



CURRENCY NEWS™

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Inside this edition

Germany Launches the National Cash Forum to Stabilise the Cash Cycle	1
IMBISA Secures First Euro Orders	2
Increase in Notes (and Coins) for US Federal Reserve	2
Authentix® and De La Rue Launch Robust Covert Banknote Authentication Solution	3
BSP Ups Orders for Polymer Notes	3
A Positive Picture for Cash Companies in 2023	4
News In Brief	5
Intaglio Platemaking for the Future from Jura and OEBS	6
Ancient and Modern – Using Kazakhstan’s Unique Cultural Heritage to Create Pioneering New Banknote Series	7
Counterfeit Corner	9
Sustainability – Essential to Banknote Design	10
Polymer’s Not the Problem. It’s the Green Choice	11
Getting Ready for the Future	12
Registered Threads – Predictable Placement Dynamics	12
Cash Recycling and Recirculation	13
Security Designers Forum – New Event for the Banknote Design Community	13
The Beauty of Concept Notes	14
Webinars for All Aspects of Cash	14
Koenig & Bauer and the Future of Banknotes	14
Note and Coin News	15
Ukraine Marks 2nd Anniversary of Invasion	15
Events	16



Germany Launches the National Cash Forum to Stabilise the Cash Cycle

The Bundesbank (BBk) has established a National Cash Forum to allow cash cycle stakeholders to exchange information on cash issues. The BBk wants the Forum to increase cooperation and pool interests for stakeholders in order to prepare initiatives to improve and stabilise the cash cycle. In itself, the creation of the Forum signals that the BBk and stakeholders support cash.

The first meeting, in mid-February, set up the framework for the work of the Forum. It is expected to meet twice a year, with a number of working groups focusing on specific technical issues concerning cash management. Stakeholders include associations representing the banking industry, retail trade and consumer protection, along with the CIT industry and vending machine operators.

Germany is the largest issuer of euro banknotes in the Eurosystem, reflecting both its size and its culture of cash usage. The BBk is concerned about both cash availability and cash acceptance in the future. The Forum will study efficiency, sustainability, security, digitalisation, emergency and crisis preparedness, and cross border cooperation.

‘Cash of the future’ review

The National Cash Forum has been created following a study commissioned by the BBk looking at cash as far out as 2037. The study outlines three different scenarios for paying with cash based on consideration of the social and economic environment that cash will be operating in by this time.

The study was carried out by VDI/VDE Innovation + Technik and the opinion research institute Sinus between February 2022 and November 2023, in which 93% of respondents indicated that they would prefer to decide for themselves whether to pay in cash or not.

The review identified a number of factors that could have an influence on the future development of cash.

IMBISA Secures First Euro Orders

Europe’s newest printworks, Spain’s Imprenta de Billetes SA (IMBISA), has been awarded a contract to produce all €10 banknotes destined for the Eurozone in 2024 – 424.2 million in total. It will also produce a portion of the €5 notes required next year.

IMBISA, which is owned 80% by Banco de Espana and 20% by Fábrica Nacional de Moneda y Timbre (FNMT), was formed in 2015 following changes to euro procurements rules. These now require central banks to either allocate their portion of euro production to printers in which they hold a majority stake or put this out to commercial tender (see CN November 2023).

Work began on the new printworks in early 2020, just as the pandemic got underway, and was completed early last year, with euro accreditation following shortly thereafter. This order for 2024, therefore, is IMBISA’s first.

The European Central Bank distributes the production of banknotes across all Eurozone national central banks (NCBs), reflecting each NCB’s contribution to the ECB’s capital. Banco de Espana ranks fourth after the NCBs of Germany, France and Italy in terms of their share in the ECB’s capital.

Efficiency and cost considerations dictate the allocation, ensuring that each entity periodically assumes responsibility for different denominations. And by avoiding the assignment of the same denomination to any central bank in consecutive years, the ECB is promoting a diverse and a balanced production responsibility across the Eurozone.

In previous years, Banco de Espana was involved in the production of the €50 notes in 2022 and 2023 and is set to contribute to the manufacture of €5 and €50 notes in 2025.

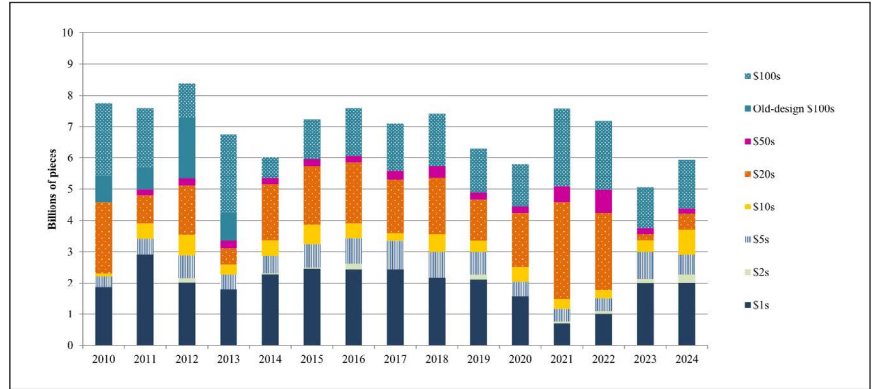
Production volumes for euro banknotes have fallen back to pre-pandemic levels – totalling 3.14 billion in 2023, 3.55 billion in 2024 and 3.42 billion in 2025. In 2022, the figure was over 6 billion, and just under 6 billion the previous two years.

2025	3.421 billion
2024	3.533 billion
2023	3.141 billion
2022	6.088 billion
2021	5.839 billion
2020	5.724 billion
2019	3.738 billion

Euro production volumes 2019-2025 (source: ECB).

Increase in Notes (and Coins) for US Federal Reserve

The Federal Reserve Board of Governors has confirmed the order for banknotes for 2024, which will be in the range of 5.3-6.9 billion notes, valued at \$180.5-204.4 billion.



Federal Reserve print orders – 2010-2024.

It has also changed the timing of print order for 2024, with a switch from a traditional order for the fiscal year that begins in October to one for the calendar year beginning January.

The reason, it says, ‘was driven by the benefits of an increased supply chain lead time and longer production planning horizons for the BEP’. It also mentioned that with the Treasury Department’s announced 2026 issue date for the Catalyst \$10, production of that note will start in 2025.

The final production figure for 2023 was 5.74 billion notes, versus an initial range of 4.5 billion to 8.6 billion notes. The Board, in conjunction with the BEP, says it will adjust production of each denomination within the stated ranges to best match available production with demand throughout the year.

The new order includes every denomination from \$1 to \$100. More than half of 2024’s production will be for \$1 notes and \$100 notes.

The order reflects an estimate of net demand from domestic and

international customers and is based on factors such as forecasted currency inventory volumes, destruction rates of unfit notes, and trends in net payments. The main focus of the order is the need to replace unfit notes destroyed during normal processing.

Paper currency in circulation increased by 0.8 billion notes or \$58.5 billion between July 2022 and July 2023. During the same period the previous year, it also increased by 0.8 billion notes, but for \$86.8 billion. While notes in circulation continue to increase, the rate at which it is increasing is below pre-pandemic levels.

Separately, the US Mint in its Annual Report for 2023 has stated that its total estimated budgetary requirements for operations, metal, and capital investments are \$4.7 billion, which will support the production of 14.4 billion circulating coins, as well as bullion coins and other numismatic products sufficient to meet customer demand. It produced 11.38 billion circulating coins in 2023.

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Authentix® and De La Rue Launch Robust Covert Banknote Authentication Solution

Authentix, provider of taggants and high-speed sensors for central banks, and De La Rue, a leading provider of banknotes, security features and polymer banknote substrate, have announced a partnership to deliver ASSURE™, a specialist covert taggant embedded into the core of polymer banknotes, and high-speed sensors tailored for its secure central-bank-only detection.



Left to right: Ruth Euling (Managing Director, Currency, De La Rue), Tim Driscoll (CTO, Authentix) and Heath Thomas (Innovation Director, Currency, De La Rue).

Before ASSURE, polymer banknote covert security features were limited to being 'on' the substrate (eg. printed features). By incorporating ASSURE into the core of De La Rue's SAFEGUARD® substrate, the durability of polymer banknotes and the embedded nature of ASSURE combine to create the most robust type of covert authentication solution available, say the two companies. Unlike alternative level 3 solutions, ASSURE is part of the substrate for polymer that is proven in circulation. It will form part of the banknote until the very end of its lifetime.

Covert (also known as level 3) authentication solutions provide an essential last line of defence for issuing authorities facing state-sponsored or significant counterfeit attacks. These level 3 security features can only be detected by issuing authorities using specialist sensors that are uniquely tailored specifically to detect the level 3 feature it is paired with. No equipment in the normal cash cycle can detect a covert feature, so criminals have no way of knowing if a banknote contains a covert feature or not (or details of said feature).

In the rare event that a banknote is counterfeited to a good level, the presence of a level 3 feature allows the issuing authority to easily distinguish counterfeits from the genuine banknotes.

'ASSURE is a special variant of our established JEWEL™ level 3 offering. It has been optimised for incorporation into the

core of polymer banknote substrate with its own unique signal', said Tim Driscoll, CTO of Authentix.

'ASSURE is leveraging the capabilities of the JEWEL feature which has been issued in over 30 banknote denominations,' he continued. 'Similarly, ASSURE sensors are special variants of JEWEL sensors, which have also been extensively proven. De La Rue has a significant amount of design and polymer banknote expertise and we're delighted to partner with them to jointly provide this ground-breaking new solution.'

The JEWEL sensors can be configured to simultaneously detect both ASSURE and JEWEL signatures. This capability will be beneficial for central banks that issue polymer and paper banknotes carrying both features and will allow them to distinguish between the different denominations.

'Authentix has an abundance of experience providing level 3 authentication technologies and high-speed sensors to issuing authorities around the world', noted Heath Thomas, Innovation Director Currency, De La Rue. 'They are an ideal partner to provide the ASSURE taggant and ensure issuing authorities are in good hands as they install, run and maintain sensors that can uniquely detect ASSURE. We are incredibly pleased to be working with Authentix to offer ASSURE to issuing authorities who need the most robust covert security solution available.'

BSP Ups Orders for Polymer Notes

Bangko Sentral ng Pilipinas (BSP) will be circulating an additional 1 billion P1,000 polymer banknotes in 2024, double the amount previously ordered in 2021 for the circulation trial of the polymer versus the paper version.

According to BSP Deputy Governor Mamerto E Tangonan, as BSP currently doesn't have the capacity to produce the banknotes at its Quezon City printworks, they are continuing to be outsourced to Note Printing Australia, which is both 'more manageable and less expensive'.

The BSP paid P3.7 billion (US\$65.8 million) to produce, supply and deliver 500 million P1,000 polymer banknotes from 2021 to 2023.

The pilot of the polymer notes began with an initial release of 10 million notes in 2021. The BSP has developed a polymer evaluation framework to assess if its reported benefits are true. This framework covers carbon footprint analysis (lifecycle analysis), microbial contamination analysis, perception surveys and sentiment analysis, and banknote lifespan analysis.

The review will conclude in 2025 but, said the Deputy Governor, initial findings are enough to convince them to order the extra 1 billion banknotes to circulate over the next two years.

Preliminary results of the study have shown that the use of polymer is hygienic and sustainable, with 40% lower greenhouse gas emissions than paper. The review of their durability is still ongoing.

In a 2022 Senate hearing on polymer and currencies, BSP officials said the Bank could save up to P2.4 billion in costs given the longer lifespan of polymer banknotes, and hence lower replacement costs and higher savings in production. Based on the data so far of the withdrawals of the polymer banknote by banks, lifespan assumptions range from 2.5 to 4 times those of paper notes, resulting in estimated savings in the P1.2-2.4 billion range.

BSP is also planning to switch other denominations to polymer in the future, such as the P500 and P100 notes.

A Positive Picture for Cash Companies in 2023

Each February and March we cover the previous year's results for the leading companies in cash management, most of whose financial years run from January to December. Between them these results provide a useful means of taking the pulse of our industry.

While 2020 was a pretty dismal picture all round, 2021 saw a rebound. This continued into 2022 and again, we are glad to report, for 2023, when all the companies reported positive results.

This month we cover Crane NXT, Loomis, NCR Atleos and Diebold Nixdorf. Next month will be the turn of Brinks, Orell Füssli, Prosegur and Spectra Systems.

Crane NXT goes at alone

Crane NXT, formally Crane Holdings Co, completed its separation from Crane Company on a tax-free distribution of Crane shares to Crane NXT stockholders last April. The full year accounts for 2023 announced by Crane NXT this month are the first from the new company.

For the full year to 31 December 2023, Crane NXT reported a sales increase of 3.8% to \$1.39 billion. Core sales growth, allowing for negative foreign exchange of \$6.1 million, was \$57.5 million. Full year operating profit of \$286.8 million, however, was 4.8% below that in 2022. But, adjusted operating profit at \$345.2 million was \$1.7 million ahead of FY2022. The operating profit margin was 1.9% lower in 2023 at 20.6% compared with 22.5% in 2022; the adjusted operating profit margin was 1.8% lower at 24.8% (2022 = 25.6%).

Adjusted free cash flow of \$265.8 million was 7% lower, due to costs associated with the separation as well as higher capital expenditures to support the US currency redesign programme and other projects.

Crane NXT has two segments – Crane Currency and Crane Payment Innovations (CPI).

Crane Currency sales in 2023, of \$504.9 million, accounted for 36.3% of the company's total sales, and were 8.4% higher than in 2022. Its operating profit of \$116.3 million was marginally lower than the \$117.3 million achieved in 2022 and accounted for 32.6% of Crane NXT's profit (excluding corporate). At the end of December, Crane Currency's backlog was \$243.0 million (52.85% of the total) compared with \$192.7 million on 31 December 2022.

CPI sales in 2023 of \$886.4 million accounted for 63.7% of total revenue,

compared with \$874.3 million, 65.25%, in 2022. CPI's operating profit of \$242.8 million was \$25.7 million above the previous year and accounted for \$67.6% of Crane NXT's operating profits (excluding corporate). Its backlog on 31 December 2023, was \$216.8 million, 47.15% of the total, compared with \$372.9 at the end of the previous year (65.93% of the total).

Crane NXT's sales are expected to grow between -1% and +2% in 2024, based on Crane Currency sales growth of 2-3% and Crane Payment innovations of -3% to +2%. The segment margin is indicated at 27-29%.

Another record year for Loomis

Revenue for 2023 for Loomis was SEK 28.7 billion, up 13.4% from 2022. Revenues increased across all business lines. Of the total revenue, real growth was 9% (2022 = 15.9%), of which organic growth was 7.8% (2022 = 14.4%). Acquisitions contributed 1.2% of the total growth.

These acquisitions included Cima, an Italian developer of automated cash handling devices, AIB Express Logistics, a US-based third-party shipping provider of valuables, and the remaining shares of MMPocket Holding, a Spanish-based fintech company with an e-money license.

Operating income (EBITA) of SEK 3.07 billion was 12.5% higher than in 2022, with the operating margin at 10.7% compared with 10.8% in 2022. Exchange rates affected operating income by approximately SEK 120 million. Operating income EBIT was 8.96% higher at SEK 2.76 billion. However, financial expenses increased from SEK 351 million to SEK 664 million in 2023 and were mainly responsible for net income falling from SEK 1.6 million in 2022 to SEK 1.49 million in 2023.

CIT accounted for 37% of revenues, ATMs 21.5%, CMS (cash management services) 19%, Safepoint 15%, international business 6% and Loomis FXGS (the foreign exchange and gold services subsidiary formerly known as CPOR), Loomis Pay and others 2%.

NCR Atleos finds its feet

NCR Atleos Corporation was established last Autumn, when it completed its

separation from NCR corporation (see CN October 2023).

Revenue for 2023 of \$4.19 billion was \$60 million higher than in 2022. Income from operations of \$271 million was very close to that of the previous year (2022 = \$269 million).

Income as a percentage of revenue was 6.5% both years. Pre-tax income of \$113 million was \$44 million below the previous year. Income taxes of \$241 million compared with \$50 million in 2022 resulted in a net loss of \$128 million compared with a profit of \$107 million in 2022.

The company stated that the full year financial targets for 2024 remained consistent with the projections given on separation from NCR, ie. revenues of \$4.2-4.4 billion and an adjusted EBITDA of \$770-800 million.

Diebold Nixdorf bounces back

Diebold Nixdorf officially emerged from financial restructuring (Chapter 11 bankruptcy) and listed its new shares on the New York Stock Exchange in August. Comparisons between 2022 and 2023 are consequently affected by this. It is useful, therefore, to first compare the company's performance in each year's final quarter and using non-GAAP results (which are a better reflection of actual performance).

The company's revenue in Q4 2023 was \$1.038 billion, up 7.6% from Q4 2022. Operating profit in Q4 2023 of was 50.5% higher, resulting in a margin of 12.5%. Adjusted EBITDA in Q4 2023 was 38.2% higher at \$143.6 million.

Results in Q4 by business segment and business line provide further insight into the restructured organisation's performance. In Q4 Banking revenue increased by 8.6% (Services 0.8% and Products 19.1%). In Retail, revenue increased by 3% (Services at 12% was offset by a drop in Products of 5.7%). The results by business line in both segments saw Services increase by 3.7% and Products by 11%.

In the full year 2023 Diebold's revenue of \$3.76 billion exceeded that of 2022 by 8.7%. Of note is that 60,650 ATMs were sold in 2023 compared with 49,106 in 2022, a growth of 23.5%. Banking revenue in 2023 was \$105 million higher at \$2.668 billion. Retail revenue increased by 5.2% to \$1.09 billion.

The company's operating profit (non-GAAP) in 2023 was \$344.6 million (9.2% of sales) compared with \$197.5 million (5.75% of sales) in 2022, an increase of 74.5%.

The outlook for 2024 is low single-digit growth and an adjusted EBITDA of \$410-435 million (2023 = \$401 million).

News In Brief

■ The Scent of Money

As part of the recent Chinese New Year festivities, DBS Bank of Singapore has launched HUAT Eau De Parfum, a limited edition fragrance inspired by the crisp scent of fresh banknotes, designed to spread 'HUAT' or good fortune and prosperity during the new year.

DBS said it would be giving away 2,500 bottles of the perfume to complement its QR Ang Bao gifting option, which has been growing in popularity among customers as they embrace and adopt digital festive gifting.

This year's QR Ang Bao has been refreshed to feature a slot-in design that is reminiscent of the traditional Ang Bao opening ritual. Customers can further elevate the gift by adding a spritz of HUAT Eau De Parfum to it.

The idea was inspired by feedback from some customers who cited the absence of the scent of money as a reason for not switching to digital gifting.

'By adding a layer of sensory delight to the QR Ang Bao gifting experience, we hope to be able to spread more joy and 'huat' to our customers and their loved ones this Chinese New Year, said the bank.



■ Logistics Secured for New French Printworks

Banque de France has appointed the Alstef Group to supply the process automation system at its printworks and logistics centre in Vic-Le-Comte, which is currently under construction.

The system will include a high-bay warehouse served by four stacker cranes within an automated 'greenhouse'. Flow management will be handled by a fleet of automated guided vehicles (AGVs) and/or autonomous mobile robots. It will be managed by Opal, Alstef's integrated end-to-end intralogistics software suite, for control and visualisation of all equipment and logistics operations within the site.

The Vic-le-Comte site already houses a paper mill, and its expansion is intended to create a global banknote production hub at the 'cutting edge of technological

innovation'. Commissioning of the new facility is due to take place in 2026.

This is the second project that Astlef has worked on for the Banque de France. In 2017 it designed and implemented the logistics system at the Bank's new automated cash centre in La Courneuve, just outside Paris, where over 1 billion banknotes are checked and stored every year.

■ GLORY Consolidates Cash Tech Companies

GLORY Ltd has announced the merger of three of its Japanese subsidiaries – the software company GLORY System Create and the two hardware companies, GLORY AZ System and GLORY Mechatronics. The latter will become the sole surviving company and will change its trade name as of 1 April 2024 to GLORY Technical Solutions.

GLORY specialises in cash handling machines and systems, vending machines, and automated service equipment. The purpose of the merger, it says, is to improve development efficiency, system solution capabilities, and cost competitiveness by consolidating management resources, eliminating duplicated work, and facilitating effective use of resources of the company's domestic subsidiaries.

The merger does not affect GLORY Global Solutions, which is the international sales and service arm of the company.

■ Award for Philippines Coin Deposit Programme

Bangko Sentral ng Pilipinas (BSP) has been given a Silver Anvil Award from the Public Relations Society of the Philippines (PRSP) for its 'Bawat Barya Mahalaga: Coin Deposit Machine Communication Campaign'.

The PRSP Silver Anvil Awards honour public relations work that inspires action, shifts perspective, and champions positivity. The BSP campaign was cited as an effective program to communicate products and services in the technology space to external audiences.

BSP has deployed coin deposit machines, or CoDMs, in partner retail establishments across the Greater Manila area to encourage the public to deposit their idle coins and to promote efficient coin recirculation in the country. Since the launch of the programme in June 2023, the number of coins received via the CoDMs and processed as of the middle of February 2024 had passed the 145.5 million mark.

Banknote Goes for Gold

In an interesting departure for Royal Joh Enschedé, the former banknote printer now owned by Authentix, it has produced a banknote-styled collectors piece containing several unique features on behalf of The Global Note Company, to honour the Dutch football legend Dennis Bergkamp.

The note celebrates the goal scored by Bergkamp during the Netherlands match against Argentina in the 1998 World Cup. The unique golden laced banknote styled collectible, offered in a limited edition, contains many unique features including 23 carat gold and microtext.

Although not legal tender, it carries most of the security features and printing techniques used in banknotes. It also delivers augmented reality through a QR code which, when scanned, links to a virtual experience where Dennis takes viewers on his personal football journey, sharing his stories and experiences from his time as a footballer.

The note comes with a digital twin, enabling the owner to 'mint' the note in their digital wallet through the Ciphers.me platform. By owning the digital counterpart in the metaverse, says Enschedé, noteholders build their collections and trade with others.



■ Brinks Expands into ATMs

Cash management services provider Brinks has acquired PAI, the largest privately-owned ATM service provider in the US, for \$213 million.

PAI's revenue is anticipated to reach about \$320 million, with an adjusted EBITDA of roughly \$30 million. The company is expected to add \$240 million of revenue and \$22 million of adjusted EBITDA this year.

Newly headquartered in Dallas, PAI was founded in 1983, has a workforce of 225 people and a dozen field offices, and handles over 100,000 ATMs.

Brink's said the acquisition is in line with its Strategy 2.3, which includes extending ATM solutions integrated with the company's other tools to offer end-to-end cash management.

... Germany Launches the National Cash Forum

The three scenarios for paying with cash in 2037 were titled:

- The Hyper-Digital Payment World, a very digitised world in which cash has almost disappeared from most people's everyday lives, there are only a few bank branches or ATMs, and it is no longer possible to withdraw money at the checkout, as it is hardly possible to pay cash in retail.
- The Payment World in the Cash Renaissance, a partial return to cash and its advantages. Cash usage initially declined in this scenario but stabilised in the 2030s.
- The Disappearing Hybrid Payment World, an environment in which the use of cash is very much dependent on people's living conditions. In retail, customers are encouraged to make cashless payments. Access to cash is steadily deteriorating and cash use declines.

While cash does not disappear completely, in all but one scenario access to cash and acceptance would not be fully guaranteed. This would mean that freedom of choice would be virtually non-existent and the stabilising function of cash in times of crisis would be jeopardised.

The study shows that the preservation and widespread use of cash cannot be taken for granted, and all actors in the cash cycle and politicians must act to meet this desire for freedom of choice in payment transactions. Hence the National Cash Forum.

Germany is the latest country where the central bank is leading, or playing a leading role, in initiatives to bring stakeholders together and secure the future of cash.

The Netherlands, for example, has a National Forum on the Payment System and cash stakeholders have worked with the Dutch National Bank to create a Cash Covenant.

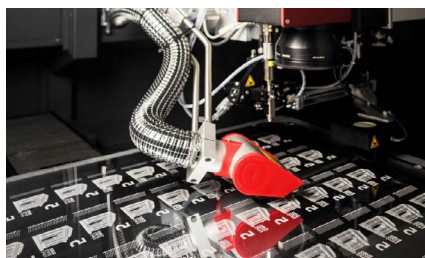
The Austrian National Bank, OeNB, has joined forces with the Austrian Mint, consumer organisations, employee representatives, the Senior Citizens Council and the Association of Municipalities to promote cash via the EuroCash 360° Platform.

The UK, meanwhile, organised a Cash Access Review which has led to legislation and steps to safeguard access to cash.

Intaglio Platemaking for the Future from Jura and OeBS

There is a well-known saying that 'Rome wasn't built in a day', which could well be applied to the cooperative project between Jura (the developer of security prepress systems including software and hardware solutions) and OeBS (the Austrian banknote printer) to develop direct engraved steel (S-DLE) intaglio printing plates, thus eliminating the use of an environmentally dangerous process and materials.

The initial development, which began in 2005, involved Direct Laser Engraving (DLE®) to create copper alloy printing plates. But their durability, measured in prints per plate, failed to impress printers. This led Jura and OeBS to cooperate in a programme that would eventually achieve the goal of environmentally friendly plate engraving with industry acceptable durability, an achievement that has led to a significant improvement in the banknote printing process.



Jura and OeBS developed software and hardware to cover the whole intaglio plate making process and which was suitable for all plate materials, including stainless steel and copper alloy. The new S-DLE method was both laboratory and print tested over a period spanning many years.

Initially a mini Orloff machine was used successfully, so tests were scaled up to a Super Orloff. These tests also resulted in a successful outcome with no visible plate wear after 600,000 sheets, the printing machine running normally with good inking, wiping and usage in general.

Notably, the S-DLE plates were coated using the PVD (Physical Vapour Deposition) process. PVD is a technique used to deposit thin films of one atom or molecule at a time onto a surface, in this case metal, to create a hard durable coating.

PVD coating is an environmentally friendly replacement for conventional electroplated chrome technology. Unlike electroplating, it is a dry process that does not produce hexavalent chromium (chromium VI), which is a carcinogen formed during classic chrome plating, and which poses high health risks for employees as well as far-reaching environmental hazards. Chromium is therefore subject to very strict regulations. (In the EU, Cr(VI) is covered

by the REACH regulation and in the USA, it is strictly regulated by the federal OSHA agency).

The S-DLE and PVD technologies employed by Jura/OeBS involve the environmentally friendly use of resources and the avoidance of toxic waste materials.

OeBS's first full production trial, which took place in 2022 using only steel plates, achieved 830,000 sheets per plate.

The development achieved two goals. First, the new material and printing process meet the highest expectations of intaglio printing. Second, Jura's chemical free, steel intaglio platemaking process is a sustainable and environmentally friendly process.

The DLE technique provides full 3D control over the engraving process including asymmetric line-proofing, multi-level engraving, and precise control of fine line microtext. The calibration and checks are fully automated, including measuring the plate thickness, laser power, focus, and field correction. There are four types of engravings – Laura, Hatching, Dithering, and Vector Hatching, the latter creating lines like the traditional burin-like engraving. The objective is to get as close as possible to traditional hand engraving.

During the DLE development three types of laser were used, starting in 2005 with a nano laser, then from 2013 a pico laser, culminating from 2019 with the femto-second laser. This uses ultra-short laser pulses, allowing engraving in different materials. The femto is now the laser of choice.

DLE plates, whether in brass or steel, can be used to print directly or they can be used as master plates, and by electroforming create nickel printing plates. All sizes of plates are possible, from single original proof size to Super Orloff intaglio.

Jura reported late last year that it has on order several platemaking systems, either as replacements or upgrades. Some of them have been installed already, one of which is being used successfully in euro banknote production. Some of the systems will adopt the PVD coating capability.

Ancient and Modern – Using Kazakhstan’s Unique Cultural Heritage to Create Pioneering New Banknote Series

Last November, the National Bank of Kazakhstan (NBK) issued a commemorative 10,000 tenge banknote to celebrate the 30th anniversary of the national currency, followed in December by the issue of the first banknote in a new note series, the 5,000 tenge.



Sanzhar Nurkassimov, Chief Designer (left) and Arman Adibayev, Director Cash Department (right), National Bank of Kazakhstan.

The NBK and its printworks, the Banknote Factory, are renowned for their pioneering approach to banknote design and feature selection, working with multiple industry partners on commemorative and house notes to test new approaches and technologies that often then make their way into circulating notes. The latest commemorative note and subsequent new series are yet another example of this approach.

Currency News™ spoke to Arman Adibayev, Director Cash Department at the NBK, and Sanzhar Nurkassimov, Chief Designer, to find out more about the latest series – the rationale, cultural factors underpinning its design, the practical steps taken to bring it to fruition and the publicity measures taken to educate the public.

Q: Can you explain the background to the design and theme of the new banknote series?

A: In global practice, new banknotes are issued every 7-8 years with enhanced security features to prevent counterfeiting. The current ‘Kazakh Eli’ (or ‘Samruk’) series has been in circulation since 2011, and its security features have become outdated over the past 12 years. Attempts to counterfeit these banknotes have been made, with some counterfeiters successfully replicating certain security elements. This necessitates a revision of the design and security features.

Additionally, National Bank specialists

have analysed the sizes of banknotes used worldwide. The results indicate that smaller-sized banknotes optimise costs and are more convenient for counting, storage, and transportation. Furthermore, this allows for faster and simpler banknote production by accommodating more banknotes per sheet. So the new notes will be smaller than those they are replacing, as well as standardised in terms of their height.

Regarding the thematic concept of the new banknote series, it is dedicated to the Saka culture, reflecting the unique worldview of our ancestors, their connection with nature, and the diverse animal world of our vast territory.

Q: Our readers won’t be familiar with the Saka culture. Can you provide some background.

A: The Sakas were a population of nomadic tribesmen who lived in the plains of Eurasia from Eastern Europe to China during the 7th and 8th centuries BCE. There were no borders at the time, but a large part of the territory is now modern-day Kazakhstan.

Many artifacts preserved in their original form from that period were discovered during archaeological excavations of ancient mounds. They included weapons, clothing and gold ornaments, which were very technically sophisticated for their time. They also included prototypes of the frequently depicted animals that still

inhabit Kazakhstan and are revered by Kazakhs today.

Overall, the series aims to instill a sense of pride and interest in the population to explore their own culture and history, as well as to promote responsibility to nature.

Q: Those animals are a key feature on the new series. What was/is their significance?

A: The 20,000 tenge will feature a horse. The domestication of horses was very important to our ancestors and central to their culture, and horses remain a much loved and respected animal in Kazakhstan today.

The 10,000 tenge will feature the snow leopard, which lives in the mountains of Kazakhstan. It was hunted to near-extinction and was even listed in the Red Book (The International Union for Conservation of Nature Red List of Threatened Species), but has been successfully reintroduced. It is a totemic animal – symbolising power and grace.

For the 5,000 tenge, the species is the golden eagle, widely used for hunting in Kazakhstan, Mongolia and all Turkic nations. So important were golden eagles to our ancestors that many have been found in tombs dating to that period.

For the 2,000 tenge, the chosen animal is the Saiga antelope, which was also nearing extinction and was on the IUCN’s Red Book list as well. Kazakhstan is home to three of only five populations of antelope, and a conservation program over the last 20 years has resulted in more than 2 million animals today.

The 1,000 tenge will feature two Kazakh dog breeds –the Tazy, which looks like the Saluki sighthound, and the Tobet, which is similar to the Central Asian Shepherd dog. Dogs were the best friends of the nomads – not only for hunting but also for guarding livestock from wolves.

And finally, the 500 tenge will feature the mouflon, a breed of wild sheep that inhabits the mountains and steppes of Kazakhstan.

Q: How have these and other cultural artifacts been accommodated within the design of the new series?

A: The fronts of the notes are in a vertical orientation, and the reverses are horizontal.

The fronts all feature a symbolic sacred branch with a soaring bird on top of the so-called ‘Tree of Life (a detail from the headdress of the ‘Golden Man’, a warrior from the Saka era who has been adopted as one of the symbols of modern Kazakhstan). Behind this is a decorative parametric shape in the form of a DNA spiral, which symbolises the continuity of the modern way of life with nature and history.

... Ancient and Modern



The front of each note also features unique artifacts based on animals from the ancient burial mounds, with a separate animal dedicated to each denomination.

On the reverse of the notes, alongside the portrait of the relevant animal is a contour of the Kazakh infinity ornament, inside of which landscape views of Kazakhstan are placed. Behind the main image of the animal is a circular Kazakh ornament comprising a shield that symbolises the protection of values; the ancient symbol representing the four cardinal points of the earth and, at the centre, a solar sign serving as a symbol of creative energy and the essence of life.

Q: What was the process of selecting the security features and integrating them into the banknote design?

A: The NBK regularly conducts analyses of the latest security features available in global practice. This allows for achieving a high level of protection for the national currency and consequently reduces counterfeiting.

The security elements in the new 5,000 tenge banknotes are based on research and development, incorporating the latest advancements in secure printing technologies.

According to a sociological study on cash usage conducted by the National Bank in 2022, it was found that 53% of respondents in Kazakhstan do not check the authenticity of tenge banknotes, and 40% cannot distinguish genuine banknotes from counterfeit ones. This prompted the search for intuitively understandable security measures for the new tenge designs.

International research indicates that the total time for checking the authenticity of a banknote is approximately 6 seconds. In a 2006 study by the Dutch central bank, a fixed interval of 2 seconds was identified for determining one authenticity element of a banknote. Another study on tactile experiments with banknotes reported that it takes the population 1-2 seconds to identify a particular pattern/element on a banknote by touch.

It was important to consider these findings and incorporate a security element that would allow the population of Kazakhstan to check banknotes during transactions within seconds.

In order to originate the concept and integrate security elements into the design of the new banknote series, the National Bank chose between several well-known companies, and the proposal from Giesecke+Devrient proved to be the most suitable for these purposes.

Thus, in creating the new 5,000 tenge banknote, the RollingStar® Patch security element was applied. Its use entails dynamic visual effects that change depending on the viewing angle. This allows users and cashiers to visually recognise and verify the authenticity of the banknote within seconds.

Furthermore, the RollingStar Patch security element provides visibility under any lighting conditions and is resistant to wear throughout the entire lifespan of the banknote.

Q: It's always a risk using a feature for the first time. What were the decisive factors that led you to choose the RollingStar Patch?

A: The Rolling Star Patch ensures a high level of security due to its unique construction and the use of advanced printing technologies, along with its dynamic multi-coloured visual effects.

It has undergone rigorous testing and reliability evaluation by NBK experts and is compatible with existing production processes, allowing for its integration into banknote production with minimal changes to the manufacturing process.

Q: What about the other public security features, and will these be uniform across all the new series?

A: The 5,000 tenge a RAPID® Vision micro-optics windowed thread from Crane Currency with intense liquid-kinetic movement at the micron level, providing high-contrast colour movement, and a SPARK® Flow Dimension element on the reverse that synchronises with the animal on that note.

The RAPID Vision thread will be used on all the notes except the 20,000 tenge, and the SPARK Flow Dimension on all except the 500 tenge. The RollingStar patch will be used on all except the highest and lowest denominations.

In addition to these features, we also have some aids for the visually-impaired, including a series of raised lines along the long edges of the notes, the number of which denotes the denomination, and a larger high contrast denomination numeral.

Q: Working with so many partners is a complex task. How does the management of the project work, from start to launch, with these partners?

A: The launch of the new series is carried out by the team at the NBK. Several participants are involved in project management: the NBK Cash Department, the Banknote Factory of the NBK, the coordinating company Giesecke+Devrient, and suppliers of prepress materials.

The process consists of several stages:

1. Design concept creation developed by the National Bank of Kazakhstan designer and approval by management
2. Specification determination within the National Bank of Kazakhstan
3. Specification approval with the project coordinating company, suppliers of security paper, security elements, security inks, and the Banknote Factory
4. Agreement on timelines, production schedules, contract signing, and order placement
5. Origination
6. Prepress material production
7. Prototype creation
8. Signal sample production (proof)
9. Raw material delivery to the Banknote Factory
10. Banknote production
11. Shipment of the finished products to the Cash Center and valuables storage and then distribution to the branches of the NBK across the country.

Q: What is the timeline for the release of the remaining notes in the series?

A: To date, only the 5,000 tenge in the new series has been produced. All in the new series will be on paper, other than the 20,000, which was only issued in 2022 and will continue on Durasafe®. The 10,000, 2,000 and 1,000 tenge notes will be released in 2024, and the 20,000 and 500 tenge notes in 2025.

Q: Is cash still important as a payment instrument in Kazakhstan?

A: A survey carried out at the end of 2022 involving 10,000 people and small businesses showed that 60% still use cash for daily payments and 72% use their card to withdraw cash.

The average annual growth of cash in circulation over the past five years has been 9.8%. During 2023 cash in circulation increased from 3.7 to 4.1 trillion tenge.

This trend underscores the continued significance of cash as a critical payment instrument.

Q: Why did you issue a commemorative banknote immediately before the new series?

A: A good question. 2023 marked 30 years of the tenge – an important anniversary for a young currency. We wanted to celebrate that and did so with the design featuring a map of all the regions of Kazakhstan, making people proud of our country, along with different ornaments showing the diversity of our culture.

We also wanted to try out new security features – which is something we tend to do with our commemorative banknotes, and also occasional house or specimen notes that we produce. The feature we tested in the commemorative note was a varifeye® ColorChange patch over a window, which is in the shape of a coin and can be seen from both sides of the note. We plan to use this feature in the new 10,000 tenge.

Q: How have you gone about promoting the new series and educating the public?

A: We have created a lot of material for the mass media, including digital assets in the form of a series of videos that both explain the design ethos and cultural significance of the notes by linking the Saka culture to present-day Kazakhstan (Ed: worth viewing – it’s fantastic) and, in other videos, describe the specific design and security features.

We have made extensive use of social media – such as TikTok, Telegram, Instagram – and these have been posted on both our own platforms and those of the commercial banks, who have also showcased them in their banking halls for customers to view.

Over the course of two months the materials have been viewed over 460,000 times – over 70,000 times on the NBK’s social media platforms, 210,000 times in mass media outlets and over 180,000 times on the social media platforms of the banks.

Q: Any other final considerations about this project you would like to share here?

A: The launch of a new series involves many processes both within the NBK system and externally, particularly in working with second-tier banks, which requires specific skills and experience. The most important aspect, of course, is the attentive approach to working with the population.

We are sincerely delighted with the successful collaboration with professionals in their field, such as renowned companies and leaders in the global market like Giesecke+Devrient, Crane Currency, Landqart, and SICPA.

Our joint work is not yet complete; there is much ahead of us, but the results are already visible and speak for themselves.

Each new project brings new experience and opens up new horizons, and we sincerely believe that our work will be appreciated by end users.

Counterfeit Corner

By Kerre Corbin, Currency Counterfeit Specialist

What is the primary reason that most countries issue a new banknote to replace an older design? To help prevent COUNTERFEITING!

When a central bank makes the decision to upgrade a banknote, or series of banknotes, they should assess how the current design is performing in circulation. This includes looking at counterfeits to understand how each feature is simulated, as well as the materials and techniques being used.

This will enable the central bank to design a new banknote that contains the appropriate features to deter counterfeiting based on the counterfeiting methods used in their country.

Let’s say that a 50 denomination genuine windowed security thread has been harvested onto a 500 denomination counterfeit. This has happened because the security thread is the same in all the denominations. How could you deter this methodology in a new design?

There are several options to consider:

- Convert the lower denominations to polymer, thereby forcing the counterfeiter to use the lowest value paper banknote to harvest from.
- Integrate a completely different technology into each denomination: colour-shift, holography, colour-shift + holography, colour-shift + movement, micro-optics. Or even pick three of the above and separate your banknotes into low, mid, and high denominations. The challenge with this method is public education, as there is more information for the cash user to understand.
- At the very least, the design and colour of the above thread should be changed to help the public distinguish between the denominations.

The above example is just one illustration of the process of evaluating counterfeit banknotes to determine the best path to integrate security features into the design of new banknotes.

www.Kerrecurrency.com



Sustainability – Essential to Banknote Design

Biobanknote has spent 12 years focusing on the protection of the environment, building expert knowledge about composting banknotes, and offers professional advisory services to central banks and producers helping them set banknote specification parameters, measurement methodologies, controls and evaluations so that the new banknotes can be more sustainable throughout the cash cycle.

In this context it has written a paper summarised here, outlining how central banks and producers can design in sustainability from the beginning.

Disposal of unfit banknotes

One of the main functions of central banks is to issue banknotes to enable the transactions required by the economy.

This function starts with defining the currency structure, including establishing what banknote and coin denominations are required and where the coin-note boundary should be. Then the central bank decides how many notes are required per denomination. Some central banks are also responsible for coins, but this article concentrates on banknotes.

Cash is normally distributed through the central bank's own branches, commercial banks and cash in transit companies (CIT), to cover requirements in all regions of the country. In some countries, the CITs are responsible for partially fulfilling the tasks of checking the fitness and authenticity of the cash in circulation and returning to commercial banks those that are suitable for recirculation.

These processes are carried out following the parameters established by the central bank. The destruction of banknotes removed from circulation is carried out by the central bank itself.

Designing banknotes

The central bank is responsible for the design and specification of the banknotes. A new area of focus is sustainability. While security, aesthetics, machine readability and efficiency in circulation have always been important, the whole life performance of the banknote is now part of the design process. Design and specification decisions will determine the materials used, the environmental impact of production, note life, note performance and how many options there are when an unfit banknote needs to be disposed of.

For end of life, there is a hierarchy of disposal options with landfill being perhaps the easiest and quickest but the most environmentally damaging, through burning for energy or power to composting to being a full part of a circular economy. Companies such as G+D, Blend Paper, Landqart and the polymer producers are pursuing this last approach.

Why Compost?

When it comes to a cost-benefit analysis, composting compares very well with the alternatives. It sits higher on the benefit pyramid of waste disposal and is a solution that requires very little infrastructure. Composting is appropriate for every country.

In addition, every country produces food and so needs compost; every country has, therefore, a need and a market for compost. Cotton is a material with a high calorific value, and it is well suited to composting.

Designing for composting

Whether assessing an existing banknote or designing a new one, there are two steps required:

1. Analyse banknotes to understand if composting is feasible

Analysis can establish key criteria allowing efficient composting operations, for example the ideal proportions of the mixture in the compost and/or the adjustments in the temperature, humidity and aeration conditions. This will also give an indication of how long it will take for material to be biodegraded under normal conditions.

The analysis will look for 'non-friendly' materials in the substrates, inks, protective varnishes and the sizes of the security devices of elements added to the notes such as plastic or metallic security threads, holograms and patches, among others. It is important to know the proportions of each in order to know if they breach acceptable levels.

This analysis is also needed if the central bank is intending to burn or recycle waste. The former is highly regulated, and the latter is needed to know what is possible.

There are two areas for which the analysis needs to provide data.

■ Characterisation of Raw Materials:

Protocols and procedures for verification of composition, the carbon/nitrogen (C/N) ratio and levels of carbon footprint generation originated during production. This applies to the substrate, inks and security elements. This should include details of the information and samples required to carry out organic composting analysis and testing.

The C/N ratio is one of the conditions that determines the optimum mix of materials

used in the composting process. Paper, long-life paper and hybrid substrates have very different C/N ratios and the conditions of the compost have to be adapted to reflect that relationship.

It is not possible to apply a standard assumption for the different substrates. Biobanknote has found that waste is different in each country and, therefore, the compost requirements are also different, as are the environmental conditions of each country or region.

Normally the legal standards and regulations in all countries are similar because they are adopted from international conventions. Despite that, there are sufficient differences that to carry out feasibility studies for the design and start-up of composting plants, it is necessary to know the legal aspects in consideration for the construction area and the compost production conditions.

■ **Waste Characterisation:** List of the technical information and recommendations required so that once the destroyed banknotes are removed from circulation, whether or not converted into briquettes, they are suitable to be incorporated into organic treatment processes.

As banknotes circulate, they collect contaminants which change their acidity and could present health risks. This needs to be known to optimise the composting process since control of the temperature allows pathogens that could otherwise affect the soil and contaminate water to be neutralised and made safe.

2. Laboratory Services and Composting Facilities for carrying out analysis

To date there is no specific regulation for the management of banknote waste. Their disposal sits within general national regulations. While specialised laboratories can carry out the analysis suggested above, the interpretation of the results, particularly how they apply to disposal, would benefit from expert input.

When it comes to composting, this is a highly specialised area. Biobanknote is highly experienced both in doing such testing and providing this expert analysis, whether for its own use or third parties.

Final word

While there are no international standards for the environmental impact of component parts of a banknote, Biobanknote believes that a consensus is needed, and will be developed, about materials used to produce banknotes suitable for safe disposal when unfit.

Given its expertise in composting, Biobanknote would like to assist central banks and producer organisations interested in developing such standards.

Polymer's Not the Problem. It's the Green Choice

■ By Tim Berridge, CCL Secure

The problems with plastic are widely known – but not well understood. The truth is, sometimes plastic is necessary. And when it comes to banknotes, polymer substrate is the green choice.

THE POLYMER BANKNOTE PEOPLE

Central Bank studies have proven you can **reduce, reuse and recycle** GUARDIAN™ polymer notes for a more sustainable cash cycle.



Greener

- 3-5x Less Production
- 3-5x Less Transportation
- 3-5x More Use in Circulation
- 100% Recyclable

CCL SECURE

The idea of polymer being the greenest option may seem counterintuitive – but it's backed by evidence rigorously tested in a wide range of independent life cycle analyses from central banks.

Analyses from central banks in England, Canada and Mexico show polymer banknotes have a lower environmental impact than their cotton-based counterparts. Why? Polymer banknotes are far more durable. They last 3–5 times longer in the cash cycle.

Because fewer banknotes need to be produced, raw materials use is reduced over time. Polymer banknotes significantly

cut carbon emissions as well – especially those arising from transport during the distribution phase of the cash cycle.

The evidence for this comes from central banks. For example, a life cycle analysis from 2018 looked at the Banco de Mexico's polymer series and found emissions had been reduced by 48.8% when compared with cotton-paper banknotes.

The Bank of England reached a similar conclusion. In 2017, a carbon footprint assessment of its polymer series found the carbon footprint of a £5 polymer note is 16% lower than a paper note, while the carbon footprint of a £10 polymer note is 8% lower.

Both polymer series use GUARDIAN™ substrate – which achieves emissions reductions based on the strength of specialised film and polymer substrate. This is the result of decades of innovation in materials engineering.

GUARDIAN banknotes are based on an ultra-strong film called Propanote™ Clarity C, which is produced exclusively by CCL Secure's sister company, Innovia Films.

The Clarity C film is manufactured inside a special four-storey chamber that uses gravity and air as part of a unique 'bubble' process. The film is inflated in tube-shaped bubbles, heated to softening point, and mechanically stretched to equal extents in both horizontal and vertical directions.

As the base layer, Clarity C helps give a GUARDIAN banknote its trademark toughness, resistance to temperature, and smooth, impermeable surface – as well as a unique security signature that can be verified via machine inspection at speed. The film is then converted into a fully secure banknote substrate by the application of numerous layers of high-resolution print.

What happens to polymer notes at end of life?

Polymer banknotes are not the same as single-use plastics. Consumers simply don't throw banknotes away.

Instead, at the end of their long life in circulation, polymer banknotes are returned to a central bank and securely sorted and shredded as a matter of course. This means they don't get

discarded and find their way into rubbish bins, streams or oceans. Rather, they are recycled and transformed into durable end-of-life products.

The process for recycling polymer banknotes is well established. Having already been sorted and shredded by central banks, polymer banknotes don't need to be separated from other waste streams. Their smooth, impermeable surface also means they don't need to be cleaned.

Sophisticated extruders can now process banknotes without any requirement to mix them with other polymer waste – which makes it easy to convert spent banknotes into polypropylene pellets. These are then on-sold as a commodity product.

Polymer banknotes gain a second life as durable products including building materials, automotive parts, park benches and more. In Chile, for example, GUARDIAN banknotes are processed into a material with properties similar to natural wood, and used to make floors, roofs and furniture.

With this streamlined process in place, the rate of recycling continues to climb. In its recent report, 'Cash: A Roadmap to Sustainability', Reconnaissance International canvassed results from a 2021 survey of 43 central banks.

It found that 92% of those disposing of their polymer banknote waste were either recycling their banknotes or moving towards recycling their banknotes. Two more had yet to generate enough waste to warrant destruction or recycling. In contrast 96% of those on paper banknotes and mixed/composite substrate sent their banknote waste to landfill or for incineration.

The reality is that none of the alternatives to polymer banknotes can be recycled in significant volumes. The raw materials simply exit the value chain at end-of-life.

The bottom line

While the inherently superior strength of polymer substrate is somewhat self-evident, the sustainability benefits this durability brings are less intuitive. Environmental impacts must be assessed independently by central banks across the entire banknote lifecycle.

Thankfully, a wide range of lifecycle analyses have been published by central banks. They clearly show the superior strength and recycling potential of polymer banknotes delivers greater sustainability in the long run.

While it may seem counterintuitive, polymer banknotes are the green choice. It's just one of the reasons more than 40 central banks have made the switch.

Getting Ready for the Future

Koenig & Bauer Banknote Solutions (K&B BNS) has pre-launched its new production platform called 'AKTINA'.

Readers may have seen a LinkedIn video post last week from Koenig & Bauer Banknote Solutions, telling us that; 'something big is coming'.

That 'something', says the company, turns out to be a totally new way of producing banknotes that meets the rapidly changing needs of banknote printers, central banks and cash ecosystem stakeholders. The platform has been given the name AKTINA, a Greek work meaning 'light beam' and K&B BNS hopes this will illuminate the pathway to a more sustainable future for banknotes and their customers.

Emmanuel Thony, leading the AKTINA development team, explains this innovation as 'the first step towards a new future for our community where the printer leaves past limitations behind and concentrates on the future, by shifting the conversation away from individual machines to an interconnected, highly efficient process. AKTINA transforms 'What if'... into 'I Can'... and puts the printer in control by empowering them to create new value propositions for society.'

K&BBS clearly wants to keep the official launch of AKTINA under wraps, so will only be showing glimpses of the new production platform during the pre-launch phase. Visitors to the K&B BNS EQUINOX 2024 will participate in the official launch and reveal of the machine that has been installed in Lausanne, Switzerland.

Playing a critical role in the development of the AKTINA platform, Sylwia Szczukiewicz, AKTINA Product Manager, said; 'AKTINA is not a machine... It is a revolutionary production platform that marks the beginning of a new era where the printer sets the limits and designs a process that fits their exact and highly specific needs. It's our blueprint for the future that starts today and we are all incredibly excited to present it to our customers at EQUINOX 2024 in May and June this year.'

K&B BNS will be releasing more information on AKTINA over the coming weeks.

Registered Threads – Predictable Placement Dynamics

■ **By Sabine Eberl, Louisenthal**

First level features for public authentication have grown remarkably over the years. The key objective is to stop counterfeits at the first pass. A solid combination of printed and substrate embedded features is available, and continues to grow. Watermarks, foils and threads have been key elements of the solution. Significantly, these features need to be not only memorable and convenient for the public, but increasingly attractive and eye-catching to encourage authentication.

Registered threads incorporate these appealing characteristics, as we have seen in in the Morocco 100 dirham banknote issued late last year. It features a 5mm Galaxy® thread with gold-green Colourshift and matched to the SPARK '100' to the left.



Morocco's new 100 dirham banknote Design freedom and Colourshift.

Whilst features like security foils are designed and applied in register, the thread has also developed significantly, and can be produced with state-of-the-art precision registration. A registered thread with different and precisely positioned windows gives room for colourful storytelling in the banknote, and an easy reference for the public.

Registered threads have a range of significant advantages:

- Every embedded thread looks the same to improve rapid public authentication. The motif is registered to a window in the same position on each thread. In the 100 dirham, the five-pointed star is centred, and the

upper and lower windows feature a 'flip' effect, alternating from DH (dirham) to 100. Colourshift is gold-to-green.

- Design freedom: sophisticated motifs can be shown in their entirety (rather than part thereof) and several effect/motifs can be shown on one thread. This significantly raises the security bar. And furthermore, the capacity to also merge the dynamics of different customised designs into a registered format has an even greater appeal.
- Magnetics are always on the same spot in the note, ensuring robust Level 2 authentication. MultiCode is recommended.
- The Cleartext is always under the paper bridges. This means in transmission its always seen in the same position and it does not impact the effect/design in reflection.

Micromirror and Colourshift and many design options

Registration can optimise Louisenthal's RollingStar®, RollingStar® i+ and Galaxy threads, which utilise its proven micromirror technology, incorporating several million optimally angled micromirrors per square centimetre. The combination of vibrant optical effects of ColourShift, exceptional dynamic movement and remarkable 3D come to life. And the design of different motifs, can also be merged into the one thread.

For instance, in a thread with three windows, motif A can be in in the upper and lower window, and motif B in the middle window. Or different motifs A, B and C can tell a story. This provides for unique design customisation.

Apart from the striking visual result, security is enhanced as harvesting will not be possible. They can also be combined with other feature options, such as machine readable functionality through magnetic coding MultiCode.

Cash Recycling and Recirculation

The second Cash Sustainability Forum (CSF) takes place in Frankfurt, Germany from 24-26 June. On the first afternoon will be a workshop dedicated to the recycling and recirculation of cash. It will build on a white paper currently being researched and prepared and for which input is still very welcome.

This topic is core to the CSF because while good recirculation lowers costs and optimises the quality of notes in circulation, it also reduces the number of notes that need to be produced and the fossil fuels needed to move them around the cash cycle. With about two thirds of the impact of cash coming from its circulation, this is important.

The changing cash cycle

Once issued, cash flows like wild salmon ranging far and wide before eventually returning to their place of birth. Cash can circulate without infrastructure being recycled from person to person. If it ends up in a shop's till or a bank's vault, it gets recirculated as and when needed, although with damaged or dirty notes put to one side. Life has ever been thus. Or has it?

The advent of ATMs means notes have to be of a certain fitness standard if the machine is to handle them. Counting machines have fallen in price and, at the same time, even the simplest device normally has a fitness detector. Automation is enabling those handling high cash volumes to set quality

standards if they wish. But do they? And to what standard?

As central banks outsourced cash handling to private sector cash centres, rules and regulations were needed for cash centre security and note fitness and authenticity standards. Note Held to Order Schemes (NHTOs) removed a financial disincentive to hold cash and penalties were often used if fitness standards were not maintained.

With relatively few cash centres, the regulative administrative burden was bearable for central banks and cash was profitable for the commercial sector.

As more local cash recycling has happened, and as profit from cash handling has ebbed away, the challenges of both setting and implementing policy have increased. Central bank authority over a retailer is very different from over a commercial bank. Wherever a central bank is on this spectrum of cash handling, there is much to learn from the experience of others.

White paper and workshop content and structure

The workshop will address how to use less cash and how to minimise movement, indirect cash cycle actions lying entirely with the central bank and cash circulation actions determined by policy and delivered, usually, by the private sector.

Every country is different. Options range from fully centralised to fully decentralised cash cycles. There are though, some common principles that apply and much to learn from the experience of others.

The white paper, and the workshop, will address topics such as:

- Factors that affect cash velocity
- Specification and design decisions
- The role of off balance sheet policies such as NHTOs.
- How to set policy that is practical and effective both for central banks and those managing cash circulation
- How to implement that policy efficiently, including incentives and penalties
- How to get policy right so that it is practical and effective from cash centre to retailer.

It will use case studies and discussion groups to share best practice.

To contribute your experience of setting and implementing cash recycling and recirculation, please contact John Winchcombe – john@recon-intl.com. cashesustainability.com

Security Designers Forum - New Event for the Banknote Design Community

The first Security Designers Forum (SDF) will take place 9-11 September 2024 in Warsaw, Poland as a dedicated setting for all those involved in design and design decision-making relating to secure documents such as banknotes and passports, to learn, exchange knowledge and develop new ideas.

SDF is the successor event to the International Banknote Designers Conference, formerly run by the now-defunct International Banknote Designers Association and a casualty of the COVID-19 pandemic.

But despite its demise, there was a strong feeling that a forum dedicated to the specific issues of banknote and high security document design for the benefit of those creating those documents was still needed. Hence the banknote design community has come together to hold this new event.

As design has a significant impact on all stakeholders in the secure document

industry, the topics will explore and discuss a wide range of design-related issues, including:

- User experience
- Perception and recognition
- The value/cost ratio
- Designing for sustainability
- Feature and material integration
- Machine readability and acceptance
- Public education
- Innovation and harnessing new technology
- Teamwork and collaboration

A working committee has been formed to create the programme, and welcomes input from the design community on the above and other topics related to design.

Many of the leading companies involved in design and production of substrates, features and banknotes are lending their support to the SDF, among them Crane Currency, De La Rue, Giesecke+Devrient, IQ Structures, Jura, KURZ, Koenig & Bauer Banknote Solutions, Landqart, Luminescence Sun Chemical Security, Orell Füssli and SICPA.

The SDF is aimed at all involved in the design and specification of banknotes and other high security documents (eg. passports), including design teams within central banks, state as well as commercial printers, substrate/feature suppliers, developers of design software and other equipment, and independent designers. The registration fees have been kept low to encourage multiple participation from such organisations, with discounted rates for central banks and students/independents.

securitydesignersforum.com

The Beauty of Concept Notes

'Concept Notes: Art, Design and Security in One', the second issue of a special report from Currency News summarising the latest house notes, is now available to download and read.

Concept, or house, notes are produced by banknote printers and substrate and feature suppliers to promote their design and technical capabilities, introduce their latest features and/or celebrate special milestones.

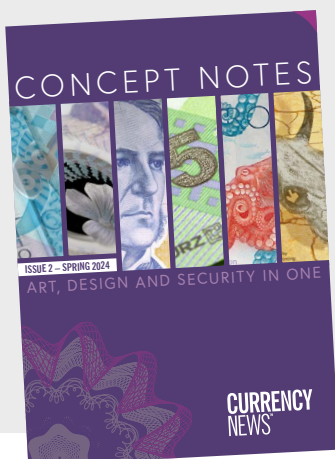
They are also genuine works of art – with dramatic, eye catching and immensely pleasing graphic imagery and iconography.

The report reviews the features, the technologies, production processes and partnerships that have generated these notes. But it also looks at the design rationale that underpins each. They all tell a story, and it is these stories that make these notes truly come to life.

The second edition includes examples from Banco de México, Casa de Moneda Chile, Crane Currency, Landqart, Louisenthal, Komori, KURZ, Oberthur Fiduciaire, Orell Füssli, PWPW and SICPA.

The pdf of the report, is free to download to Currency News subscribers via the e-publishing platform. There is a discounted fee of £50 for hard copies.

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Webinars for All Aspects of Cash

Three webinars will be held over the coming weeks of interest to the banknote and coin communities, each with a very different focus.

■ Cash Visibility for Central Banks

First off, as part of its FOCUS Series on 'Cash Visibility & Collaboration', IACA (the International Association of Currency Affairs) will be holding a webinar on 6 March, hosted by Glory, for members.

Panellists will include representatives from a central bank, a commercial bank, and a CIT company, and topics covered will include loss of visibility for central banks, data access opportunities, circumventing the obstacles, the benefits of cash visibility and getting the most out of current infrastructures.

www.currencyaffairs.org

■ MDA Focuses on ESG

The following week, on 13 March, the Mint Directors Association (MDA) will be holding a webinar entitled 'ESG Reporting – Insights from Within the Industry'. The webinar is the first in a series to be held by the MDA's Sustainability Working Group and will share experience of Environment, Social, Governance (ESG).

Attendees will hear from the Royal Canadian Mint, The Royal Mint and MKS PAMP, representatives from each discussing their companies' respective initiatives and ESG reporting processes.

Participation in the webinar is free for MDA members, and for \$95 for non-members. www.bigmarker.com/reconnaissance-intl1/ESG-Reporting-Insights-from-Within-the-Industry.

■ New Security Image Register

The International Hologram Manufacturers Association (IHMA) will be holding a webinar on 17 April on the new Security Image Register (SIR), an expansion of the Hologram Image Register which is now open to all suppliers of optically variable security features.

The global database, set up by the IHMA in 1993 and managed by the Counterfeiting Intelligence Bureau (CIB), protects the security image by recording and identifying all copyright associated with each design. Since its creation, over 10,000 images have been registered.

The expansion reflects the changing dynamics of security features, with holograms just one of many technologies offering colour change, movement, animation and 3D effects, all of which are now eligible.

The webinar, which will be open to all participants, will include presentations from the IHMA and the CIB as well as several IHMA members who use the SIR on a regular basis.

www.ihma.org

Koenig & Bauer and the Future of Banknotes

Koenig & Bauer Banknote Solutions (K&B BNS) will be hosting an event this June to bring the international central bank community together around the future role cash will play in society.

The event, entitled Central Bank Discovery Days, is a continuation of its EQUINOX 2024 programme, but is specifically designed to enable community-wide engagement on the emerging challenges and opportunities confronting central banks when it comes to cash issuing and management.

It consists of a two-day programme taking place in Lausanne Switzerland from 17-21 June. K&B BNS hope that these dates will enable visitors to participate in their event and then easily travel to Frankfurt to attend the Cash Sustainability Forum, taking place the following week.

The event will address:

- The changing role of cash in society
- The value of cash in society
- The cost of cash in society and who pays
- The cash access/acceptance crisis
- Empowering public payment choice
- Public vs. private money & monetary policy
- The evolving role of the central bank in cash management

- Cash infrastructures and ecosystems – new models for a sustainable future
- CashBack, cash-in-store, virtual ATMs and mobile money vs. traditional cash infrastructures
- Legislation and consumer rights to use cash.
- High cost/eco impact cash models vs. sustainable models.

According to Thomas Hendle, K&B BNS Managing Director and Head of Sales, 'the way we produce and manage cash in society must evolve in line with changing societal requirements and the availability of alternative payment tools. A healthy and resilient payments landscape is built upon fair-play, inclusion and choice. EQUINOX 2024 is designed to provide insights, knowledge and tools for central banks to develop their own roadmap to make this future a reality.'

To find out more, contact equinox@koenig-bauer.com.

Note and Coin News

Ukraine Marks 2nd Anniversary of Invasion

The National Bank of Ukraine has issued a new commemorative 50 hryvnia banknote entitled 'Unity saves the world' on the second anniversary of the Russian invasion. This is the second commemorative banknote to be issued in tribute to the struggle against Russia.



According to the Bank, the note is 'dedicated to the indomitability of the Ukrainian people in the struggle for freedom and European values, the consolidation of Ukrainian society to protect territorial integrity, and the unification of the democratic world in the face of Russian aggression.'

The note features a multi-tone watermark, an embedded security thread, see-through element and SPARK®.

The design is vertically orientated on both sides. The main design on the front is a stylised outline of Ukraine, which is associated with the heart, from which blood vessels reach out to Europe. The background image is of a girl in a military helmet. On the reverse, a composition of clasped hands symbolises cooperation, mutual assistance, trust and partnership against the background of a stylised trident, the symbol of the Ukrainian state. 300,000 of the notes have been produced. Although legal tender, it is expected that the notes will be bought up by collectors.



■ In other news

■ The National Bank of the Kyrgyz Republic has introduced new 20, 50 and 100 som banknotes, as part of the country's fifth banknote series.

The principal design remains a reflection of the historical and cultural heritage of Kyrgyzstan and is unchanged, as are the main colours and size of the banknotes. But they incorporate new security features, which include a multi-tonal watermark, RAPID® HD Detect micro-optics windowed security thread containing the diamond-shaped logo of the Bank which pulses up and down when the note is tilted, a see through image making up a pattern of diamonds and, on the reverse, an iridescent stripe featuring the logo and denomination numeral. The 100 som also includes SPARK Live, with a gold-to-green colour shift and moving double rings that can be seen when the note is tilted.

The first three notes in the new series – the 200, 500 and 1,000 soms – were issued last year. The final note to be upgraded is the 5,000 som.

■ The Bank of England has announced that the first banknotes carrying a portrait of King Charles III will be issued on 5 June 2024. The portrait of the King will appear on existing designs of all four banknotes (£5, £10, £20 and £50), with no other changes to the designs.



Polymer banknotes that feature the portrait of the late Queen Elizabeth II will remain legal tender, and will co-circulate alongside the King Charles III notes. The new banknotes will only be printed to replace those that are worn, and to meet any overall increase in demand for banknotes, in line with guidance from the Royal Household to minimise the environmental and financial impact of this change.

■ The Central Reserve Bank of Peru has issued a new 200 sol note (see left), completing the 2021 series, the first notes of which were introduced in 2019.

The new series, designed by De La Rue, incorporates modern designs, new motifs and upgraded security features, and is based on outstanding figures in Peruvian sciences and humanities, along with indigenous flora and fauna.

The portrait on the front is of the 20th century printmaker and painter Tilsa Tsuchiya, known for her paintings of

Peruvian myths and legends. The reverse, which is designed in a vertical format, shows images of the Andean cock-of-the-rock, Peru's national bird, and the Flor Bella Abanquina, a flower native to the Abancay region of the country.

The main overt security features are a RAPID thread and SPARK Live. Other security features include a watermark mirroring the portrait, latent image, GEMINI™ and rainbow fibres in four colours.

■ The Central Bank of Curaçao and Sint Maarten has confirmed that the introduction of the Caribbean guilder as the island nation's currency will take place on 31 March, 2025. It has also announced that the design phase for the new coins has now been completed and approved.

Whilst full details have not been published, the new 5 and 1 guilder (CG) coins will feature an effigy of the King of the Netherlands on the front, and a map of Curaçao along with the coat of arms for Sint Maarten on the reverse. Both coins will have plain edges.

The 50, 25, 10, 5 and 1 cents will have the words Curaçao and Sint Maarten on the front, and a double circle containing an orange branch on the reverse. All five denominations will have reeded edges.

The coins are being produced by the Royal Canadian Mint.

■ The Eastern Caribbean Central Bank (ECCB), which issued a commemorative \$2 banknote in December marking its 40th anniversary, will issue another commemorative banknote – a \$50 – in June celebrating Grenada's 50 years of independence.

Both sides of the note are vertically orientated, and it is being printed on SAFEGUARD® polymer by De La Rue. It features key elements of the Spice Isle's history including images of Prime Ministers Eric Gairy and Maurice Bishop (the first and second prime ministers respectively) and Olympic 400 metre champion Kirani James.



... Note And Coin News

While the note will be issued in Grenada, it will be legal tender in Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, St Kitts and Nevis, St Lucia, and St Vincent and the Grenadines, which all make up the Eastern Caribbean Currency Union (ECCU).

Grenada was the first member of the ECCU to gain independence from the United Kingdom and the ECCB has said it will support other member states having their own commemorative \$50 banknotes when they achieve the milestone.

■ The Central Bank of Honduras has announced that it is to issue new 100

and 500 lempira banknotes. The designs remain the same as the existing notes, but the security is being enhanced with new features, the replacement of the narrow windowed threads with RAPID micro-optics threads, and the addition of SPARK with a green-to-gold colour shift for the 100 and a green-to-blue shift for the 500.

■ The Reserve Bank of Australia (RBA), which announced last year that it will replace the portrait of the late Queen Elizabeth II on one side of the \$5 note with a 'design that honours the culture and

history of the First Australians', will take public submissions from March on the new design.

Consultation with Indigenous communities over the design has already started, and the RBA has begun visiting First Nations organisations in key regional and remote locations across Australia and the Torres Strait, to engage with local communities about the theme nomination process. Members of the public will be able to submit their ideas during March and April. The other side of the note will continue to show Parliament House in Canberra.

Events

4-6 MARCH 2024
HIGH SECURITY PRINTING EMEA
 Sofia, Bulgaria
hsp-emea.com

8-10 APRIL 2024
OPTICAL & DIGITAL DOCUMENT SECURITY
 Lisbon, Portugal
opticaldigitalsecurity.com

13-16 MAY 2024
BANKNOTE CONFERENCE
 Fort Worth, TX, USA
events.currencyresearch.com

3-5 JUNE 2024
HIGH SECURITY PRINTING LATIN AMERICA
 Santiago | Chile
hsp-latinamerica.com

24-26 JUNE 2024
CASH SUSTAINABILITY FORUM
 Frankfurt, Germany
cashesustainability.com

28-30 OCTOBER 2024
THE COIN CONFERENCE
 Lisbon, Portugal
thecoinconference.com

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