

Today's industrial processes are highly automated. Driven by the rapid evolution of electronic, digital, and computer technology, automation has taken off, especially over the past century. Now entire production lines are controlled automatically and many of the operations are performed by industrial robots.

Automation has also powered banknote processing for decades. The first automated systems – such as G&D's ISS300 – were introduced in the early 1970s. Here, as in countless other areas, automation offers indisputable benefits: transferring simple, repetitive, and/or sensitive tasks to machines improves not just quality and efficiency, but also security – a key benefit for cash handlers.

So far, however, most automation concepts mainly focus on the actual processing part: the counting, sorting, authentication, and fitness verification of banknotes – although these are just some of the numerous work processes to be performed at a cash center (see box). Besides processing there are six

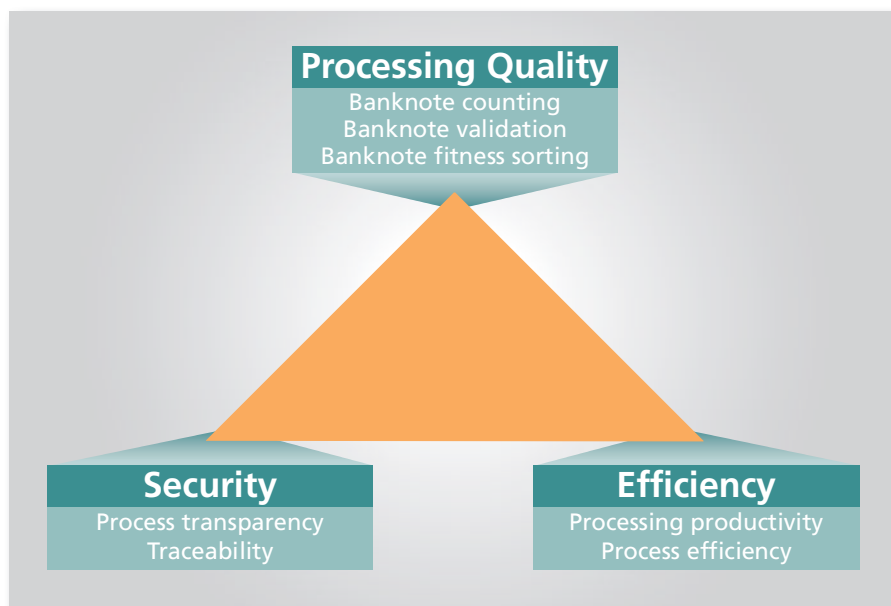


Figure 1: Key requirements for cash centers

other core areas that can benefit substantially from automation:

- Receiving/shipping
- Pre-processing
- Post-processing
- Destruction
- Warehouse
- Material handling

Each area comprises several processes, and with latest-stage technology

almost every process can be automated and integrated in an end-to-end solution. The possibilities are limitless as the specific design will depend on the needs and requirements

## Cash Centers

The cash cycle begins and ends with the central bank: from there, the cash is securely transported to commercial banks and major customers. Consumers receive the cash directly from the bank (ATM/bank teller) or as change at the point of sale. On the "return trip", most of the cash is securely transported from retailers to the central banks, either directly or via the commercial banks. The central bank controls the amount of currency in circulation by issuing and withdrawing coins and banknotes. It also replaces unfit banknotes with new series.

Cash centers are key stations in this cycle: this is where banknotes are counted, authenticated, checked for fitness (quality), and then sorted, bundled, and sent out again. They generally use banknote processing systems which verify the security features integrated in the paper or printing.

Cash centers can basically be operated by any of the providers involved in the cash cycle: central banks, commercial banks, or cash-in-transit companies (CITs). However, the CIT companies' scope of activity depends on the central bank's regulatory style (cf. ahead! no. 1).

It goes without saying that cash centers have to meet very high standards in terms of building and process security. In addition, they have to meet the special statutory requirements and central bank regulations that govern cash verification and sorting. Other requirements may depend on the operator: a commercial cash center (operated by a CIT company or a commercial bank) has to manage different customer accounts and post balances on the same day. Cash centers operated by central banks are allowed to destroy unfit banknotes in accordance with applicable security standards.