



Giesecke+Devrient

CASE STUDY

National Bank of Rwanda

Complete rollout of first fully automated vault in Africa

ncy Technology

How G+D managed to support the vision of the National Bank of Rwanda

Compass VMS®

Cash center management software that automates the procedures at the cash center, e.g. the management of cash safes and customer accounts, as well as the processing and accounting of deposits. Compass VMS is a scalable platform, which can be introduced step by step. An example is a module for the verification and accounting of deposits, including their preparation and reconciliation during the header card process. Plus: the customization layer provides the flexibility needed to meet individual customer requirements without having to change the core of the program.



BPS M7

The BPS M7 is at the core of G+D Currency Technology's "High-Speed World." It is the modular banknote processing system for central bank cash centers, where intelligent automation like the NotaTrac® system complements high-speed processing and integrates every single banknote into highly automated smart logistics.



BDS® systems

The G+D BDS portfolio offers highly secure and efficient solutions for the destruction of banknotes unfit for circulation. In Rwanda, the solution consists of a single-stage four-shaft cross-cut shredder with a throughput of 200 kg/h and a ventilation system leading to a silo/filter and a briquetting unit, including two presses with a capacity of 150 kg/h each. After loading the bundles, the destruction process is started. Banknotes are cut into shreds not bigger than 6x6 mm and transported to the silo/filter. Lastly, the shreds are briquetted for convenient removal. At the compacting unit, not only shreds from the shredder are briquetted – the shreds generated by two BPS M7 also end up here.

NotaPack®

The sophisticated security concept of NotaPack ensures full access control and transparency in the packaging process. The bundles produced by a BPS are packed in a tamper-proof shrink-wrap film, meeting the requirements for cost efficient packaging for both cash centers and banknote printers. The modular design and the compact module dimensions also ensure that it can be used where space is very limited.



Ambitious automation in Africa

Complete rollout of the first fully automated vault and vault management system in Rwanda: an optimization for more security and more efficiency

The National Bank of Rwanda has ambitious goals: to improve its current cash center with state-of-the-art technology in order to manage the actual space restraints as well as streamlining the ongoing processes while increasing security throughout the cash center. Therefore, in September 2016 the central bank launched an expression of interest for the supply and installation of a complete automatic vault management system.

Giesecke+Devrient FZE developed and submitted a comprehensive proposal that focused mainly on four major points: **optimization** of the existing vaults by maximizing the capacities and minimizing the building modifications; **increase** of the security of cash in vault by implementing order fulfillment and guaranteeing the **traceability** of the cash movements; **logistics re-design** and optimization of the cash movement inside the central bank as well as between the headquarter and its five branches. G+D offered one fully automated system with state-of-the-art technology. The solution was based on the G+D software systems Compass VMS® and Compass Logistic®. In cooperation with selected partners – the technology was developed and adapted according to customer specifications – the team finally presented an integrated solution that tripled the capacity for banknote storage, increased security by reducing human touches of cash, and increased the overall efficiency of the cash cycle.

“The National Bank of Rwanda has focused primarily on automation and security in the processing room,” says Ferenc



The NotaTracc trays allow for buffering of prepared banknotes and let the BPS run without manual loading.

By automating the entire process and using software to trace all steps, security risks are minimized

“With the implementation of a new cash center, we achieve nothing less than a 300% increase in inventory!”

Mr. Denis Habumugisha Dadou

Director of currency and banking operations, the National Bank of Rwanda

Szelenyi, Head of Region MEA. “Working closely with the central bank, we were able to identify various gaps in the entire cash center process that the National Bank of Rwanda wanted to fully automate. With the implementation of the solution, the reception, storage, processing, order preparation, and dispatch of the currency will be automated. By automating the entire process and using software to trace all steps, security risks are minimized,” adds Szelenyi.

The amount of banknotes the National Bank of Rwanda receives on a daily basis from commercial banks and CITs is increasing yearly. By investing in automation, thus increasing currency storage capacity and processing capabilities, the National Bank of Rwanda is preparing itself to cope with the ever-growing amount of cash in Rwanda for many years to come.

With the implementation of G+D Compass VMS software, the National Bank of Rwanda has the capability to trace every movement of cash within the cash cycle. Commercial banks will also benefit from the software as they will be able to send a currency deposit notification or a currency retrieval request to the central bank through a secured web portal. All information is captured, from the commercial bank delivery vehicle details to the number of bank-notes per denomination requested by a bank.

So could Rwanda be a blueprint for other countries in Africa? “Not only in Africa,” says Marco Casabella, Regional Sales Director MEA. “Cash is growing in Africa as elsewhere in the world so the challenges are quite similar: accompanying the growth of cash and keeping it attractive and competitive in terms of handling, security, and efficiency is crucial for central banks around the world.”

MANAGEMENT SUMMARY

Improve its current cash center with state-of-the-art technology in order to manage the actual space restraints, streamlining the ongoing processes and increasing security throughout the cash center: these were the main goals the National Bank of Rwanda expressed in September 2016 for the supply and installation of a complete automatic vault management system. Mission accomplished: In collaboration with selected partners, G+D optimized the existing vaults, implemented order fulfillment, guarantees the traceability of the cash movements and increased the security of cash in vault by a complete re-design of the cash logistics.

FULLY AUTOMATED CASH VAULT SOLUTION

Banknotes are stored in cash boxes in a fully automated storage system. The only touch point of the cash box by the operator is during the loading and picking of the cash box on a conveyor to the automated storage system. Beyond this point, the cash box will move into the fully automated vault without any human manipulation or access.

HOW does this process work? Cash boxes are simply stacked on top of each other in the vault. A moving robot on an aluminum grid retrieves them.

WHO manages all the movements? Compass VMS Logistics is aware of all locations and the contents of each cash box and manages the robot's movements accordingly.

WHY does vault automation add value? One of the automated cash vault's advantages is real-time inventory-management control, in addition to a phenomenal increase of storage capacity by over 250%.

Vault automation has allowed major improvement in health and safety in the work environment.

Full vault automation will not only lead to increased capacity and efficiency, a better work environment, and full lifetime control of inventory and order structures, it will also significantly enhance cash cycle management by saving operational costs and extending the lifetime of banknotes.

“The vision to automate operations is part of the bigger vision of the National Bank of Rwanda of becoming a world-class central bank, dealing with world-class products like this automated cash center”

Hon. John Rwangombwa
Governor of the National Bank of Rwanda

The National Bank of Rwanda has focused primarily on automation and security in the processing room



Creating Confidence

Giesecke+Devrient (G+D) is a global security technology group headquartered in Munich. As a partner to organizations with highest demands, G+D engineers trust and secures essential values with its solutions. The company's innovative technology protects physical and digital payments, the connectivity of people and machines, the identity of people and objects, as well as digital infrastructures and confidential data.

G+D was founded in 1852. In the fiscal year 2020, the company generated a turnover of 2.31 billion euros with around 11,500 employees. G+D is represented by 74 subsidiaries and joint ventures in 32 countries.



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on our website:
www.gi-de.com

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