023–Q3 2024 performance summary. Source: H

Company internal data (2024).



출처: H사 내부자료(2024)

Figure 4. NCR Atleos network business Q3 2023–Q3 2024 performance summary. Source: H Company internal data (2024).



출처: H사 내부자료(2024)

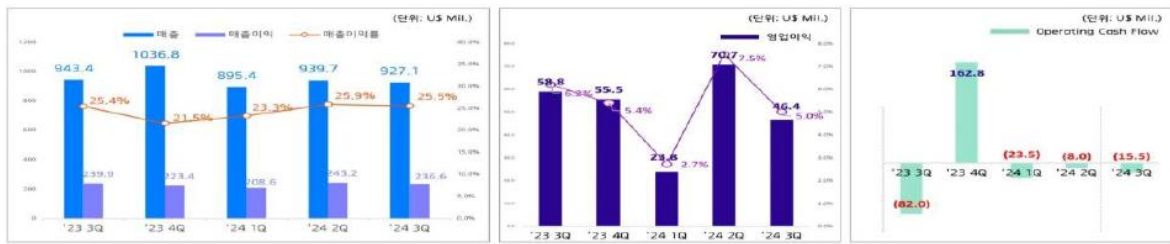
(2) Diebold Nixdorf (DN)

DN leads the financial automation solutions and retail self-checkout markets alongside NCR, supplying ATMs, cash recycling machines, self-checkout, and POS systems to financial institutions and retail businesses. Despite filing for U.S. Chapter 11 bankruptcy in May 2023 due to financial difficulties, it completed restructuring in August of the same year and resumed trading on the NYSE, continuing to expand ATM and retail POS businesses. Q3 2024 revenue was USD 939 million, down 1.7% year-on-year, with operating profit of USD 46.4 million, down 21%. The banking solutions segment (H Company's main competitive area) showed Q3 2024 revenue of USD 690 million (up 4.3%), with revenue profit sharply increasing 41.4% to USD 198 million, driven by increased recycling ATM sales particularly in the U.S. banking sector.

Figure 5. DN performance trend. Source: H Company internal data (2024).



출처: H사 내부자료(2024)

Figure 6. DN Q3 2023–Q3 2024 performance summary. Source: H Company internal data (2024).

출처: H사 내부자료(2024)

Figure 7. DN banking solutions segment Q3 2023–Q3 2024 performance summary. Source: H Company internal data (2024).

출처: H사 내부자료(2024)

Figure 8. DN retail solutions segment Q3 2023–Q3 2024 performance summary. Source: H Company internal data (2024).

출처: H사 내부자료(2024)

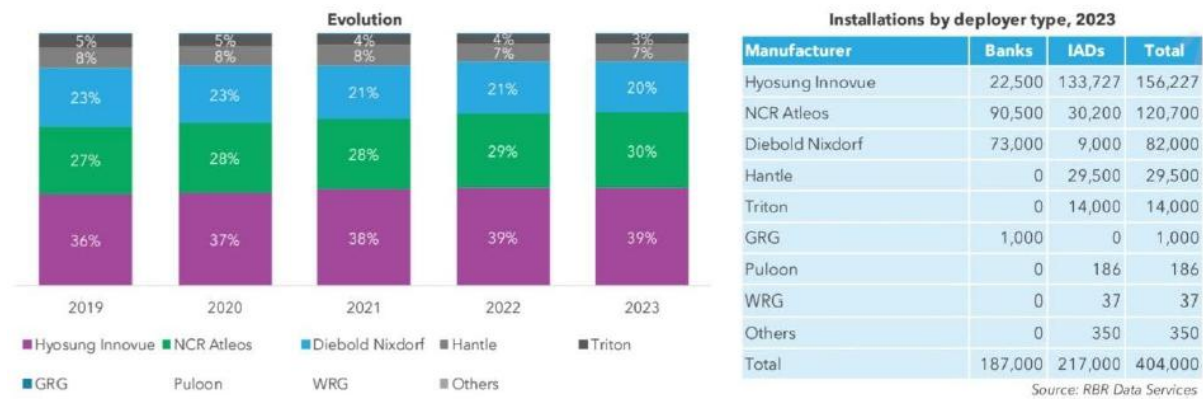
(3) Genmega

Genmega is a hardware-focused manufacturer with various cash dispenser ATM and kiosk models, with products optimized for retail environments such as hotels and convenience stores. It holds approximately 14% share in the U.S. retail ATM market, securing small retail businesses as primary customers (RBR, 2024). Genmega's strengths are price competitiveness and high customizability, providing solutions responding to various retail needs (ATM Marketplace, 2024). In the retail market, even USD 50 price differences can change purchasing decisions, making this segment highly price-sensitive. Genmega is actively targeting the complex kiosk market, expanding into smart kiosk markets with bitcoin ATMs, cash-based remittance/payment kiosks, and other ATM value-added service functions (ATM Marketplace, 2024).

U.S. Banking and Retail Market Competitive Landscape

H Company holds approximately 39% share as #1 in the U.S. ATM market (banking + retail) with overwhelming advantage from approximately 133,000 cumulative retail market installations (RBR, 2024). H Company has maintained its lead since recording 36% share and #1 position in 2019. In the U.S. banking ATM market specifically, NCR Atleos holds approximately 48% (about 90,500 units) and DN approximately 39% (about 73,000 units), while H Company remains at approximately 12% (about 22,500 units)—a contrast with its retail market advantage. However, H Company has grown to 12% by expanding from New York Community Bank (2006) to Citibank (2008) and JPMorgan Chase (2010) with Branch Transformation solutions, then Wells Fargo, Bank of America, and PNC Bank (H Company, 2022).

Figure 9. U.S. ATM market share status. Source: RBR Data Service.



출처: RBR Data Service

U.S. financial institutions are shifting toward AaaS model-based outsourcing (ATMIA, 2023; ATM Marketplace, 2024). NCR and DN are strategically supplying total outsourcing services aligned with these demands. Seacoast Bank contracted with NCR for integrated ATM management and cash operations, while Langley FCU selected DN as AaaS provider, paying monthly fees for comprehensive ATM equipment, software, cash management, and monitoring coverage. Banks can thus reduce CAPEX and shift to predictable OPEX costs while gaining ATM uptime improvements through economies of scale and specialization.

Competitor Strategy Comparison

Table 1. Comparison of representative strategies of major competitors.

Category	NCR Atleos	Diebold Nixdorf	H Company
Core Strengths	Cardtronics acquisition → World's largest IAD; Allpoint Network retail channel dominance	Strong European banking presence; security & integrated solutions (Vdynamic)	First US cash-recycling ATM supply → banking credibility; #1 retail market share
Product Portfolio	Cash dispenser-centric; limited recycling lineup	Banking-specialized projects; channel mgmt. solutions	High-performance recycling ATM + ultra-compact recycling ATM → hybrid portfolio
Market Strategy	Retail-centric expansion; AaaS competitive advantage	Banking-centric; limited retail	Dual banking + retail simultaneous pursuit
Differentiation	Extensive retail network	Deep banking partnerships	Product-service-operation integrated value proposition; AaaS/Cloud serviceization
Limitations & Challenges	Recycling ATM shortage → long-term constraint	Weak US retail market share	Must close NCR network & DN banking partnership gaps

NCR Atleos, through its Cardtronics acquisition, possesses a powerful retail channel-centered network. However, its ATM product portfolio remains biased toward traditional withdrawal-centric terminals with limited

small ATM lineup featuring cash recycling functionality. Diebold Nixdorf maintains strong positions in European banking with competitiveness in security and integrated solutions, but is relatively passive in expanding IAD and retail network bases in the U.S. retail ATM market. H Company pursues differentiation through a hybrid strategy simultaneously targeting banking and retail markets, having supplied the world's first cash recycling ATM to JPMorgan Chase in the early 2010s. This unique position as the sole cash recycling solution provider spanning both NCR's retail-focused and DN's banking-focused strategies forms H Company's distinctive competitive position.

2.3. Customer Status

Banking and Retail Customer Segmentation

Banking Customers

Banking customers are the traditional and most core customer base adopting and operating ATMs. Banks and financial institutions build large-scale ATM networks to strengthen their financial service competitiveness, providing comprehensive financial services including cash deposits/withdrawals, account management, and transfers. What banking customers require from ATM manufacturers is a high level of stability, security, and perfect integration with the bank's IT systems. Financial supervision regulations and security certification compliance requirements mean banks continuously demand technical responsiveness and long-term reliability from ATM manufacturers.

Table 2. Banking customer segmentation.

Segment	Definition / Characteristics	Key Examples	ATM Manufacturer Perspective
Major Banks	Global network; large-scale ATM operation; high purchasing power; strict requirements	Wells Fargo, Bank of America, JPMorgan Chase	Bulk purchase/lease; high security/reliability; multilingual & deposit-processing capabilities
Regional Banks	Region-based; mid-size ATM network	PNC Bank, US Bank, Fifth Third Bank	Customized services; cost-efficiency emphasis; phased adoption
Credit Unions	Member-owned non-profit; member welfare priority; shared ATM network	Navy Federal, Alliant Credit Union	Compact cost-efficient ATMs; high member loyalty; local feature requests
Community Banks	Community-based; personal & SME services	Local small-scale banks	Limited ATM installations; community-centered services
ATM Processing Companies	Handle ATM transaction processing, network ops, maintenance, cash supply on behalf of FIs	FIS, Fiserv, Cardtronics (NCR Atleos)	Standardize devices for multiple FIs; software integration critical; multi-customer access via partnerships

Retail Customers

Retail customers include large supermarkets, convenience stores, and retail shops, which—unlike banking customers—are characterized by ATM usage centered on small-amount withdrawals. They increase customer cash accessibility through in-store ATM installations, promote in-store consumption, and simultaneously create additional ATM fee revenue. Retail customer requirements differ from banking customers: they prefer compact ATMs that are easy to install in space-constrained environments, have efficient maintenance, and excellent ease of use. Also, given the 24-hour operation characteristics of convenience stores, device durability and stable operation are important considerations.

Table 3. Retail customer segmentation.

Retail Customer Type	Key Examples	Characteristics
Independent ATM	Cardtronics (NCR Atleos),	Non-bank private ATM ownership; diverse locations (gas

Retail Customer Type	Key Examples	Characteristics
Deployers (IADs)	Payment Alliance International (PAI)	stations, malls, nightlife); withdrawal fee revenue; prefer bulk low-cost high-durability ATMs
Convenience Store Chains	7-Eleven, Wawa, Circle K	National/regional network; 24-hr high-density operation; customer inflow & ancillary revenue; thousands of branches; require compact, reliable ATMs
Large Retail Stores & Malls	Walmart, Target, Simon Property Group	High foot traffic; entrance / customer service placement; bank partnership possible; brand customization & large-capacity cash security required
Independent Retailers	Local gas stations, small convenience stores, groceries, bars	Single-location install; customer traffic & fee revenue; frequent IAD-partnership installs; prefer low-cost easy-maintenance models
Hotels & Casinos	MGM Resorts, Caesars Entertainment	High cash demand; 24-hr; prefer large-capacity high-speed secure ATMs; customization & dedicated kiosk ATMs required

Comparison and Implications

Table 4. Comparison of banking and retail customers.

Category	Financial Institution Customers	Retail Customers
Primary Purpose	Strengthen financial services; improve customer convenience; link account services	Drive customer inflow; expand shopping convenience; create ancillary revenue
ATM Utilization	Large-volume cash transactions; account-based deposits/withdrawals; account transfers & management	Small-amount withdrawal focus; immediate cash access; card payment supplement
Customer Requirements	Stability, security, seamless bank IT integration, reliability	Ease of use, fast transaction speed, 24-hr access, space efficiency
Operational Features	Linked to own network & IT; mandatory regulatory compliance	Space-constrained install; operational efficiency & maintenance ease prioritized
Revenue Model	Account-based service expansion & customer loyalty	ATM fee revenue; in-store additional spend; revenue sharing with affiliated FIs

ATM manufacturers should propose high-reliability/high-function ATMs to banking customers, and compact/cost-efficient solutions to retail customers. In particular, the ultra-compact cash recycling ATM can provide differentiated value in both markets (channel diversification for banking; easy installation for retail), indicating large future diffusion potential. From H Company's perspective, this is evaluated as a strategic product that can realize new growth opportunities and market differentiation.

ATM Utilization Strategies by Customer

Banking Customer ATM Strategies

Large commercial banks with nationwide branches prioritize building extensive ATM networks to increase customer convenience and service accessibility. Through ATMs, they reduce branch operating costs and allow staff to focus on value-added work such as consulting. As part of Branch Transformation strategies, smart ATMs and ITMs are being introduced to create branch models where machines handle simple cash transactions while staff play advisory roles (ATMIA, 2023; RBR, 2023; NCR, 2023; Diebold Nixdorf, 2018).

Small and medium regional banks, without extensive branch networks like large banks, pursue strategies of using ATMs as branch substitute channels to secure customer touchpoints in their region (RBR, 2023; Federal Reserve Bank of Atlanta, 2023; ATM Marketplace, 2024). Off-site ATMs are installed in areas where branches are difficult to establish (e.g., small towns or outlying areas) to increase financial inclusion and attract new customers.

Credit unions focus on providing extensive ATM accessibility to members. Individual credit unions are small in scale, but form shared ATM networks (CO-OP Network, etc.) to provide nationwide ATM convenience. The CO-OP Network includes nearly 30,000 surcharge-free ATMs and over 5,000 Shared Branch locations, providing nationwide financial access to members (CO-OP Financial Services, 2023). ATM operations outsourcing or alliances are also used to efficiently utilize limited IT operational resources.

ATM transaction processing specialist companies handle transaction approval, settlement, and operations of ATM networks on behalf of banks or IADs. These processing companies contract with large IADs or banks to support smooth ATM services and regulatory compliance, increasingly pursuing strategies of providing additional software and management services to enhance added value. These requirements can also be linked to ultra-compact cash recycling ATMs capable of supporting device uptime and cash management efficiency (RBR, 2023; NCR Atleos, 2025; Datos Insights, 2024).

Retail Customer ATM Strategies

IADs install ATMs in various retail locations such as convenience stores and gas stations to generate cash withdrawal fee revenue. They aim for low-cost high-efficiency operating models, installing ATMs in places where banks have abandoned ATM operations to earn fee income. In the U.S., approximately 60% of all ATMs are operated by IADs (RBR, 2023; ATMIA, 2023). IADs are also increasingly diversifying their business models by operating networks that exempt fees for partner bank customers (e.g., Allpoint) and pursuing stable revenue through ATM operations outsourcing.

Large convenience store chains like 7-Eleven install ATMs across their national stores either independently or under contract with IADs. They earn ancillary revenue (e.g., ATM transaction fee sharing) but the main purpose is customer convenience. Cash accessibility increases the likelihood of additional in-store spending (ATM Marketplace, 2024). Individual small retail stores such as restaurants, liquor stores, and gas stations often have cheap small ATMs to induce cash payments and reduce card payment fees, while simultaneously earning small ancillary revenues. Hotels and casinos require high cash demand in these special retail environments, placing multiple ATMs and cash exchange machines to enable rapid large cash withdrawals, primarily aiming to increase customer stay and spending through cash accessibility.

3. Case Analysis

3.1. U.S. Retail Customer ATM Operation Cases

The U.S. retail ATM market is led by IADs, providing ATM services through various offline channels including convenience stores, gas stations, supermarkets, casinos, and pharmacy chains. Most ATMs installed for retail customers are withdrawal-only terminals (Cash Dispensers), which spread due to low adoption costs and simple maintenance. They are primarily adopted in fee-based short-term revenue generation models, with major installation channels including 7-Eleven, Circle K, Kroger, Wawa, Walgreens, and CVS. These outsource device installation and operations through partnerships with IADs or operators such as NCR Atleos (formerly Cardtronics) and PAI (RBR, 2023; ATMIA, 2023; ATM Marketplace, 2024).

NCR Atleos manages approximately 280,000 ATMs in the U.S., accounting for over 60% of the ATM operating market. Through the Allpoint network, it provides fee-free ATM services to bank customers, while creating brand recognition enhancement and customer inflow effects for retail stores. It is also spreading AaaS-based outsourcing models in alliance with PNC, TD, and US Bank (NCR Atleos, 2024; Datos Insights, 2024). Genmega is attempting differentiation centered on KIOSK-type multi-function ATM products in the retail ATM market, expanding into smart kiosk markets including bitcoin ATMs and cash-based remittance/payment kiosks (ATM Marketplace, 2024).

H Company, as the #1 supplier in the retail ATM market, is strengthening its next-generation product strategy incorporating cash recycling functions to respond to market trends of multi-functionalization, recycling, and AaaS. By supplying recycling ATMs to the retail market, the following market values are expected to be created: retail in-store cash can be deposited into ATMs to reduce cash pickup costs; through value-added services such as remittances, payments, and digital wallet charging, financial accessibility for Underbanked consumers can be improved; and combined with AaaS, initial hardware investment burden can be minimized to accelerate market expansion speed.

3.2. U.S. Banking Customer Retail Market Entry Cases

Outsourcing and Processing Company Alliances

Banks generally directly operate ATMs within branches but collaborate with NCR Atleos, PAI, etc. for off-branch branded ATM operations through hybrid AaaS models where IADs handle installation and operation (ATMIA, 2023; Datos Insights, 2024; NCR Atleos, 2025). This model allows efficient ATM network expansion even in areas with limited branches. Some IADs are presenting the technical linkage possibility of deposit function by linking with bank account and authentication systems, with some banks actually conducting pilot operations for cash deposit linkage at IAD-operated ATMs in certain regions.

Retail ATM Operating Strategies

PNC Bank operates approximately 2,000 branded ATMs in alliance with Wawa and other retail operations in the eastern U.S., expanding cash accessibility beyond branches (ATM Marketplace, 2024; PNC Bank, 2023). This mutually complementary structure sees the bank utilizing retail partner space to install ATMs while the retail partner secures customer inflow and fee revenue. Wells Fargo has been expanding ATM installations in retail spaces centered on its own ATM network, operating co-branded ATMs in alliance with large supermarkets and pharmacy chains in some areas (Wells Fargo, 2024). JPMorgan Chase approaches U.S. ATM operating strategies with a dualized model of high-function ATMs within branches and IAD channel-utilizing ATMs outside branches. Chase has been progressively adopting H Company equipment for automated cash deposit and recycling processing automation across all branches nationwide since 2010 as part of its branch digital transformation strategy, being the first U.S. bank to adopt cash recycling functionality in ATMs (H Company, 2022).

Cooperation with H Company

H Company has supplied high-performance cash deposit/withdrawal integrated recycling ATM products to U.S. banking customers. JPMorgan Chase, as mentioned, is the leading bank that fully adopted high-function recycling ATMs to all branches nationwide from 2010 using H Company equipment—the first U.S. financial institution to adopt cash recycling functionality and successfully achieve branch automation. Wells Fargo and Bank of America have also begun adopting H Company recycling ATMs at branches, linking deposit-based ATM functionality with branch automation strategies (H Company, 2024). As financial institutions expand to retail channels, H Company's ultra-compact cash recycling ATM can become a core solution for hybrid strategies integrating branch and non-branch channels.

3.3. H Company Marketing Strategy Analysis

PEST Analysis

Political/Legal factors: U.S. financial authorities' cash accessibility guarantee policies are important variables. Some U.S. states have passed bills mandating cash payment acceptance (New Jersey State Legislature, 2019; New York City Council, 2020). This institutional trend increases the necessity of ATM maintenance and becomes the background for financial institutions and IADs considering recycling ATM adoption. AML and KYC regulatory reinforcement acts as a constraint factor increasing ATM operating costs and technical requirements.

Economic factors: Despite declining cash usage, a significant volume of transactions still occur in cash (Federal Reserve Bank of Atlanta, 2023). ATM withdrawal amounts are increasing even as non-cash payment proportions rise post-pandemic (ATMIA, 2023). With approximately USD 212 average withdrawal amount and

5 billion annual transactions, this indicates absolute transaction volumes are still large and strengthens the necessity of recycling ATMs capable of handling large cash transactions.

Social factors: Financial inclusion and cash accessibility guarantees for Underbanked populations are core. Low-income groups, elderly, and rural residents still use ATMs as primary financial touchpoints, and the social role of retail ATMs is gradually expanding (FDIC, 2021). Immigrants and Underbanked populations in the U.S. have demand for cash-based financial services such as remittances, small withdrawals, and bill payments, suggesting ATMs should develop from simple cash machines into channels expanding social inclusion (Federal Reserve Board, 2022).

Technological factors: ATM technology advancement is progressing including cash recycling functions, contactless payments, mobile-based cardless withdrawals, video consultations, and cryptocurrency exchange functions, with service-based business transitions like AaaS models emerging as the center of manufacturer strategies. Adoption of new technologies such as contactless authentication, cardless withdrawals, and cryptocurrency transaction support both expands ATM application scope and strengthens security and operational efficiency requirements (NCR Atleos, 2025; Diebold Nixdorf, 2018; ATMIA, 2023).

Table 5. PEST analysis summary.

Category	Key Factor	Details
Political/Legal	Cash access policy	Some states mandate cash payment acceptance → expands ATM network necessity
	Regulatory tightening	AML, KYC requirements → increased operating costs & technical requirements
Economic	Cash usage trends	Non-cash payments rising, yet 5B+ annual withdrawals; avg. USD 212 per transaction (2023)
	Growing withdrawal amounts	Post-pandemic total cash withdrawal amounts increasing → recycling ATM necessity
Social	Financial inclusion	Underbanked/low-income/elderly/rural residents → high ATM dependency
	Retail ATM role	Remittances, bill payments, small withdrawals → need to expand cash services
Technological	ATM tech advancement	Cash recycling, cardless withdrawals, contactless payments, crypto transactions
	Service-based business model	AaaS (ATM-as-a-Service) proliferation; operating efficiency & security reinforcement

SWOT Analysis

H Company's Strengths include accumulated global market experience and technology credibility. H Company is the only Asian company to surpass NCR and achieve #1 market share in U.S. retail ATM device supply, and has the experience of supplying the world's first cash recycling ATM to JPMorgan Chase. These references reinforce the image of a reliable vendor to both banking and retail customers. Additionally, compact and modular cash recycling design capability acts as a core differentiating capability vs. competitors.

Weaknesses include constraints in brand recognition and service networks. Compared to NCR's and DN's globally accumulated brand power and service channels, H Company is concentrated in specific regions (U.S., Korea), limiting global coverage. The fact that price competitiveness and value-added proof for the ultra-compact cash recycling ATM have not been fully achieved in the market entry stage also acts as a short-term weakness.

Opportunities are expanding in both banking and retail markets. In the AaaS model, subscription-based services are appropriate alternatives for retail customers sensitive to initial investment costs, an important opportunity for H Company to pioneer new markets. **Threats** include global competitors' integrated strategies: NCR Atleos controlling retail channels through Cardtronics acquisition, and DN strengthening software-based ecosystems

through deep banking partnerships. Processing company and payment network (VISA, Mastercard, etc.) technical integration issues can also be obstacles to market diffusion.

Table 6. H Company ultra-compact cash recycling ATM SWOT analysis summary.

Strengths	Weaknesses
Global market experience & tech credibility #1 US retail ATM market share First US cash-recycling ATM supply → banking trust Compact/modular design capability → differentiated technology	Limited global brand recognition & service network US/Korea-centric → limited coverage Ultra-compact recycling ATM price competitiveness gap Value proposition insufficiently validated
Opportunities	Threats
Banking: continued cash demand amid branch reduction & digital transformation Retail/IAD: growing need for cash-recycling ATMs AaaS model expansion → reduced investment burden, new market opportunities	NCR (Allpoint) retail network dominance DN banking partnership & integrated solutions (Vynamic) Digital payment expansion & cash-use suppression policies → ATM demand risk Processing/payment network integration challenges

STP Strategy

Segmentation: The ATM market is broadly divided into banking, IAD, and retail channels. H Company strategically defined the boundary market between banking and retail/IAD as the primary target segment for its ultra-compact cash recycling ATM, aimed at simultaneously satisfying banking channel branch automation needs and retail channel service diversification requirements.

Targeting: H Company targets major banks including Chase, Wells Fargo, and Bank of America in the banking target market, supplying high-function recycling ATMs with enhanced multi-channel authentication and security. For the retail/IAD target market including convenience stores, supermarkets, and pharmacy chains, ultra-compact recycling ATMs are supplied. Combined with AaaS models, cost reduction needs and price sensitivity of retail/IAD customers must be addressed.

Positioning: H Company positioned its products as hybrid cash recycling solutions connecting branch and non-branch channels. To banking customers, it is defined as a core partner simultaneously supporting digital transformation and cost reduction; to retail/IAD customers, it aims to establish itself as a solutions provider capable of simultaneously providing cash-recycling-based revenue creation and customer inflow effects.

Table 7. STP strategy summary.

Category	Sub-category	Details
Segmentation	Market segmentation	Banking; IAD (Independent ATM Deployers); Retail channels (convenience stores, supermarkets, pharmacies)
	Strategic target segment	Boundary market between banking and retail/IAD; Banking: branch automation needs; Retail/IAD: service diversification needs
Targeting	Banking	JPMorgan Chase, Wells Fargo, Bank of America; supply high-function recycling ATMs with enhanced multi-channel authentication & security
	Retail/IAD	Convenience stores, supermarkets, pharmacy chains; expand ultra-compact recycling ATM supply; Introduce AaaS/subscription models to address cost sensitivity
Positioning	Banking	Digital transformation & cost reduction support; trusted core partner
	Retail/IAD	Cash-recycling-based revenue generation; customer inflow effect; innovative solutions provider

4P Strategy

(1) Product Strategy

H Company's product strategy unfolds centered on a differentiated product portfolio to simultaneously satisfy the dual customer group demands of the U.S. banking and retail/IAD markets. For banking customers, the focus is on supplying high-performance recycling ATMs—an integrated solution supporting branch automation and customer experience improvement beyond simple dispensers, providing large-volume cash recycling, multi-channel authentication, and video consultation linkage. For retail/IAD customers, the strategy centers on ultra-compact recycling ATMs, securing installation ease through compactness and weight reduction, and providing cash management efficiency through recycling functions. The serviceization strategy is also introduced through AaaS, providing customers with the latest ATMs without CAPEX burden while H Company secures recurring revenue and customer lock-in effects. Beyond simple hardware supply, the strategy pursues transition to a digital financial infrastructure platform, combining IoT sensors, data analytics, and cloud management platforms to implement predictive maintenance, cash demand forecasting, and real-time security monitoring.

Table 8. Product strategy summary.

Category	Key Strategy	Details
Banking strategy	High-performance recycling ATM supply	Large-volume cash I/O support; multi-denomination cash management; multi-channel authentication (bio/mobile); video/consultation & multi-function links
Retail/IAD strategy	Ultra-compact recycling ATM rollout	Compact/lightweight for easy installation; in-store cash deposit & recycling → CIT cost reduction; convenience stores, supermarkets, pharmacies
Serviceization (AaaS)	ATM-as-a-Service	Install, maintenance, cash management, software updates integrated; customers: no CAPEX burden; H Company: recurring revenue + customer lock-in
Platform strategy	Intelligent financial infrastructure	IoT sensors, data analytics, cloud management; predictive maintenance, cash demand forecasting, real-time security monitoring; evolve ATM into intelligent financial channel
Overall	Hybrid portfolio	High-performance recycling ATM (banking) + ultra-compact recycling ATM (retail) dual axis; serviceization & platformization; differentiated hybrid strategy vs. NCR & DN

Figure 10. Ultra-compact cash recycling ATM specifications and appearance. Source: H Company internal data (2024).

Figure 11. Retail cash dispenser ATM model comparison. Source: H Company internal data (2024).

(2) Pricing Strategy

Existing retail cash dispenser ATMs are priced around USD 1,500–5,000, while banking high-function ATMs are around USD 20,000–30,000. The ultra-compact cash recycling ATM was launched at USD 6,500–8,500 by specification, as an intermediate price reflecting that it is downgraded from banking-spec high-function ATMs in composition specifications while adopting cash recycling function and high-function specifications compared to retail cash dispensers.

For banking customers, CAPEX-based bulk purchase combined with long-term maintenance contracts is the pricing presentation format, with emphasis on Total Cost of Ownership (TCO) reduction as the core of the price strategy—value-based pricing reflecting operational cost reduction effects rather than simple device prices. For retail/IAD customers, H Company is actively introducing OPEX-based AaaS models appropriate for customer groups with high profitability but limited initial investment capacity. Market education must accompany pricing strategy, with pilot programs running in parallel to justify price premiums, and a phased pricing strategy of initially promoting market entry at relatively lower prices before gradually raising price levels as cash recycling function effects are proven.

Table 9. Pricing strategy summary.

Category	Key Strategy	Details
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Category	Key Strategy	Details
Banking	CAPEX-based value pricing	Per-unit purchase + long-term maintenance contract; emphasize TCO (Total Cost of Ownership) reduction; quantify CIT reduction & personnel cost savings
Retail/IAD	OPEX-based AaaS model	Suitable for customers with limited initial investment capacity; reduce CAPEX burden; shift pricing to operational efficiency; escape hardware price competition
Structural supplements	Value Proposition delivery	High price vs. cash dispenser → acceptance constraint; quantify CIT savings, customer inflow, additional services; long-term expansion to subscription model
Market education & phased approach	Awareness & gradual pricing	Insufficient understanding of cash-recycling (parallel education + pilot); initial low-price / subsidy entry → gradual price increase after value proven

Figure 12. Product composition price comparison. Source: H Company internal data (2024).

(3) Distribution Strategy

H Company's distribution strategy combines direct sales models for banking customers and partnership-based indirect sales models for retail/IAD customers. For banking customers, ATMs are directly supplied through large contracts at bank HQ and regional HQ units—bank security, regulatory compliance, and operational stability requirements are met through contracts in integrated package form including not only device supply but software and maintenance. For retail/IAD markets, partnership-based distribution is used rather than direct sales: IADs or large retail chains receive devices and handle store installation and operation. As a global strategy, H Company combines direct banking supply experience with expanded IAD and retail chain cooperation to build a hybrid distribution system with a Dual Channel Strategy. Distribution strategy is also connected with AaaS expansion, with H Company expanding service contracts including installation, operation, maintenance, and cash transport, evolving from mere seller to service provider.

Table 10. Distribution strategy summary.

Category	Key Strategy	Details
Banking	Direct Sales	Sales, technical & service teams directly involved; bank HQ / regional HQ large contracts; e.g., Chase, Wells Fargo package contracts
Retail/IAD	Partnership-based indirect sales	B2B cooperation with IAD/retail chains; IAD supplies to retail stores; reduces H Company's direct small-contract burden
Global strategy	Dual Channel Strategy	Banking: direct supply via HQ contracts; Retail: indirect via IAD; simultaneous banking & retail coverage
Serviceization linkage	AaaS-based distribution model	Contracts including installation, operation, maintenance, cash transport; evolve from mere seller to service provider; strengthen long-term partnerships
Future direction	Omnichannel distribution	Bank-branded ATMs in retail stores; IAD expanding banking network operation; blurring banking/retail boundaries → hybrid distribution structure needed

(4) Promotion Strategy

H Company's promotion strategy focuses on differentiated communication tailored to banking and retail/IAD characteristics. To banking customers, long-term values such as stability, security, and digital transformation support are emphasized; to retail/IAD, immediate results such as cost reduction, space efficiency, and revenue creation are emphasized. For this, H Company utilizes various channels including global trade shows, industry conferences, joint research, and digital marketing. For banking customers, TCO reduction, security, and digital innovation support are core messages delivered through CEO/CIO high-level meetings, dedicated seminars, and global conference presentations to strengthen Thought Leadership. For retail/IAD, space reduction, customer

inflow, and ROI-based revenue models are emphasized, with promotional materials, site demos, and ROI simulations provided.

Table 11. Promotion strategy summary.

Category	Key Strategy	Details
Banking	Long-term value messaging	Message: TCO reduction, security, digital transformation; Method: CEO/CIO meetings, strategic reports, banking seminars, global conference presentations
Retail/IAD	Performance messaging	Message: space savings, customer inflow, ancillary revenue creation; ATM effects (cost reduction, sales increase) quantified; demo materials & ROI simulations
Global activities	Brand credibility building	Industry trade shows, joint research publications → establish tech leadership; webinars, white papers, online campaigns
Digital education	B2B digital marketing	Customer employee training programs; position as operational partner; contribute to AaaS proliferation
Future direction	Unified message	Banking: cash-recycling tech → branch innovation; Retail: recycling ATM → cost reduction & revenue creation; consistent positioning as cash-recycling-based hybrid platform provider

Table 12. H Company and competitor 4P comparison summary.

Item	NCR	Diebold Nixdorf	H Company
Product	Dispenser-centric	Banking high-function	Banking + Retail cash recycler
Price	CAPEX-dominant	CAPEX + Service	CAPEX + OPEX combined
Place	Global IAD strength	European banking strength	US banking & retail simultaneous
Promotion	Extensive network emphasis	Security & integration emphasis	Cash recycling + serviceization messaging

Marketing Strategy Implications

Synthesizing the preceding environment analysis, STP and 4P strategies, competitor comparison, and SWOT analysis, the reasons why H Company's ultra-compact cash recycling ATM has not achieved expected market performance despite having strategic opportunities in both banking and retail markets can be confirmed as follows:

- **Product value perception gap:** The retail market still has a strong tendency to perceive ATMs as simple cash dispensers. The specific values of cash recycling functionality—cash management cost reduction, in-store cash circulation, and customer service expansion—have not been sufficiently communicated to the market.
- **Price sensitivity and business model limitations:** Retail channels are sensitive to initial investment costs, making the relatively high price of recycling ATMs an obstacle. H Company must establish OPEX-based operating models such as AaaS and subscription models to lower barriers while securing long-term profitability.
- **Ecosystem cooperation deficiency:** For effective diffusion of cash recycling functions, technical and operational linkage with processing companies, payment networks (VISA, Mastercard, etc.), and cash transport companies is essential beyond ATM devices.
- **Need to strengthen differentiation vs. competitors:** NCR Atleos has advantages in retail markets through Allpoint, and DN specializes in security and integrated solutions for banking. H Company must develop cash-recycling-based value-added services—such as remittances, digital wallet charging, and B2B deposit services—to solidify differentiation.

- Brand repositioning: H Company must redefine itself not merely as an ‘ATM manufacturer’ but as a ‘cash-recycling-based financial/retail infrastructure service provider.’

Table 13. H Company ultra-compact cash recycling ATM marketing strategy implications summary.

Category	Core Issue	Implication
Product value perception	Retail market's simple cash-dispenser perception of ATMs	Must demonstrate cost savings, cash circulation, service expansion via education & communication
Pricing strategy	CAPEX sensitivity in retail market	Introduce AaaS/subsorption OPEX-based models to lower entry barriers and secure long-term profitability
Ecosystem cooperation	Insufficient processing/network/CIT linkage	Strengthen partnerships for approval, settlement, deposit data processing support
Differentiation vs. competitors	NCR (retail) & DN (banking) specialized strengths	Develop cash-recycling value-added services (remittance, digital wallet, B2B deposit); solidify differentiation
Brand positioning	Hardware manufacturer image limitation	Redefine brand as 'cash-recycling-based financial/retail infrastructure service provider'

3.4. H Company Ultra-Compact Cash Recycling ATM U.S. Market Performance Analysis

Market Check Results Using Similar Products

During ultra-compact cash recycling ATM development, H Company supplied a model named Cajera Plus to Cash Depot—changing only the model name of the banking recycling ATM (MX8100) for retail use. The Cajera Plus model meets banking-level high specifications and was sold at a unit price approximately 50% higher than the target unit price for ultra-compact recycling ATMs. Cash Depot has installed these Cajera Plus models at retail sites under the ‘Bank-In-A-Box’ brand, continuously pursuing service expansion including software development to support cryptocurrency and payment transactions in addition to cash deposit/withdrawal services. H Company supplied 1,020 Cajera Plus units to Cash Depot as of June 2025, and is pursuing expanded installation in partnership with Cash Depot targeting large retail chains. However, Cash Depot is continuously demanding model changes and price reductions, as the Cajera Plus price is approximately 4 times higher than regular retail cash dispensers and approximately 1.5 times higher than the ultra-compact recycling ATM target price.

Figure 13. Cash Depot Bank-In-A-Box marketing promotion. Source: Cash Depot LinkedIn.

Ultra-Compact Cash Recycling ATM Sales Performance and Operating Results

The ultra-compact cash recycling ATM was trial-manufactured in 10 units for software development, data processing company certification, and customer demo purposes for a February 2023 launch. Subsequently, a total of 100 units were trial-produced in 3 series specifications through June 2025 (H Company, 2025). The 100 trial-produced units are currently in pilot operation at major customer sites or supplied free for certification and marketing purposes. There are no sales at regular target prices (as of June 2025), resulting in a deficit for this model.

The 50 units in pilot operation through eGlobal have HYSUNG PAY installed supporting Money Transfer and Bill Payments in addition to cash withdrawal services. After approximately 6 months of pilot operation, these units are planned to be supplied at 50% of the target unit price, based on H Company’s premise of sharing profits from HYSUNG PAY value-added service revenues. H Company expended approximately KRW 7.7 billion in development costs including the 10 trial-manufactured systems, and can generate approximately 40%

profit when sold at target prices (H Company, 2023). The BEP (Break Even Point) for the ultra-compact cash recycling ATM series is approximately 2,500 units, with the time to generate substantive profits estimated at the first half of 2026 (H Company, 2025).

Table 14. H Company ultra-compact cash recycling ATM production and supply status (February 2023–June 2025).

Series	Target Price	Units Produced	Units Shipped	Customers, Purpose, Actual Supply Price
Plus	\$6,000	50 units	45 units	eGlobal Pilot operation (40 units); Major IAD test & certification (5 units)
Pro	\$7,200	30 units	15 units	eGlobal Pilot operation (10 units); Major IAD test & certification (5 units)
Enterprise	\$8,400	20 units	5 units	Major IAD test & certification (3 units); Trade show display (2 units)
Total	—	100 units	65 units	Remaining inventory: 35 units

Market Response and Customer Acceptance Evaluation

The market launch of the ultra-compact cash recycling ATM began with limited pilot-focused adoption, similar model pre-operation, and major IAD testing. In pre-checks and pilot operations through major partners such as Cash Depot and eGlobal, positive reactions to novelty, compact size, and recycling functionality were initially observed, but price acceptability and service readiness (value-added service software, processing/settlement linkage) quickly emerged as core issues. The initial “cool” reaction based on curiosity did not translate into purchase/conversion intentions because ROI logic—visible figures for cash transport cost reduction, store operational efficiency metrics, value-added service transaction percentages—was not sufficiently systematized.

Table 15. Market response and customer acceptance evaluation summary.

Category	Positive Factors	Constraints / Adoption Barriers	Implications
Segment reactions	Large IAD: CIT reduction potential; Small IAD & retail: compact, easy install, in-store cash management	Large IAD: processor integration complexity; Small IAD: initial investment burden, low awareness; Retail: uncertain sales effect, staff training needed	Cash recycling tech well-received but business requirements (settlement/revenue model) insufficient
Price/ROI factors	Reasonable price vs. banking high-end (\$6,000–\$8,400)	~4× higher than cash dispenser; ROI proof (savings rate, value-added service usage) insufficient	ROI simulation, AaaS subscription pricing model needed
Processing/settlement linkage	Technically implementable cash recycling function	Settlement/network standards incomplete; processor tech integration insufficient; Sub-systems/API delays	Joint development & settlement standardization with processors essential
Value-added service commercialization	TangoNet (HYOSUNG PAY) extensibility (remittance, Bill Pay, top-up)	Service launch speed insufficient; cash recycling standalone value limited	Accelerate value-added service integration
Performance/credibility	100 units trial-produced; pilot started; Cajera Plus 1,020 units supplied	No sales at regular price; high-price positioning burden	Technical validation complete; commercialization requires price, settlement, and value-added service alignment

4. Strategic Recommendations

Based on the preceding research results, H Company's ultra-compact cash recycling ATM is a technically excellent product, but has not achieved expected diffusion in the U.S. market. This is judged to stem from market ecosystem factors—the structural characteristics of the retail market, the complexity of the processing network, and high price sensitivity—rather than the product's technical limitations. The U.S. ATM market is dualized into financial institution-centered high-function cash recycling ATMs and retail-centered simple cash dispensers, with each segment's operating purposes and customer requirements differing. However, recently the boundary between financial institutions and retail channels is becoming increasingly blurred, and operational efficiency, cost reduction, and service diversification are emerging as common core tasks with digital transformation acceleration. This provides H Company with an opportunity to transition from technology-centered product strategies to service-centered market strategies. Therefore, five strategic directions are proposed.

4.1. Product Function and Service Improvement

The ultra-compact cash recycling ATM needs to be developed into an operating platform integrating cash management and digital transaction functions, not merely a cash dispenser. For this, H Company's own platform (TangoNet/HYSUNG PAY) should be linked to add financial value-added service functions with high retail site utilization such as cash remittances, bill payments, and electronic wallet charging, and cash recycling technology should be strengthened as a core differentiation element. This functional integration not only contributes to improving in-store profitability and customer inflow effects for retail businesses, but also expands ATMs into 'financial hubs' for retail stores, contributing to securing Underbanked and Unbanked customer bases and increasing sales.

4.2. Strengthening Cooperation with Processing Companies

The core factor blocking cash recycling ATM diffusion in the retail market is the deficiency of cash settlement and processing systems. Recycling ATMs must be organically linked with network and processing companies for deposit-settlement-re-withdrawal, and without support from major companies including VISA, Mastercard, FIS, and Fiserv, value-added implementation is difficult. Therefore, H Company should establish stable settlement processes and network environments through joint development and standardization cooperation with these processing companies. This can lay the foundation for retail customers to easily utilize cash recycling functions without additional costs or system reorganization, and will be a strategic choice strengthening H Company's position from a simple manufacturer to a platform ecosystem coordinator.

4.3. Pricing Strategy Review and Competitiveness Securing

The retail market has high price sensitivity, and the initial purchase cost burden delays recycling ATM adoption. Therefore, H Company should pursue cost reduction and price decreases while introducing AaaS models to enable customers to adopt devices on an OPEX basis instead of CAPEX. This reduces initial burden for retail customers and secures stable revenue for H Company. Additionally, to prove the value of recycling ATMs, CIT visit reductions, cash management cost savings, and customer inflow effects should be presented as concrete figures—quantifying the operating cost reduction effects of cash recycling functions and restructuring as ROI-based Value Propositions.

4.4. Marketing and Customer Education Enhancement

Many retail operators and financial institutions understand the technical advantages of recycling ATMs but lack sufficient awareness of actual operating value (operating cost reduction, service diversification). Therefore, marketing must focus on Education Marketing beyond simple product promotion. TCO reduction effect workshops for retail operators, digital transformation seminars for financial institutions, and joint marketing campaigns with IADs should be conducted to raise market understanding. H Company should also strengthen Thought Leadership at global conferences such as ATMIA, NAC, and RBR, and lead industry awareness through white paper publications and joint research reports.

4.5. Financial Institution and Retail Linkage Cooperation Strategy

H Company's core differentiating point compared to competitors is being the sole player capable of

simultaneously connecting banking and retail channels. Financial institutions need high-performance cash recycling ATMs for branch automation, retail needs ultra-compact recycling ATMs for cost reduction, and H Company can secure a matchless advantage as a hybrid model connecting these. Specifically, this includes a model expanding financial institution-branded ATMs to retail channels, building circulation networks connecting cash deposited at retail with bank cash demand, and operating jointly-branded ATMs by IADs and banks. This can be an opportunity to evolve into a platform strategy encompassing the entire Cash Ecosystem beyond simple hardware supply.

5. Conclusions and Implications

5.1. Summary and Conclusions

This study was conducted to identify the causes of H Company's ultra-compact cash recycling ATM performing below expectations in the U.S. retail market and to present future diffusion strategies. Case study and empirical analysis results confirmed that mismatches between market structure and channel ecosystem are the core factors of performance shortfall rather than product technical defects.

First, demand and acceptance for cash recycling (Cash Recycling) functionality in the U.S. retail ATM market was lower than expected, making IADs and retail businesses passive about adopting recycling features. Second, there were obstacles including insufficient infrastructure and standards for linking cash recycling functionality to ATM processing networks, leading to IADs being unable to utilize this function and increased integration operating costs. Third, the high unit price of the ultra-compact cash recycling ATM (approximately USD 6,500–8,500) compared to existing cash dispenser ATMs (approximately USD 1,500–5,000) was acting as an adoption barrier in a price-sensitive retail market.

Based on these analysis results, this study presents four strategic complementary directions for successful market diffusion of ultra-compact cash recycling ATMs: expanding ATM value-added functions beyond cash deposit/withdrawal to include remittances, bill payments, and lottery sales; strengthening cooperation with ATM processing companies and financial institutions to ensure cash recycling technology is smoothly supported in existing networks; introducing lease or subscription-based AaaS models to reduce initial purchase cost burden; and improving market education and marketing to raise awareness of new technologies.

In summary, the ultra-compact cash recycling ATM has potential to simultaneously satisfy the different requirements of banking and retail sectors, and can be positioned as a core product realizing new growth opportunities and market differentiation for H Company through appropriate strategy modifications.

5.2. Implications

Practical Implications

The research results provide important lessons to major stakeholders in the ATM industry. Financial institutions can use recycling ATMs to efficiently manage cash service channels and reduce operating costs even in the digital transformation era. Through AaaS models, outsourcing ATM operations can reduce initial investment burden while adopting the latest technology. IADs can reduce cash management costs through recycling functionality, but cooperation with technology partners such as processing companies must precede this. Retail businesses can enhance customer convenience and ancillary revenue through ultra-compact recycling ATMs, but given high cost sensitivity, manufacturers and operators must provide pricing policies and service support in parallel.

ATM manufacturers need comprehensive strategies considering market environment and infrastructure suitability when introducing new products beyond performance improvements. The product's value can be fully realized when hardware improvements are combined with business model innovation like AaaS, IoT and data-based intelligent management functions, and cooperation with financial institutions, IADs, and retail.

Academic Implications

This study contributes to expanding theoretical discussions on ATM industry digital transformation, cash recycling technology adoption, and AaaS trends. By analyzing the emergence of AaaS models and actual

adoption phenomena, understanding of ATM operating method changes was deepened, and the process of manufacturers evolving from simple hardware sellers to comprehensive service providers was clarified. This provides a new perspective to traditional financial channel research.

By examining the industrial role of cash recycling technology, the impact of technological innovation on ATM operating efficiency and cost structures was clarified, strengthening the theoretical foundation for technology adoption and innovation diffusion theory. By confirming that cash recycling functions can simultaneously improve cost reduction and value-added creation potential, grounds were provided for analyzing the economic effects and limiting factors of technology adoption in future ATM field research. By reviewing ATM necessity and evolution directions even amid digital payment expansion, the continuous role of physical channels was re-illuminated, showing that ATMs are changing not just as cash machines but in operating methods and business model dimensions.

Future Research Directions

Based on this study's limitations and findings, the following follow-up research is proposed. First, global comparative research is needed. By analyzing cash usage cultures, regulations, and competitive structures in various countries, the generalizability of success factors and obstacles from the U.S. case should be verified. Second, user behavior and acceptance analysis is required. To supplement this study's focus on B2B perspectives, actual cash user behavior changes and trust/usage intention for new functions (e.g., immediate cash deposit and re-withdrawal) should be investigated. Third, ATM strategies in response to digital payment expansion should be deeply explored—researching omnichannel strategies, cash-digital service integrated hybrid models, and other sustainable ATM roles in response to cash usage decline and profitability deterioration. Long-term data accumulation and application of quantitative analysis methods will make important contributions to global diffusion strategy establishment and future predictive capability improvement for ultra-compact cash recycling ATMs.

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Appendix

Appendix 1: TangoNet platform phased development directions and configuration network summary. Source: H Company internal data (2023). [Refer to original document for detailed network diagram.]