



Cash 4.0 – The Evolution of the Cash Cycle



“The first forms of trade consisted of ‘bartering’ products”

From its inception 100 years ago, to today, the modern cash cycle has witnessed many changes and GLORY has been involved in most of them.

The pace of these changes has accelerated significantly within the past 20 years. However, these changes are nothing compared to the game-changing disruption that is to come.

Let's take a journey through the cash cycle past to present, and glimpse at where it could all be headed.

We'll start this journey by jumping back in time 10,000 years to the time of bartering.



HOW, WHEN AND WHY WAS CASH BORN?

The Story of Cash

The first forms of trade consisted of 'bartering' products – I give you a jug of wine, you give me a fish. This came with a challenge: *how many fish is a jug of wine worth? What if you're out of fish?*

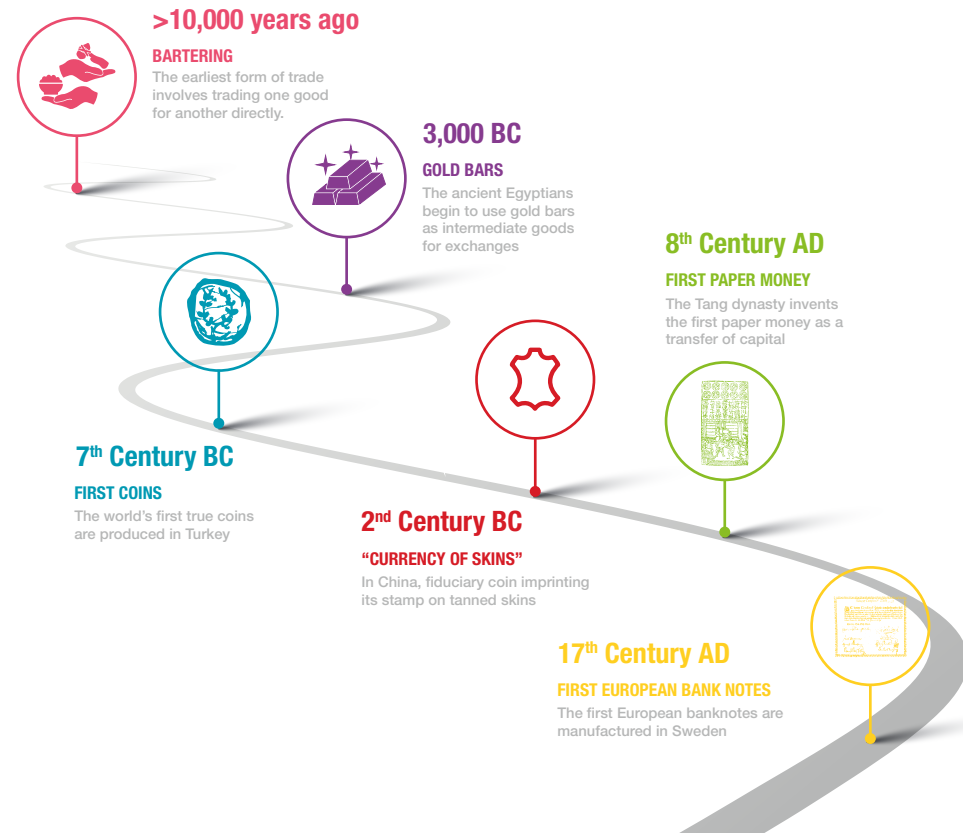
What was needed was a 'reference product' – an agreed upon standard for the relative value of a different good or service. Around 3,100 BC, the Egyptian ruler Menes decreed that "one part of gold is equal to two and one-half parts of silver in value". From there it was just a matter of evolution to coins, skins and then paper money.

The move to paper money was an incredible shift. Unlike gold or silver this was just a piece of paper with zero intrinsic value. Paper money is built on the trust of what it stands for, rather than the actual value of the paper itself. With all of the innovations that have occurred in the past 40 years, **paper currency is still considered one of the top innovations that changed the shape of history**, after the printing press and the compass ([The History Channel](#)).

How many of these pieces of paper are there around the world?

It's almost impossible for anyone to be certain, but estimates put the number around **600 billion – well over half a trillion**. If you were to lay all of those banknotes out end to end, they would stretch more than 2,000 times around the world.

That's a lot of banknotes changing hands every second of every day. So, let's take a look at the secret life of all of those banknotes that are moving around the planet. This is called the cash cycle, which is just the flow of physical currency.



World's first coins:
the Lydian electrum
610–560 BC



THE CASH CYCLE: THE SECRET LIFE OF CASH

What is the cash cycle and what does it do?

While cash as a medium of exchange has been around for over a thousand years, the cash cycle, where cash is distributed and managed in a well-structured marketplace, is a more recent innovation.

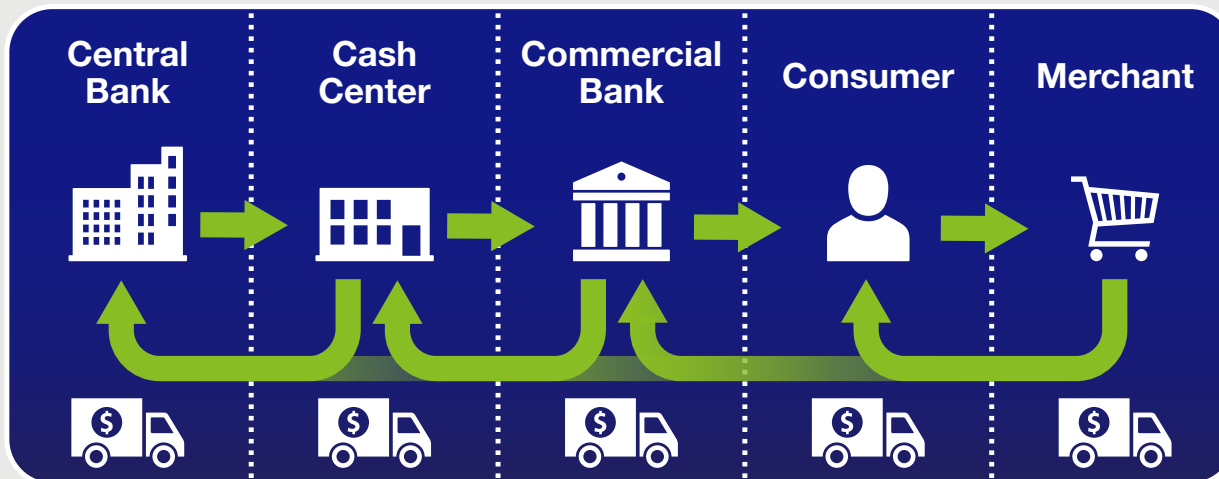
It involves **six key components**: the central bank as the government issuer of cash, consumers and retailers as the primary users of currency, commercial banks as key distribution points, and CIT (secure transportation companies) to move cash from one place to another.

All 600 billion banknotes are moved around via these six components in the modern world.

While it's true that much of the world's currency spends its life sitting in vaults 20% remains transactional. Each of those transactional notes moves 200 times per year, on average. The frequency differs depending on the currency and denomination.

For example, the U.S. dollar changes hands twice a week, or an average of 104 times a year. These key components have remained the same over time, but the mechanisms by which the cycle operates has changed, particularly over the past 60 years.

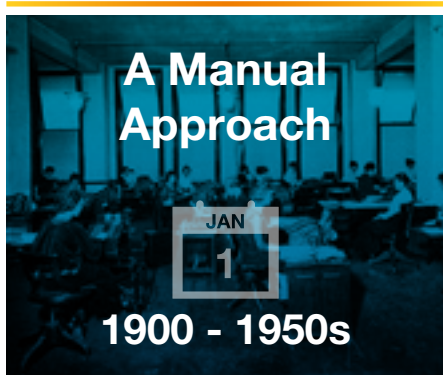
What have those changes been and how could we classify them?



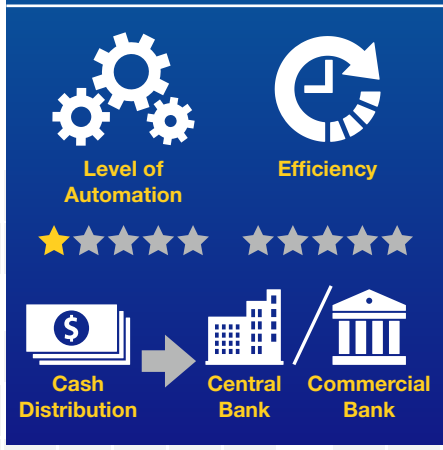
**“ON AVERAGE
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THE CASH CYCLE PAST AND PRESENT

CASH 0.0



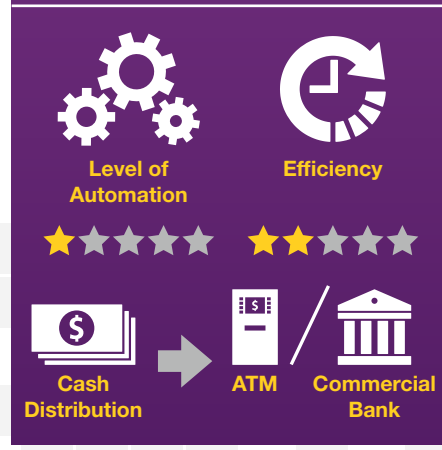
Cash is primarily processed manually and automation is limited.



CASH 1.0



Automation replaces many manual cash handling tasks in the banking industry.



CASH 2.0



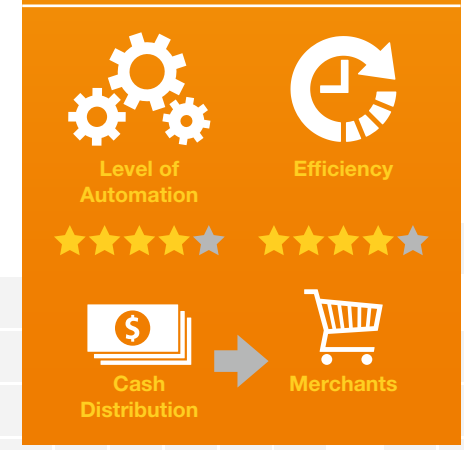
Introduction of “smart safes” makes CIT more affordable and expands their market.



CASH 3.0



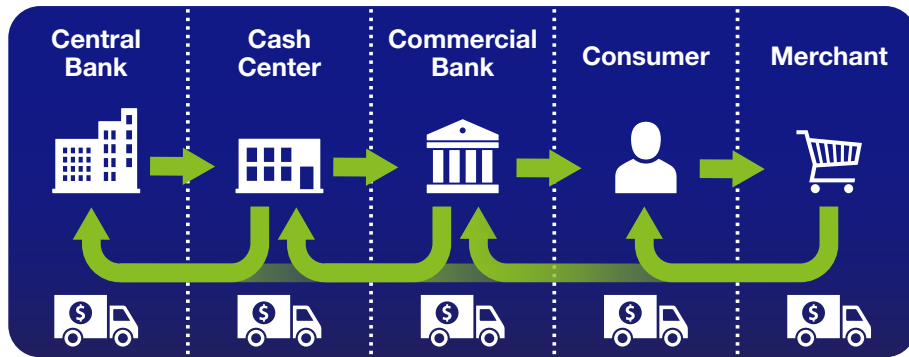
Automation of tasks such as preparing tills and reconciling bank deposits, with potential to re-use cash that was previously idle in safes.



DRIVERS FOR CHANGE

Why does the cash cycle **need to evolve**?

While the system has improved in places thanks to cash automation, there is still a vast amount of inefficiency.



This system is still **wildly inefficient**

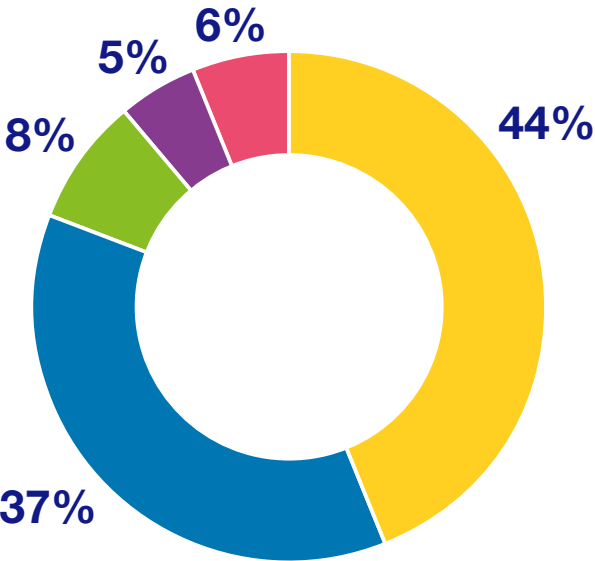
After being spent by a consumer, cash (particularly large denominations) is often returned from the merchant to a cash center before being issued to an ATM for the next consumer – a round trip which often exceeds 30 miles, to reach an ATM which may only be 30 yards away from the merchants' till drawer.

Not only is this a painful waste of resources, but all of this excess transport constitutes a needless dump of carbon into the atmosphere.



DRIVERS FOR CHANGE [continued]

Total Carbon Emissions Share



- Trucks: Use of Fossil Fuels
- ATM: Energy Consumption
- Trucks: Armored Steel
- Coin Production: Copper
- Other

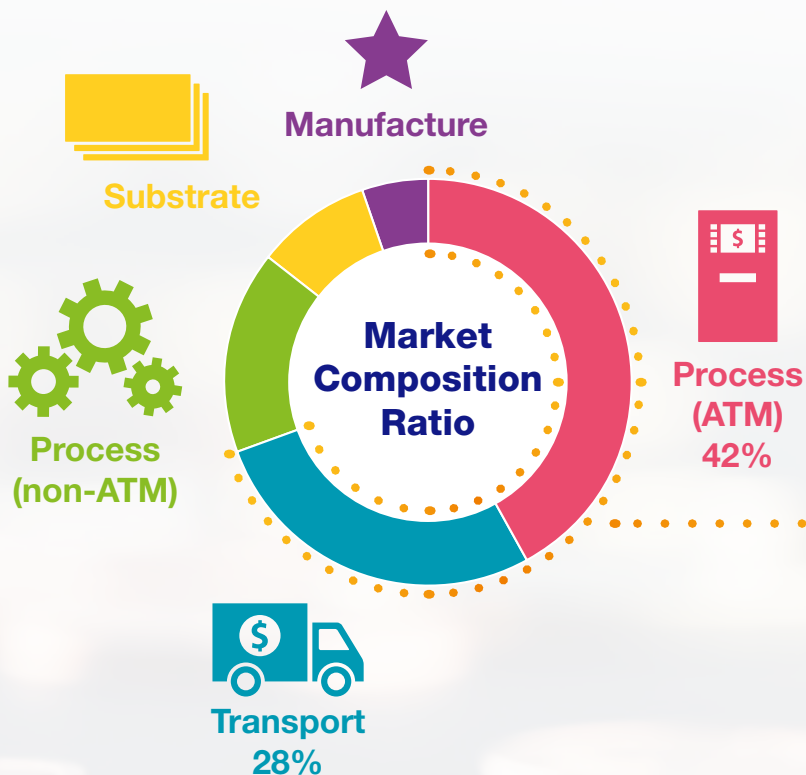
Source: Nederlandsche Bank & Reconnaissance Int. Ltd.

Transport is the area of the cash cycle that has the largest environmental impact

The main emitter in the cash cycle is fossil fuel consumption by armored trucks that move the cash between ATMs, retailers, banks and cash centers (44%).



DRIVERS FOR CHANGE [continued]



**Transport and ATMs
account for 70% of cost**

Source: Deloitte

The majority of the **cost in the cash cycle lies in transport and in maintaining ATMs.**

It's not just the environment that suffers from inefficiency in the cash cycle. Banks and retailers both bear a cost in the unnecessary movements of cash. If the cash cycle could be improved to recycle cash more *locally*, where it is used to exchange value, then costs could be brought down for everyone.

But there are certain challenges holding the system back.

DRIVERS FOR CHANGE [continued]

Functions of the cash cycle

**ACCESS
TO CASH**

**ACCEPTANCE
OF CASH**

CHALLENGES



Consumers

- Fewer locations to withdraw cash
- Shrinking branch networks



Merchants

- Availability of the right change
- Change services
- Denomination mix

CHALLENGES



Consumers

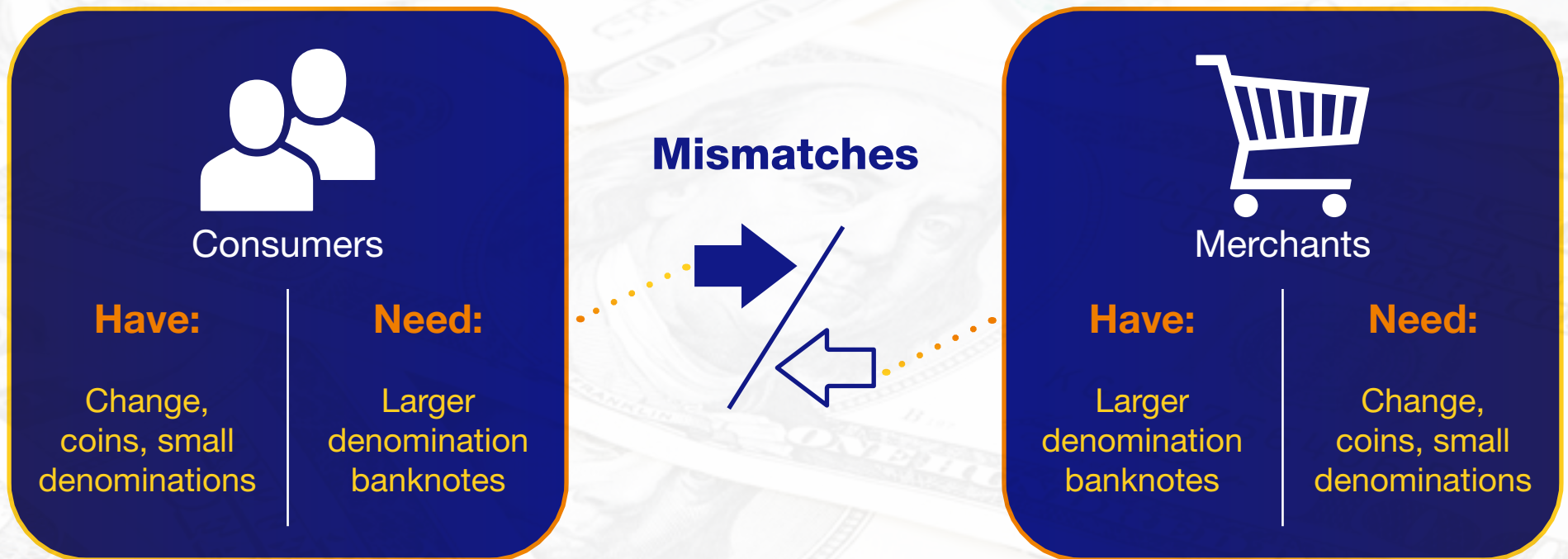
- Ensuring cash remains an efficient payment choice
- Getting rid of change



Merchants

- Need to bank or pass on incoming cash
- Speed to liquidity

DRIVERS FOR CHANGE [continued]



Mismatches require **cash movements**

In order to reduce costs and environmental impact, cash movements must also be reduced. To do that, the cash cycle must evolve to recycle more cash locally.

CASH 4.0

THE COMMUNITY CASH CYCLE

CASH 4.0



We are now starting to see consumers and merchants work together for common benefit, addressing the issues and challenges that have been identified in Cash Cycle 3.0.

This budding future – the community cash cycle – begins to feel a bit more like it was 10,000 years ago when people bartered fish for wine.

Now, we have merchants with surplus cash providing it directly to consumers who have a shortage of cash, and consumers who have coins hoping to find a merchant who needs change for their tills, with cash automation technologies making the whole system run seamlessly and efficiently.



CASH 4.0

THE COMMUNITY CASH CYCLE [continued]

What does the **ideal cash cycle** look like?

In a perfect world, cash would stay close to where it is used to exchange value – namely between merchants and consumers. The wasteful transport of cash back and forth to banks and cash centers would be eliminated, and cash would be recycled locally.

In the past, this was not a realistic option. Not only because of the time and resources required of merchants to facilitate it, but also because it is when cash is returned to the bank that counterfeit and end-of-life notes are analyzed and removed from circulation.

But we are living in a new era of automation.

The rise of retail cash recycling means that every retail POS has potential to become part of the new cash ecosystem. These systems can dispense cash directly to consumers as “cashback”, as well as processing it for merchants. They make merchant-filled ATMs easier to manage by having the cash sorted, counted, and ready for refill. And they solve the final problem by analyzing and isolating counterfeit and end-of-life notes as they come in.

HYPER-LOCAL RECYCLING ENABLED BY CASH AUTOMATION TECHNOLOGY



This allows merchants to give unneeded cash back to the consumer rather than transporting it back to a bank or cash center.



Recycle cash where it is used to exchange value, and reduce cash movements

CASH 4.0

THE COMMUNITY CASH CYCLE [continued]

The dawn of a new, decentralized cash ecosystem.

Why would retailers want to take on this new role?

Because implementing cash automation will also save them hours of labor time every day and every week, simplifying reconciliation, reducing or completely eliminating the risks of counterfeit notes and cash shrinkage, and lowering their CIT costs.

They get to offload cash they would have to pay to deposit (and will even earn fees from the banks in some countries for providing cash), and lower their carbon footprint by reducing the need for cash transport services.

Various cashback schemes around the world highlight the demand for this kind of service, however more education is needed for the public to understand the benefits of the system and fully utilize it.

Other developments such as Open Banking and Multifunction ATMs are also opening the door to more hyper-local cash recycling.

Of course, there is no perfect system. The mismatches in what consumers and merchants need will never find a perfect equilibrium. But the system can be vastly improved, and wasted time, energy and carbon can be greatly reduced.

Keeping cash local, and accessible, is the future.



INNOVATIONS IN THE CASH CYCLE

CASHINFINITY™

Automating Cash Payments

A new approach to retail cash handling



The **CASHINFINITY** range from Glory presents a new approach to cash handling in retail.

Including both back-office cash processing as well as point-of-sale (POS) cash automation, CashInfinity solutions can be implemented individually to provide huge increases in staff productivity and eliminate human error in the reconciliation process, or they can be implemented together to create a “closed-loop” cash system in which staff never have to physically handle cash again.

This system provides the ultimate efficiency and security, removing even the temptation of cash shrinkage as well as the stress and time involved in reconciling large amounts of cash every day.

Furthermore, this solution opens the door to Cash 4.0 - the community cash cycle, through the capability to efficiently dispense cash to consumers at the point of sale, as well as processing cash for merchant-filled ATMs.

Ultimate cash efficiency

Revolutionize your cash handling and cut costs

Reallocation of staff

Redeploy your staff to higher value tasks

Improved customer service

Minimize errors, make your staff more available, and provide cash services

INNOVATIONS IN THE CASH CYCLE

TellerConcierge™

Automating Merchant Banking

A new approach to “walk to branch” banking



TellerConcierge can automate almost any banking transaction.

This includes the advanced requirements from the small-to-medium business segment, which is not possible to serve on most ATM channels.

While allowing Financial Institutions to progress with cost-effective branch expansion strategies, it also has the potential **to be deployed in local non-banking environments, such as retail locations or public buildings.**

This kind of technology can help to keep cash local, allowing businesses to deposit cash and withdraw change right on their doorstep, and allowing that cash to be recycled for other businesses and consumers without all of the associated travel costs and carbon footprint.

Speed to liquidity

Merchants see cash on balance sheet faster

Beyond the four walls of the branch

Banks can serve merchants where they are needed

Efficient provision of cash services

Hyper-local cash deposit and change services



*This solution is not currently available in all countries and territories



The traditional cash cycle is poised for a big change.

Will Cash 4.0 be disruptive? Maybe. It is important to understand that disruption occurs when the current system is not adapting to change fast enough. So who will drive Cash 4.0? Who will bring the next disruption? Banks? CITs? Retailers?

The challenge for Glory and our partners is to drive the evolution of the cash cycle to ensure its stability, while at the same time radically reshaping it to improve cost and experience. We are a trusted partner in the financial and retail industries, providing reliable solutions for today and investing in those of tomorrow.

Wherever this evolution leads, you can be confident Glory will remain at the forefront.

If you would like to have a chat with our team about Glory's full spectrum of cash automation and insights solutions, get in touch at:

info@us.glory-global.com