

## **CHEQUES – STILL RIDING THE TECHNOLOGY WAVE**

*A diary of an ancient payment instrument that has benefited from the best of man's ingenuity and innovation*

A 350 year old handwritten note, instructing an early bank to pay a sum of money to the bearer, is now a celebrated curiosity. It has been the catalyst for developments leading to the mammoth cheque clearing system that serves the banking community today. On the way, quite a number of crafts, scientific, engineering and computing principles have been adopted, in order to reach its level of automation. The British banking system has been faced with solving physical efficiency and cost efficiency and has embraced specialist developments in order to keep pace and deliver processing and collection within stringent clearing times.

To create a regulated method for financial exchange, in 1717 the Bank of England issued a format for printing payment instructions on 'cheque' paper. At the time, paper was derived from pulverised rags and its interaction with ink was inferior, until craftsmanship gradually improved its surface. The Bank of England had printed bank-notes from its creation in 1694, incorporating simple watermarks from at least 1697 to discourage forgery. Cheques continued to bear devices such as watermarking, embossing and eventually holograms - all precursors to technology used in today's secure cheque printing industry.

Early cheques had scrollwork printed along the left-hand edge so that when a cheque was issued part of the design remained as the equivalent of the counterfoil. Checking authenticity in this way is one interpretation of how the cheque got its name. In 1762, Lawrence Childs had the idea of printed cheques with serial numbers, to allow bank staff to keep track of them. This was the first step towards recording details which have progressed to today's codeline, including details of the originating bank, account holder and type of payment.

As cheque numbers increased, innovative methods emerged to exchange the paper instructions and collect the value. This remains the guiding principle behind the Clearings. Eighteenth century bank clerks did the rounds of banks until daily cheque clearings were formalised in 1770. Settlement across accounts held at the Bank of England, using cheques instead of cash, was first introduced in 1854. Labour intensive methods to calculate and collect cheque values prevailed until new technologies became available.

In the early 1960s, the E-13B and CMC-7 fonts were patented. Their designs were fitting for an era taken up with space travel and revolutionary materials and processes that were its offshoot. Magnetic printing, incorporating iron oxide, was developed and characters could be reliably deciphered and recorded using a MICR read head, a device similar to the playback head in an audio tape recorder. MICR toner and laser printing developed and by 1991 it could replace off-set printing, being capable of reproducing complex and secure computed images.

The ability to store and transfer cheque data kept pace with the evolution of computer technology. Magnetic tape drives had replaced punch card technology by 1964. High speed reader sorters were introduced, enabling the rapid processing of large volumes of cheques. The data was used to update customer accounts held on large mainframes in newly emerging bank computer centres. Spreadsheet programmes by the mid 1980s allowed sophisticated computer encoding to automate financial reconciliation processes.

The clearing house had been in Lombard Street since 1833, with the clearing banks in close proximity. The development of electric vans simplified the carriage of increasing volumes of paper, exchanging out-clearings for in-clearings. Limited space meant a turntable was designed to manoeuvre the vans in and out. The clearing house moved to east London in 1994. The merger with the Scottish Clearings in 1996 saw the exchange of paper taking place at two locations. Efficient, secure transport logistics are essential to meet cheque clearing times - even more so, with the banks' Certainty of Fate commitment to its customers.

The Cheque & Credit Clearing Company was formed in 1985, formulating rules and standards, running exchange centres and later on responsible for cheque-specific interbank networks. Until the mid 1990s, keying the cheque value in magnetic ink took place at bank's encoding stations, supplementing the codeline details. The introduction of image technology reduced manual intervention, as interpretation engines captured the information directly onto databases. The initial high cost of new image technology led banks to pool resources. Decreasing cheque volumes and the attention turning to demands of electronic banking, saw clearing bank processes start to be outsourced.

In 1996, codeline and amount details of cheques started to be transmitted from the beneficiary's bank (the collecting bank) to the payer's bank (the paying bank) via a secure electronic network called Inter Bank Data Exchange (IBDE), allowing the data to be sent separately from the physical cheque. UK travellers cheques, euro cheques and the new postal orders expanded the scope and complexity to calculate the net settlement amounts.

Historically the cheque has kept pace with innovation and continues to adapt to new customer channels, such as paying-in and creating cheques to order through ATMs. Image capture is now inexpensive. Web technology provides remote access to data and image archives. Image exchange could significantly reduce costs and more importantly the carbon footprint for cheque collection in the UK. In whatever direction it moves, the cheque will undoubtedly continue to adopt leading-edge technology and rise to the challenges.

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