



The Role of the ATM in the future move towards a Cashless Society.

Introduction

This document has been prepared to provide discussion, and motivation, for considered debate on the future role of the ATM under the increasing threat of moves towards a cashless society.

The following sections provide information to support the increased role of the ATM, and the proven infrastructure surrounding ATM. Financial Institutes should embrace the discussion and ensure continued involvement in the secure introduction of such technology, if it should prove to be an effective, and acceptable, means of transaction for customers.

The future of cash machines in a cashless society

When considering the future of cash machines in a cashless society, one must first establish the drivers, and timescales of moving towards a cashless society. There are clear drivers towards a cashless society based upon the "cost of cash" including note and coin production, distribution, collection, and quality checking for counterfeit and note degradation. It has been confirmed by the European Payments Council that the annual cost of the Euro is €50m, of which 60% is the cost of recycling cash (both collection and distribution), providing a clear driver for reducing costs and moving towards a "cashless" society.

Cash provides a government backed means of tender, which is globally accepted, convenient, instantly recognisable as value, tactile, and provides anonymity for the end user. Additionally there are a relatively high number of unbanked, or underage people who can only use cash, this is particularly noticeable with the new European members of the EU, and neighbouring countries (North Africa, Russia, Turkey and the Baltic states).

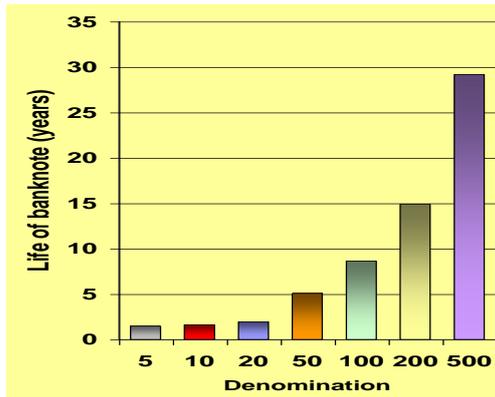
Cash however also carries the problems associated with anonymity, such as tax evasion, supporting the black economy, and as a non audited support mechanism for criminal and terrorist activity. For the issuers of cash it is costly, and carries the increased risk of always being a criminal target.

ECB, Federal Reserve, and Bank of England statistics clearly show a year on year increase in the cash in circulation, which is contrary to the general predictions that other payment forms would erode the use of cash, and demonstrates the consumer confidence in cash. The information available would indicate that a true "cashless" society is some way off, and that this will only occur as a result of cash erosion by more convenient methods of purchase, or a highly improbable cash catastrophe on a global scale.

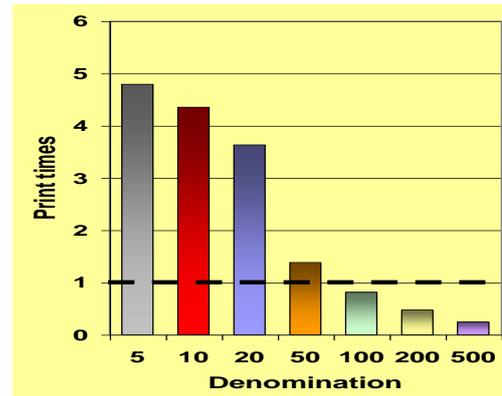
Key Challenges facing ATM machines

One of the major drivers towards a cashless society is the cost of cash in circulation. ECB information has confirmed that the overall cost of cash is approximately €50billion, and on average, notes are re-circulated back to National Central Banks 3.5 times per year with an average note life of 2.5 years. The typical information regarding € notes life expectancy and anticipated print cycle is given below.

Life of euro banknotes



Number of print times during life of series (7 years)



Currently the cost of issuing cash is 50% lower than the cost of collecting and recycling cash. This is primarily due to the efficiency of the ATM in dispensing cash, compared with the current methodology for collection of cash. Clearly the first major challenge to the ATM industry is to ensure that cash collection and recycling can be automated to the same level of efficiency as automated cash dispensing.

Automated cash deposit and ATM cash recycling machines exist, but have not reached a sufficient point of mass acceptance and production, in order to significantly impact unit costs. The most expensive component of the ATM cash recycling machine is the note counter and verifier which is designed to meet European legislation (Article 6 of EU Council Regulation), and it is recognised that in order to meet the regulations regarding note quality and authenticity checks, these modules are complex, and need to ensure compliance not only in terms of note quality and authenticity, but also to separate and with-hold suspect counterfeit notes for return to NCB's, together with account holder details.

The design of the note counter needs to have design flexibility to enable the introduction of new designed notes, and the challenges of improved counterfeit techniques, thus taking account of technology/software upgrading.

The industry needs to address the end to end solution of reducing the cost of cash collection, counting and distribution. This is not by just addressing the CIT contract costs, and reducing the "cost per call", but by an open debate and an end to end assessment of cash flows and technology requirements. This can be achieved by reviewing cash flow in three discrete areas :-

- **Coinage and low value notes (e.g. €5 and £5)**
In general the lower the transaction value, the more the reliance on cash notes and coinage because it is cheap, reliable, tangible, and value is instantly recognised. Replacing this will need customer trust, and an equally efficient method of transaction speed, without any increase in cost to a consumer. The technology has been shown to be effective with touch-and-go mass transit systems, but top up security, and cost of low transaction services, will need to be addressed if this is to be accepted as a replacement for cash. The ATM is a trusted environment and banks provide the audit and regulation requirements for fund transfer for card top up and fund transfers (RFID or e-purse).
- **Mid range high usage notes (e.g. €10, €20, €50, €100 and £10, £20)**
The tables below provide information on the major notes in circulation for both UK and Eurozone (similar information patterns have been noted for the US \$)

EUROZONE

UNITED KINGDOM

<ol style="list-style-type: none">1. 10Bn Euro notes in circulation2. Value in Excess of €550 billion3. 25% increase in 5 years4. 7 denominations 12 NCB's5. Notes in circulation<ol style="list-style-type: none">a. €5 1%b. €10 8%c. €20 20%d. €50 50%e. €100 18%f. €200 2%g. €500 1% <p>Mid range notes represent 96% of notes in circulation</p>	<ol style="list-style-type: none">1. 2Bn GBP notes in circulation2. Value >£35billion3. 25% increase over 5 years4. Notes in circulation<ol style="list-style-type: none">a. £5 11%b. £10 30%c. £20 53%d. £50 6% <p>Mid range notes represent 83% of notes in circulation</p>
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As can be noted from the above table, the mid range notes in circulation are those predominately issued by ATM's, and it is also confirmed that they also represent the majority of cash deposited by retailers and small/medium business enterprises.

By analysing geographic distribution of cash deposits, and cash dispensing, a business case becomes evident for the introduction of regional and for the ATM, automated local cash recycling with the ATM advantages of :-

1. Reduction in ATM Cash fill requirements
2. Immediate interest on customer deposits
3. Withdrawal of suspect notes and poor quality notes before bank acceptance
4. Reduction in Teller cost
5. Better utilisation of Bank staff
6. Improved speed of deposit and account credit for customer
7. Reduction in CIT risk (less calls)
8. Reduction in Cost of Cash recycling through NCB's
9. 24 x 7 automated deposit (improved customer convenience)

- **High value denomination (e.g. ,€200, €500 and £50)**

The high value notes tend to be withdrawn/deposited directly from a branch bank , and as previously established above represent a minority of notes in circulation. However it has been noted by the ECB that €500 notes in circulation represent approximately 30% of the total value of notes in circulation.

If the number of low value notes in circulation is reduced by the introduction of e-purse/touch-and-go, and mid range notes are recycled at point of deposit, then cash movement can be significantly reduced. Cash movement can now be based upon regional recycling at local cash centres, the redistribution of cash from cash positive, to cash negative areas, and the removal to NCB's of poor quality/suspect notes.

Understanding how more than just cash needs to be offered

It is clear that technology currently exists which would enable e-payments to be made efficiently and cheaply. Touch-and-Go systems for payment are already used at a number of major mass transit locations, with experiments to expand this to other retail locations. Additionally chip e-purse technology has been introduced with varying degrees of success. E-purse technology has faltered due to the "time to buy" at a point of sale compared to time to pay using cash, and as confirmed by the retail sector, cash is still the fastest payment method. Additionally for transaction values below typically €15, cash is still cheaper than the cost of touch-and-go. The convenience of cash for low value transactions, without

increasing the consumer cost, must be achieved using e-payments if cash is to be displaced. Consequently both the technology and method of top up need to be introduced within a **secure** environment, which the ATM currently provides. The infrastructure surrounding an ATM, technology acceptance, network security, account audit, customer accounts, and proven customer confidence, are all established and therefore provide the potential solution to introducing a mass low value top-up/e-payment technology.

If the Financial Institutions and ATM manufacturers do not move quickly to provide this service other retail/commercial sectors will move in. If banks offer improved efficiency and economy for the low transaction value payments, the higher value payments, and automated deposit, then banks will expand their customer contact, profiling, and increased transaction revenue.

Analysis of the mid range notes confirms that they are the majority of notes in circulation, both in terms of cash dispensed and cash deposited, and therefore represent the ideal function for “recycling” at ATM level. The business case for installing recycling ATM’s will be dictated by regional cash positive and cash negative analysis, which could be used in conjunction with latest “predictive” software systems that provide cash flow predictions including cash in/cash out at both ATM and the Branch.

Learning about the latest developments in ATM technology and use

ATM manufacturers continue to invest in Market research and product development, which has led to new multifunction ATM's being available. There is a range of ATM technologies from the key global manufacturers (Diebold, NCR, Wincor) that enable the following functions to be performed

- Cash Dispensing
- Bulk Cash Deposit
- Cash Deposit recycling
- Cheque deposit & cashing
- Phone Top up
- Utility Bill Payment
- Receipt & voucher printing
- PIN Change
- Payments & Transfers
- Advertising and discount vouchers

Many of the above are subject to the capabilities of the switching network, and therefore progress in terms of multi-functionality will require investment and development in conjunction with the network provider.

Multi function cards are on trial, and it is now evident that all the component parts of technology are available for a cashless society. Implementation costs and statutory regulation will remain a challenge for pan European/US switching networks and transaction processors.



The above show the latest multifunctional through-the wall ATM's from the leading manufacturers.

Additional areas for consideration by the Financial Sector are the decisions to either use a single multifunction ATM, or a number of different “focussed” function ATM’s, providing separate functions such as “Cash and Dash”, Drop and Deposit”, and non cash functions. The branch strategy for Self Service is therefore also a key factor impacting ATM design and production. A strategy decision by the financial industry at large, would ensure that manufacturers’ research, development and production investments can be effectively focussed in order to reduce product lines and manufacture costs.

Key drivers and inhibitors to a cashless society

The move towards a “Cashless” society and the impact on the ATM is complex both in terms of the geographical acceptance, and technology impacts of commercial competition. The level of infrastructure investment and education for banks, retailers and customers will make this prohibitive for many third world countries.

By primarily reviewing the impact from the leading “developed” world (Europe & USA), it is noted that the cost of cash in circulation and the surrounding business efficiency factors are key drivers for e-cash.

An essential requirement for a cashless society will be the introduction of a convenient “multi-function” card providing contactless touch-and-go for low value transactions, together with debit Chip & PIN for higher value transactions, this new technology card would then be the catalyst for a move towards reducing cash in circulation.

The second key driver will be the investment and roll out of secure technology to enable convenient top-up charging, and use of the “multi-function” card.

As a cautionary note, by adding value to a card, the eyes of the criminal world will become sharply focussed on establishing and exploiting weaknesses in the technology. The potential security issues support the view that for any new card technology advancement, should be introduced in conjunction with the Financial industry who have experience and understanding of the necessary controls, monitoring, and audit for transaction processing security.

International criminal organisations target three main regions, UK, Europe, and the USA, as the currency is international. By introducing cashless e-currency then international criminal targeting can be concentrated on one main technology across all borders.

It is therefore paramount that the introduction of cashless technology is based on an international risk assessment, and is not driven solely by a technology competition.

The commercial sector tends to move faster to embrace technology than other sectors. Perhaps within the ATM environment, the “independent” ATM deployer may be more inclined to adopt a new business model for increasing transaction flow by introducing card -top-up for low value transactions.

The main inhibitors to introducing a cashless concept that would be globally accepted will be the challenges of converting a technology innovation into a secure customer accepted reality, and providing end to end risk assessment.