



CURRENCY NEWS™

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Canadians Explore Technology to Turn E-Waste into Coins

The Royal Canadian Mint (RCM) has announced a new partnership with enim Technologies, which extracts precious metals from e-waste, to explore the possibility of incorporating these metals into the Mint's future coin production.

Enim, based in Montreal, specialises in the 'revalorization' of precious metals and critical strategic minerals from obsolete electronic devices, whilst the RCM – as well as producing circulating and commemorative coins – is one of the world's leading precious metals refiners. Areas being explored to begin with include the feasibility of incorporating enim's revalorized metals – including gold, silver, and copper – into the RCM's future coin production, alongside the exchange of expertise in related strategic fields.

Enim plans to launch its first commercial facility in 2027, utilising its patented hydrometallurgical technology. This approach enables the optimal revalorization of obsolete circuit boards by processing metallic, plastic, and ceramic fractions through an eco-friendly solution which does not involve harmful materials such as cyanide, and which aims to be zero waste whilst ensuring full traceability of ethically recycled products.

'As a high-volume gold refiner, the Mint is committed to operating sustainably, finding new and innovative ways to maximize environmental responsibility. Sourcing metals recovered through urban mining complements our ability to do that and presents an exciting opportunity for the Mint to participate in the circular economy',

said Marie Lemay, President and CEO of the Royal Canadian Mint.

According to a report by the UN's Global E-Waste Monitor, 62 million tonnes of electronic waste were generated worldwide in 2022, only 22% of which was collected and revalorized in a documented manner. This figure is up 82% from 2010 and is on track to rise another 32%, to 82 million tonnes, by 2030.

Each year, precious metals lost through incineration or landfilling represent an approximate value of US\$62 billion, causing additional significant environmental and social issues, the report said, adding that 'this urban mine represents a major opportunity to revalorize these precious metals and other critical and strategic minerals contained in electronic waste – sustainable activity with high growth potential that also contributes to reducing the environmental impact associated with primary mining.'

The move by the RCM into extracting value from e-waste follows that of the UK's Royal Mint, which announced a tie-up with another Canadian company specialising in e-waste, Excir. Last year it opened a new factory in South Wales which it claims will enable up to 4,000 tonnes of gold to be processed from e-waste annually.

The gold recovered by the Royal Mint so far is being used in its 882 gold jewellery collection, rather than coins.



The Opportunity for a Revolution in Currency Management

■ By John Winchcombe, Editor, Cash & Payment News™

Chris Skinner, an independent commentator on the financial markets, blogger and author, has written an interesting piece about how technology is changing the way business is delivered¹. He wrote it about how the digital bank model needs to change, but how might this apply to the world of cash?

The hypothesis is that once upon a time the structure of business was:

- **Back office:** manufacturing products focused on innovation and continuous improvement
- **Middle office:** processing transactions focused on quality (getting it right, on time)
- **Front office:** customer relationships based on deep understanding and co-operation.

Across all of these, data was key.

But times change. Depending on your business, for example banking, some tell a story about apps, APIs and analytics, probably using AI. Perhaps for cash the application of these is rather different than for those working in banking.

However, one thing that does apply is a change in the way we think about data. You cannot be intelligent with dumb data. Whether you call it smart data or not, we need data that is consistent, consolidated, co-ordinated and current. It has to be structured data, whether in the back, middle or front office. All of it needs to be holistic and robust.

If you can get to this 'smart' data, then you have the option to start feeding it into analytical tools, particularly those such as artificial intelligence (AI), machine learning (ML) etc².

Within banking and payments, historically the infrastructure of the 'middle office' has been SWIFT, Visa, Mastercard, Vocalink, the EBA, STEP, TARGET, Fedwire, FedNow and such like³. The 'futurists' dream of all this being replaced by smart contracts and blockchain-based systems, and SWIFT, Visa and Mastercard are already moving to tokenisation.

The future looks a long way from product, process, people, with the era of paper processed in buildings by humans being replaced by data processed by data with tokens. How could this carry over to currency management?

Smart data in currency management

We live in a digital age built on three interconnecting developments – digital transformation (moving from paper to no paper), the Industrial Internet of Things (IIOT) (allowing data collection to move from historic to real time) and what is often referred to as Industry 4.0, the fourth industrial revolution, where data is turned into information. These developments open up opportunities to collect cash related data and to turn it into usable information.

One obstacle is the need to standardise its format across every area of the cash cycle. The organisation that will gain most from the information will need to lead on this, almost certainly the central bank.

“ While currency is a physical product, we need to ensure it benefits from all that digital has to offer.

Back office: (production)

■ **Sources:** Today's production sites are built around measurement. From building management systems to end-to-end on machine measurement to automated finishing and vault management, the finished product, and its journey, is recorded in detail.

■ **Analytics:** Already production data is used to avoid creating designs that are inefficient to produce. In addition, design data is being used to speed up the make-ready of machines. Digital twins are coming, but already advanced analytical tools and techniques are being used to optimise production.

■ **Opportunity:** An opportunity lies in linking this data with the performance of currency in circulation through to end of life. This can feed back to the specification and design choices of the product.

Middle office: (issue and return)

■ **Sources:** Vault data, reporting on cash centre issue and returns, sorting

machine fitness and authentication data, destruction records.

■ **Analytics:** Forecasting, stock management and cash performance in circulation uses advance analytical models. The use of AI and ML tools is possible.

■ **Opportunity:** Electronic Data Interchange (EDI) standards such as GS1 and CashSSP allow for standardised data flows between organisations. It should allow real time information, enabling anomaly identification and more granular data to be made available to central banks and other stakeholders. The identification of problems could help a move to automated reporting. Digital twins in cash centres allow for better predictions and understanding of cash flows and performance.

Front office: (circulation)

■ **Sources:** A large number of modern devices now fitness check and authenticate currency – Smartsafes, teller cash receivers/dispensers, deposit ATMs, modern counting machines. Most are connected to the internet. Local recycling is increasing, whether by banks, retailers, cash in transit (CIT) or cash management companies. Apps, such as Koenig & Bauer Banknote Solutions' ValiCash™, can capture fitness data as well as authenticate notes.

■ **Analytics:** While CIT and cash management companies use sophisticated tools to forecast and manage their cash, little of this is shared with central banks. Analysis of fitness and the performance and flow of cash is seldom a prime concern.

■ **Opportunity:** Access cash cycle data to understand the flow, stock levels, quality levels and the performance of cash in circulation to allow cash cycle stakeholders, including central banks, to minimise cash movement and optimise cash quality in circulation. Some organisations already use digital twins, AI and ML, but these offer major opportunities across the cash cycle.

The privacy of payments is a valued attribute of currency. Concepts such as tokenisation may be useful in preserving confidence in this attribute.

Final word

We live in a digital age. Digital is perceived as 'easy' while 'analogue' is seen by some as complex, difficult and 'messy', old fashioned even.

While currency is a physical product, we need to ensure it benefits from all that digital has to offer, particularly around data.

¹ How the digital bank model needs to change – Chris Skinner's blog

² The latest buzz word is agentic AI, a type of artificial intelligence (AI) that behaves like an autonomous agent by performing repetitive tasks, making predictions, and interacting with other systems without direct human oversight.

³ EBA – European Banking Authority, STEP – ECB Short-Term European Paper, TARGET – euro real time gross settlement system, Fedwire – US real time gross settlement system, FedNow – US instant payment system

News in Brief

■ Enhanced Offer for De La Rue

On 12 December De La Rue made known that it had entered talks with a consortium to sell up to 40% of its equity, which would value the company at about £245 million. It had received a proposal of £1.25 per share from private equity group Disruptive Capital GP and pension fund manager Pension SuperFund Capital – together, PSFC Entities.

Under London Stock Exchange rules, PSFC Entities had, by no later than 9 January 2025, to either announce a firm intention to make a partial offer or withdraw.

The partial offer is no longer under consideration. Instead PSFC Entities has made a preliminary possible conditional cash offer of £1.25 per share for the entire issued and to be issued share capital of the company.

As with the initial partial offer, this offer is conditional, amongst other things, on the successful completion of the already announced planned sale of the Authentication division to Crane NXT.

De La Rue's Board has requested, and the Panel on Takeovers and Mergers has consented to, an extension to the deadline by which the PSFC Entities are required to announce a firm intention to make an offer for De La Rue, or to announce that it does not intend to make an offer, until 17.00 (GMT) on 6 February 2025.

■ Upgrade for Pakistan's Papermaker

Security Papers Limited (SPL), the Pakistani banknote and security papermaker, has announced plans to upgrade its plant and machines in order to accommodate Pakistan's new banknote series, in particular the (as yet undisclosed) enhanced security features.

The current paper machine, from Voith, was installed in 2003. The plant was upgraded in 2011 and a short former installed in 2019. The latest upgrade is expected to be completed within 18 months.

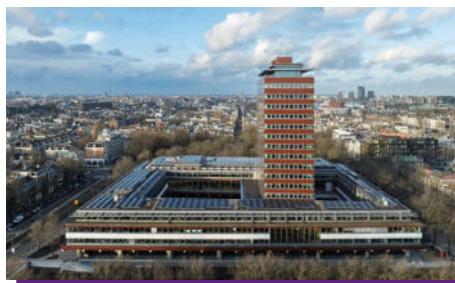
SPL is a joint venture between the governments of Pakistan, Iran and Türkiye. Its single largest customer is the Pakistan Security Printing Corporation. In addition to banknotes, it also produced paper for passports, stamps and certificates.

Pakistan's new series of banknotes is due for issue this year. One of the denominations will be on polymer, and it is assumed that in due course more or even all will be, depending in part on the performance and acceptance of the first one. Until then, it would appear there

is enough to keep SPL busy and justify the investment in the upgrade, which will extend to wood-based as well as cotton-based paper.

■ DNB Return to Renovated Headquarters

The headquarters building of the Dutch National Bank (DNB) in Amsterdam has re-opened after nearly five years of renovation.



The 1968 building was found to be technically obsolete and fell short of today's sustainability requirements. In addition, it was decided to move cash operations and over 200 tonnes of gold to a newly built cash centre in Zeist, which opened in 2023 (see CN May 2023).

DNB has taken the opportunity to open the building's ground floor and basement levels to the public as of March 2025. People will be able to learn about DNB's core activities through exhibitions, interactive games, seminars and debates, and can view art and money collections.

Opting for renovation rather than a new build saved 70,000 tonnes of construction materials, reducing the environmental impact by 50% compared to a completely new building, DNB said. It makes maximum use of renewable resources, and features energy-efficient installations to reduce energy consumption. It has a thermal energy storage system, 1,380 solar panels and sedum roofs.

The modifications with regard to sustainability and the relocation of cash operations contributed to reducing energy consumption and carbon emissions by more than 80% compared to before the renovation.

Total costs associated with the renovation are €320 million. The renovation was completed within budget while also reducing operating costs significantly.

■ ATMIA and ASA to Merge

The ATM Industry Association (ATMIA) and the ATM Security Association (ASA) have announced that they are merging, combining the two organisations into a single, unified membership under ATMIA.

'By merging ATMIA and ASA, we are uniting the strengths and resources of two leading associations to better serve our members and address the challenges

facing the ATM industry,' said ATMIA. 'This integration represents a significant step forward in our shared mission to enhance security, foster innovation, and streamline member experiences across the board'.

ATM-related crimes cost billions annually, and as part of the merger, ATMIA members will gain access to the ASA's Crisis and Crime Management Intelligence System (CCMIS). Launched in 2021, this is the first global ATM crime and cyber fraud database, offering real-time insights into evolving crime trends and attack methods.

Members will also benefit from a unified platform that provides access to a number of resources, events, and dedicated industry connections, as well as research, security guidelines and combined advocacy efforts.

■ Inorcoat Expands in Poland

PVD coating systems provider Inorcoat has announced the successful approval of its building permit request to begin construction of a new coating centre in Przeworsk, Poland.

The company has said that the first stage of expansion will be a 700m² production hall with a dedicated area for production of its MS coating equipment range. Building work is expected to begin at the end of February, with the start of operation scheduled for the third quarter of this year.

The company's physical vapour deposition technology offers an alternative to traditional (and hazardous) chrome plating, which is being banned by a growing number of countries around the world. Its system are deployed in both the minting and printing industries or coating dies and finished coins, along with intaglio plates.

■ New General Director for ICA

Frane Maroević has joined the International Currency Association (ICA) as its new General Director, replacing Jutta Buyse who stepped down last year.

Based in Vienna, Frane was formerly Executive Director of the International Press Institute and, before that, has held senior communications and advocacy roles with the OSCE (Organization for Security and Cooperation in Europe) and the Internet & Jurisdiction Policy Network, among others.

According to Frane, 'over the years, my work has taken me across diverse landscapes – from advocating for human rights to strengthening independent media and global communications. What ties it all together is a belief in the power of connection: bridging divides, fostering dialogue, and finding common ground. At the ICA, I'm excited to join forces with an incredible network of members and partners to tackle the challenges shaping the future of money'.

People in the News

■ **Shaktikanta Das** has been replaced as Governor of the Reserve Bank of India by **Sanjay Malhotra**, former Revenue Secretary in the Ministry of Finance.

■ Following the change of regime in Syria, **Maysaa Sabrine** has been appointed Governor of the Central Bank of Syria, the first woman to hold the position. She was formerly Deputy Governor, and replaces **Mohammed Issam Hazime**.

■ **Ahmed Al Musalmi** has been appointed Governor of the Central Bank of Oman. He replaces **Tahir Al Amri**, and joins from Sohar International Bank, where he was the CEO. He was also previously head of the National Bank of Oman.

■ Hungary's Finance Minister, **Mihály Varga**, will take on the role of Governor of Magyar Nemzeti Bank, this March. The nominee of the country's President, he will succeed **Gyorgy Matolcsy**.

■ **James Alic Garang** has been dismissed as Governor of the Bank of South Sudan by the country's President, just 14 months after taking office, and his immediate predecessor, **Johnny Ohisa Damian**, appointed as his replacement. This is the sixth change of governor at the Bank since 2020.

■ **Arnaud Laurans** has been appointed Managing Director of the SICPA Currency Services and Solutions business, overseeing banknotes and document security solutions. Previously, Arnaud was the General Manager of SICPA Mexicana SA de CV and the Regional Business Director for the Latin America area.

■ **Julian Schubert** has been appointed to lead Koenig & Bauer Vision & Protection as CEO. The company is a newly-formed business unit, announced as part of Koenig & Bauer's recent restructuring that has seen three divisions reduced to two (see CN December 2024). It sits within the Special division (alongside Banknote Solutions) and will focus on optical measurement and control technology, as well as product protection. Julian was formerly Vice President of Data, Vision and Authentication Solutions.

■ **Jeff Hanke** of Royal Canadian Mint has been appointed Managing Director of Sales, Foreign Circulation. He was formerly Sales Director, and replaces **David Butler**, who has retired.

■ The ATM Industry Association (ATMIA) has appointed **Thyagarajan Seshadri** as Chairman of the Europe and Emerging Markets Board. He has over 25 years of experience in the ATM, retail banking automation and payments industry, past achievements including the establishment of the Confederation of ATM Industry in India (CATMi) and strategic contributions to national initiatives like the issuance of RuPay Cards under the National Mission of Financial Inclusion.

From Tradition to Transformation: Komori's Path to 2030

Komori has released its Integrated Report 2024, a detailed overview of the company's financial and non-financial performance, along with its plans to create long-term value through innovation, sustainability, and global expansion.

This is a summary of the key points, including Komori's current priorities, its 7th Medium-Term Management Plan, and its vision for 2030.

Growth in security printing

Komori entered the security printing market in the late 1980s and its presence has steadily grown, now supplying security printing presses to 38 countries.

Over the past 15 months, the company received orders worth over ¥20 billion (approximately \$130 million).

7th medium-term plan

Following its 100th anniversary in 2023, Komori is focusing on transforming its business and strengthening its foundation to navigate a fast-changing global market. Its 7th Medium-Term Management Plan (MTMP), launched this fiscal year, sets clear goals for sustainable growth and operational improvement, including:

■ Achieving at least 6% return on equity (ROE) by FY2027, with a target of 10% by FY2031.

■ Reaching a 7% operating income margin by FY2027.

■ Improving product differentiation, cutting costs, and achieving a 9% operating income margin by FY2027.

■ Growing the Digital Printing Systems (DPS) and Printed Electronics (PE) businesses from 17% of net sales in FY2024 to 25% by FY2027.

■ Reducing CO2 emissions by 26% by 2030 (compared to 2022 levels) and adopting more eco-friendly products and energy-efficient practices.

Kando philosophy

Komori has evolved its philosophy from 'A Company That Delivers Customer Kando Beyond Expectations' to, simply,

'A Company That Delivers Kando Beyond Expectations.' (Kando means emotional fulfilment or deep satisfaction in Japanese.)

This shift builds on a concept introduced in 1993 by Yoshiharu Komori, the 4th-generation president, who encouraged employees to focus on delivering meaningful fulfilment, not just basic satisfaction, to customers.

Investing in innovation

Komori plans to invest ¥20 billion in key areas like technology, production, and workforce development to drive innovation. Key initiatives include:

■ Advancing offset printing technology and developing smart factory systems to address labour shortages and improve sustainability. In October 2024, Komori launched a smart factory model at its Graphic Technology Centre, automating printing processes and centralising management for better efficiency.

■ Enhancing DPS technology, including new applications, digital front-end systems, and jetting control advancements.

■ Building diverse international teams and investing in workforce development to support global growth.

Vision for 2030

Komori aims to strengthen its global presence, particularly in fast-growing markets like India and ASEAN countries. By leveraging its regional expertise in Asia, the company seeks to meet the rising demand for offset and digital printing solutions while driving global expansion.

For more details, the full report is available here https://www.komori.com/en/global/information/news/2024/1225_303.html

Q&T Hi-Tech Polymer: Driving Innovation with Speed, Not Imitation

Last year, Currency News™ reported on the introduction of a new polymer substrate for banknotes – POLYSECURE® – from Q&T Hi-Tech Polymer Co. Ltd, a Vietnamese manufacturer. In just a few years, Q&T has developed an innovative process for producing this substrate, constructed a new factory, secured contracts for three of Vietnam's six denominations, and is now aiming for a broader global market.

We interviewed Luong Ngoc Anh, the founder, Chairman, and CEO of Q&T, at the High-Security Printing Conference™ Asia in Bangkok, Thailand, to gain insights into the company's journey and aspirations.



Q: Please tell us about your background and that of Q&T.

A: I graduated as a chemist from Hanoi and am a first-generation entrepreneur with experience in IT, automation systems, infrastructure, and security. My research in Melbourne, Australia, helped me tackle the technical challenges involved in creating a polymer banknote substrate.

On the commercial side, I gained valuable insights into the banknote industry and the needs of the State Bank of Vietnam (SBV) while representing leading banknote suppliers over many years.

Q&T is my brainchild; I founded it in 2016. It is 100% Vietnamese-owned and based in Hanoi – Q&T stands for Quality and Technology.

Q: What motivated you to enter this challenging industry?

A: Vietnam uses approximately 1.5 to 2 billion polymer banknotes annually, and for 20 years we relied on a single supplier. The global adoption of polymer notes has been steadily increasing, presenting an opportunity for a second supplier in a stable market.

I became deeply interested in this industry during Vietnam's transition to polymer

banknotes in 2003. Before this change, we used cotton paper notes, which were highly susceptible to counterfeiting – a significant issue that plagued our economy. The shift to polymer notes was transformative; public acceptance improved significantly.

I found this development fascinating.

Q: When did you decide to invest in becoming a polymer banknote supplier? How quickly has Q&T developed its substrate POLYSECURE®?

A: I recognised opportunities in this sector and decided to explore them further. The technical challenge was to create a new polymer substrate that met the specifications of Vietnamese notes while ensuring a roadmap for R&D on new features.

I began researching by testing my ideas using biaxially oriented polypropylene (BOPP) as a base substrate in innovative ways compared to conventional methods.

Q&T opted to develop an offline process for laminating two or more polymer surfaces together, which allowed for greater potential in creating new security features.

By 2019, I felt confident enough to conduct production trials by renting machines in Vietnam. In 2021, I obtained the license to build a production plant. The following year, we ordered a new roto gravure printing press from Germany's leading supplier.

We customized the machine's design to meet Q&T's specific needs; it is unique and owned by us. This press is the supplier's largest ever at 62 metres long and will achieve the required performance for ink opacification, adhesive quality, opacity, window clarity, and printability.

On 15 August 2022, we completed construction of our factory and signed our first contract on 15 August 2023. This initial production order from SBV was for the 20,000 denomination note, which we delivered by March 2024.

Q: Before building the factory, did you approach the State Bank of Vietnam (SBV) for support?

A: All these achievements have been made with encouragement from the government, which has been keen on having dual

suppliers of polymer substrates without making any commitments to purchase.

I did seek their commitment; however, they declined to guarantee anything. They stated that if our product was good, they would buy it; if not, they wouldn't. So I took the risk and proceeded with my plans.

Q: What sets your technology apart? How did you address key challenges like film production and security features?

A: I adopted a different technological approach. In conventional methods, layers of polymer are produced in one step; I developed an offline lamination process that offers several advantages – including registering my IP without infringing on existing patents.

Producing polymer banknotes is technically complex and requires high quality while adhering firmly to security features. It took me two years to overcome these challenges.

The three biggest challenges were related to film production, ink formulation, and security features. We developed a new approach to film production and created our own ink formulations while incorporating advanced security features.

Q: Can you describe your R&D efforts and other challenges?

A: Speed is crucial because time is limited; I want my team to move as quickly as I do.

Q&T's initial R&D focused on matching basic features commonly used on polymer notes – such as shadow images and iridescent inks, and producing the optical security features used on high denominations in Vietnam.

To achieve this, we utilize a specialized high-powered laser to create intricate patterns and microstructures that efficiently control light while producing detailed images.

In terms of intaglio printing characteristics – our substrate's surface is smoother than those of other suppliers – resulting in greater perceived tactility of intaglio ink on Q&T's substrate. This also allows for finer lines and more opportunities for designers.

For security features, polymer notes are so durable that features like hologram can fail before printed images or substrates wear out. To address this issue, we are embedding security features using a laminated approach.

In March 2023, we signed a technical development agreement with Crane for the use of its micro-optics MOTION SURFACE® feature on polymer substrates. Trials were conducted in May and evaluated in July 2023; further evaluation and development work are ongoing.

We hope to have features from our R&D considered for inclusion in future Vietnamese commemorative notes.

Continued on page 6 >

Tenders, Contracts and MOUs

■ Danmarks Nationalbank has signed an agreement with FNMT-RCM for the production of Danish coins over the next four years.

The Bank previously had a contract with the Mint of Finland, dating back to 2017 when it closed its own mint. The contract expired in 2024 and, in any case, the Mint of Finland will shortly be closing down.

As a result, Danmarks Nationalbank initiated a EU tender to identify a new supplier. And FNMT was chosen as their bid was the most favourable. Evaluation criteria included price, quality and corporate social responsibility.

The first order will be for 1, 2, 5, 10 and 20 kroner coins, which will be updated with motifs depicting HM King Frederik X in place of his mother, Queen Margrethe II, whose effigy appears on current coins but who abdicated in favour of her son last year. The first of these are expected to enter circulation in late 2025.

■ The Security Printing Corporation of Bangladesh has held a tender for the 'supply of origination works' for all banknote denominations (2, 5, 10, 20, 50, 100, 200, 500 and 1,000 takas).

Separately, it has published the procurement budget for banknotes for 2024/25, amounting to just over BDT 2.87 billion (US\$23.5 million), covering paper (BDT 1.35 billion, ink (BDT 1.49 billion), and plates, tools, consumables and other materials (BDT 115 million).

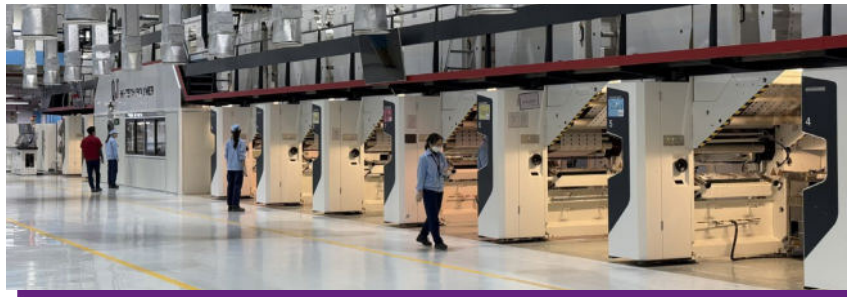
■ The Currency Management Department of Nepa Rastra Bank has issued an Invitation for Prequalification (IFP) for the design, print and delivery of Nepalese banknotes (all denominations), plus related services. The contract period is two years. The deadline is 24 February 2025.

■ The Royal Canadian Mint and Bangko Sentral ng Pilipinas (BSP) have signed an MOU establishing a framework for strategic collaboration. According to the two organisations, this agreement builds on the strong and longstanding business relationship between them over the past 75 years.

This is the third MOU for BSP in as many months, following similar agreements signed with Bundesdruckerei and the Banque de France late last year.

■ Bharatiya Reserve Bank Note Mudran Pvt. Ltd. has issued national Expression of Interest (EOIs) to identify suppliers for the raw materials required for manufacturing varnish and inks for banknote printing, including UV curing numbering ink and overprint varnish.

... Q&T Hi-Tech Polymer



Q: *What can you tell us about your factory and production?*

A: Our factory is built on a greenfield site with all necessary security measures and support functions. We have 60 staff members on-site; five are dedicated to R&D. Q&T underwent rigorous testing by SBV and the National Banknote Printing Plant (NBPP) to qualify as a supplier for recent tenders.

It took numerous trials for our first denomination to reach the standard for production successfully – this facilitated easier preparation for subsequent denominations.

Q&T has been approved for production of 10,000-, 20,000-, and 50,000-dong notes. The 50,000-dong denomination includes a challenging diffractive optic element that has also been approved for production.

We collaborated with top providers of online image processing systems to install an online quality control system on our press. Each printed sheet carries a unique barcode that identifies any defects during inspection processes.

Vietnam's Ministry of Public Security assesses our site regularly; they check our security systems weekly during production periods. We must present all documentation regarding material purchases and products produced to ensure safety compliance throughout our operations.

This level of control is atypical in manufacturing but essential here; our team understood from the outset that compliance was non-negotiable.

Q: *Did you file your patents internationally?*

A: Yes, I filed them in Vietnam where government procedures allow international review of intellectual property (IP).

Q: *What is your long-term vision for Q&T?*

A: While our primary focus remains Vietnam-centric now, I plan to expand

globally by offering advanced security features and innovative solutions – such as embedding security features within polymer layers to enhance durability.

Q&T aims not only to retain annual supply contracts within Vietnam but also to win export opportunities. Initially targeting existing polymer users will pave the way toward converting paper currency customers over time. We are already engaging with several central banks and have recently hosted visits from ambassadors from African countries who expressed keen interest during their tours.

However, we recognize that there are now seven organizations capable of producing polymer substrates (CCL Secure, De La Rue, China Banknote Printing and Minting, Goznak, Spectra, Covestro). In this context, we strive for R&D efforts that provide us with market advantages while opening new markets through active patenting policies supporting these initiatives.

Q: *Central banks are cautious about changing suppliers; how has this impacted you?*

A: While their caution can be frustrating at times – it also works to our advantage. Innovation within this industry must balance improvements with risk aversion; my goal is to offer advancements central banks can adopt with minimal risk involved.

One effective strategy has been collaborating with established industry suppliers – this provides central banks with confidence that the technology works while only requiring proof of embedding efficacy on our end.

Q: *Is there any message you'd like to share with the industry?*

A: Innovation is essential! I've always believed in tackling challenges from fresh perspectives. For example – I encourage my team not to study existing technology too closely because my goal is innovation rather than imitation.

PPM Gives False Sense of Security About Counterfeiting

■ By Duncan Reid, Consultant Counterfeit Expert

In his article in the December 2024 issue of *Currency News*[™], Antti Heinonen reported that the majority of central banks which publish data on counterfeiting use parts per million (ppm) as a metric. Due to its relative ubiquity (and the absence of anything better), ppm serves as a useful means of comparing trends both within and between countries. But as a metric it has its shortcomings.

This article examines some of those shortcomings and proposes an alternative method based on the number of banknotes used for cash transactions.

Transactional use of cash

Ppm is calculated based on the total number of genuine notes in circulation (NIC), yet in recent years, the Bank of England, European Central Bank (ECB) and Reserve Bank of Australia (RBA) have all published reports showing that only about 20% of banknotes are used for transactional purposes. If fewer genuine notes are used for transactions then the probability of receiving a counterfeit is significantly higher than the ppm suggests. By their nature counterfeit banknotes are used in cash transactions, and measuring counterfeits in terms of transactional cash instead of NIC could identify counterfeiting issues that are less apparent from the ppm calculation.

The Bank of England estimates that, at any one time, only around 20-25% of banknotes are held within the domestic transactional cash cycle. Of the remaining 75%, some are held by individuals within the UK, some are held overseas by investors as a store of value, and some may be held in the shadow economy. Around £10-30 billion of Bank of England banknotes are held in reserve by households domestically, with a high degree of confidence that at least £10 billion is held by households.

In 2023 there were over 4.6 billion Bank of England banknotes in circulation and 116,000 counterfeit banknotes were taken out of circulation, giving a counterfeiting level of 25 ppm. The NIC includes notes from old series that no longer hold legal tender status and therefore cannot be used for transactions (although they can still be exchanged at the central bank for new notes). In July 2024 there were 395 million paper banknotes in circulation with a value of £7.2 billion. Removing these notes from the NIC number increases the counterfeiting level by two points to 27 ppm.

The situation is similar in Europe; in Figure 1 the ECB estimated that 20-22% of euros are used for local transactions. Between

28-50% of euros are held as a store of value within the euro area whilst an estimated 30-50% of euros are held abroad.

The RBA used four different methods to approximate the size of transactional cash and concluded that of all the banknotes in circulation:

- 9-26% are used for transactional purposes
- 5-9% are 'lost'
- 7-11% are used in the shadow economy
- 55-80% are hoarded domestically or internationally.

The estimated share of banknotes used for transactions in Australia has declined by 5% since the COVID-19 pandemic and is consistent with the decline in cash payments¹.

If the number of banknotes used for cash transactions is only about 20% of the NIC, and assuming the number of counterfeits in circulation remains the same, then the ppm figure is increased fivefold.

Table 1 shows the impact on ppm in 2023 when it is calculated from transactional cash instead of NIC. It moves all of the countries above the global average of 15 ppm quoted as a benchmark by the Central Bank of Sri Lanka and takes Canada close to its own benchmark of 30ppm.

Country	Counterfeits	NIC (bn)	Transactional notes (bn)	ppm - NIC	ppm - transactional
England	116,000	4.6	0.84*	25	138
Euro area	467,000	29.7	5.9	16	79
Australia	10,023	2	0.4	5	25
Canada	17,043	3	0.6	6	28

Table 1: Counterfeiting ppm in 2023 calculated from NIC and transactional notes
*Deducted 0.4 billion withdrawn paper banknotes from NIC.

In the case of the euro the €20 and €50 notes are the most counterfeited, together accounting for more than 70% of the total. The risk of coming into contact with a counterfeit increases because the most counterfeited denominations are mostly used for day-to-day cash transactions. The risk is also high in the UK, where 57% of the NIC are £20 and counterfeit £20 notes are 91% of the total.

Retailers tend to keep the transactional denominations as change and they cycle through the cash processing centres less frequently than higher denominations that are more likely to be banked once they are spent. This increases the possibility of a counterfeit banknote being used in more than one transaction before it is withdrawn. Higher quality counterfeits will stay in circulation for longer and could be passed more than once before they are detected. Such counterfeits are only counted once in the statistics at the point of withdrawal from circulation.

The risk of receiving a counterfeit banknote is concentrated in a small demographic of 1.5 million consumers or 2.6% of adults in the UK who mainly used cash when doing their day-to-day

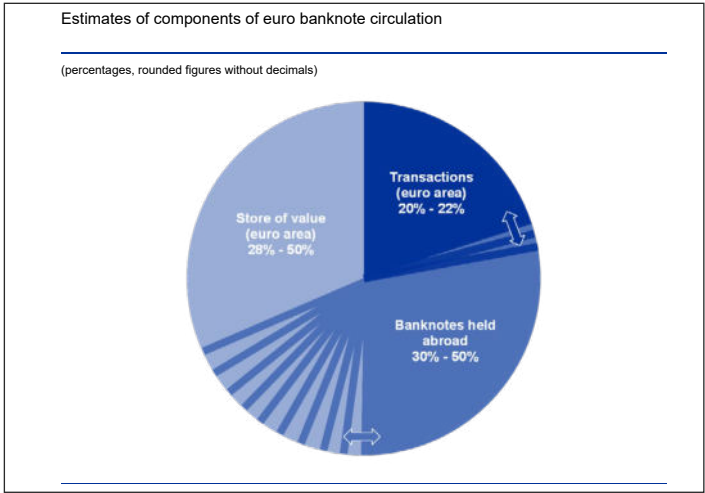


Figure 1: Estimates of components of euro banknote circulation. Source: ECB.

Continued on page 8 >

1 Elkington, Patrick and Guttman, Rochelle: Understanding the post-pandemic demand for Australia's banknotes, Reserve Bank of Australia Bulletin, January 2024.

... PPM Gives False Sense of Security About Counterfeiting

shopping in 2023. Further, cash is only handled by 61% of UK adults, with the remainder of the population living largely cashless lives². When people handle cash infrequently the risk of accepting a counterfeit increases because they are less familiar or are complacent about checking that the banknotes are genuine.

Calculating the level of counterfeiting based on the amount of transactional cash instead of NIC has the potential to show counterfeiting issues that may not be apparent in the ppm calculation. A method of calculating transactional cash is needed and the IMF views the value of cash withdrawn from ATMs as a more accurate measure of cash use compared to currency in circulation. This is because ATMs are typically stocked with mid-value denominations that are used in cash transactions³.

Bulk seizures indicate a counterfeiting threat

Bulk seizures are counterfeit banknotes that are intercepted by law enforcement operations, such as raids on counterfeiting print shops. Because the counterfeits are seized before they enter circulation they are not included in the ppm calculation. Some central banks – including the RBA, the Bank of England and Bank of Canada – publish the number of seized counterfeits separately (in Canada the statistics are published by the Royal Canadian Mounted Police).

In some years the number of bulk seizures exceeds the number of counterfeits removed from circulation. In 2019 there were 453,000 counterfeit Bank of England banknotes removed from circulation and 536,000 in bulk seizures. This was due to a police investigation that closed down an organised crime group (OCG) that was producing high quality counterfeits of the paper £20 banknote, using commercial offset printing with simulation of the holographic stripe and windowed security thread by hot foil stamping. The OCG was jailed for conspiring to supply more than £12 million of counterfeit banknotes, of which £1.8 million entered circulation.

In August 2024, Italy's Carabinieri arrested a counterfeiter in Naples whom they believed was responsible for 27% of counterfeit euro banknotes removed from circulation in 2023. On dismantling his sophisticated counterfeiting print shop they seized nearly €3 million in high quality counterfeit banknotes⁴. Because these notes were a bulk seizure they were not included in the ppm calculation.

Some likenesses of banknotes are marketed as Movie, Prop or Training notes. These look like genuine banknotes but are often printed onto paper without any security features such as windowed threads or holograms and contain phrases such as Movie or Prop Money. Training notes often have Chinese characters printed on the front and back.

Such notes were originally intended to be used in film and television productions and for training bank cashiers. If they are copied the same size as the genuine notes then they are counterfeit and it is a criminal offence to possess, pass, sell, make or import these notes. The Bank of England states that reproductions of banknotes must be at least 25% smaller or larger than the genuine banknote and in the US Prop money must be 75% smaller or 150% larger than the genuine notes.

In April 2024 police in Germany seized a consignment of over one million US\$100 Movie Money notes that originated in Turkey and was being shipped to the US.

In October 2024 law enforcement agencies from 18 countries seized over €14 million in counterfeit currency in a joint customs and police operation coordinated by Europol. 174 parcels were seized and the vast majority contained Movie Money copies of €20 and €50 notes. Copies of British pounds and US dollars were also seized⁵.

Whilst these bulk seizures are not included in the ppm calculation they point to a growing trend of counterfeiters importing commercially printed Prop or Movie money from China or Turkey. For currencies that have holographic stripes or patches, the counterfeiters may import separate consignments of counterfeit hologram stickers that are applied to the Prop money before the counterfeits are sold on social media platforms. The benefit to the counterfeiters is they do not need to invest in printing equipment and if they are caught they are likely to face lesser charges of possession or passing counterfeit banknotes as opposed to making counterfeits.

Conclusions

The majority of central banks which publish data on counterfeiting use ppm as a metric. Although ppm gives an understanding of counterfeiting trends it has a number of shortcomings that can lead to a false sense of security about counterfeiting levels.

The calculation of ppm is based on the number of genuine banknotes in

circulation. This masks the true level of counterfeiting because studies show that only about 20% of banknotes are used for cash transactions, which increases the probability of a counterfeit being passed.

Bulk seizures are excluded from the ppm calculation yet they physically represent the next counterfeiting threat to a currency.

Counterfeits can be passed in more than one transaction but are only counted once in the statistics at the point of withdrawal from circulation.

It is proposed that the level of counterfeiting is calculated from the number of banknotes used in cash transactions. A figure for transactional cash can be developed using data on cash withdrawn from ATMs.

Cash Recirculation and Local Recycling: from Policy to Practice

Life Cycle Analysis shows that most of the environmental impact of cash happens once cash is issued. While central bank management of cash post-issue is becoming more challenging as local recycling away from cash centres increases, at the same time increased automation combined with the spread of the industrial internet of things is also creating new opportunities to do things differently.

This white paper examines the cash cycle from the perspective of every stakeholder, drawing on interviews and discussions with the 24 organisations that contributed to it. It contains examples and information from around the world, from small and large countries, emerging market and advanced economies and all types of stakeholder. Whatever the circumstances of the reader, there is the opportunity to learn from others and rethink cash management.

Launched at the High Security Printing EMEA conference in Basel at a workshop on 3 February, this white paper will be available as a free download so that all can benefit.

2 UK Finance (July 2024) UK Payments Market Summary

3 Khiaonarong, Tanai and Humphrey, David: Measurement and Use of Cash by Half the World's Population, IMF (2023) Working Paper 23/62

4 Europol (2024) Euro forger who produced EUR 11 million in fake bills arrested in Italy

5 Europol (2024) Over EUR 14 million in counterfeit currency seized in operation targeting postal shipments

Cape Town Provides Backdrop to Intersection of Cash and Payments

At the end of November last year, the EMEA Cash Cycle & Payments Seminar took place in Cape Town, South Africa. Organised by Currency Research, the seminar was one of the best-attended regional cash events in recent years, with over 245 delegates from various sectors, including central banks, commercial banks, cash-in-transit companies, and technology providers.



The seminar offered a detailed programme comprising three full days of workshops, standalone papers, and panel discussions, together with an extensive exhibition. Topics ranged from the forecasting, efficiency, resilience, and sustainability of cash, to the future of cash in transit, and the intersection of cash, digital payments, and currency confidence in a rapidly evolving landscape.

Of particular note was an overview of South Africa's cash ecosystem by Pearl Kgalegi of the South African Reserve Bank. She described how, despite the growing use of digital payment systems in the country, currency in circulation between 2013-23 increased by a compound annual growth rate (CAGR) of 4%, while the number of ATMs and bank branches in operation remained steady.

Contributing to the rise of cash use in South Africa was a rise in both the number and value of social assistance payments, which increased by 1.7% and 9.1% respectively, between 2013 and 2023. According to Statista, as of 2023, approximately 40% of individuals in South Africa were receiving social grants, and a significant proportion of these grants were being withdrawn as cash as soon as they were deposited in individuals' accounts.

Another contributor related to a partnership between digital bank TymeBank and Flash, a South African payment solutions provider, to allow customers to withdraw

cash from over 172,000 spaza shops (convenience stores) and other informal traders nationwide. As a result, the bank now boasts the most extensive cash withdrawal network in South Africa.

'While TymeBank supports the country's shift to a cashless society, the reality is that cash is still widely used in our communities and the informal market. Flash provides an accessible, convenient and easy-to-use cash-out solution, which means TymeBank customers can withdraw cash from a convenient location, reducing time and money spent travelling. They also save on fees, as withdrawals cost less than they would at an ATM,' said Greg Illgner, TymeBank's Chief Strategy Officer.

Finally, South Africa is in the process of implementing a fast payment system – ie. a financial infrastructure allowing for near-real-time electronic fund transfers between banks or financial institutions. These systems enable individuals, businesses, and governments to send and receive payments almost instantly, 24/7.

While FPS' are typically designed to reduce reliance on cash by enabling quick and secure electronic transactions, Pearl observed that in countries such as India and Argentina, FPS' have inadvertently contributed to an increase in cash circulation. One of the reasons for this could be that, since FPS' make funds available instantly, individuals have quicker

access to their money, increasing the frequency and volume of cash withdrawals.

Wholesale banknote trends

During the seminar, Cameron Hume of Travelex presented several major trends relating to the wholesale foreign exchange banknote market:

1. The global travel money market is growing rapidly, by 12% CAGR between 2024-2028, and projected to reach £35 billion by 2028.
2. Global South tourism (ie. tourism from countries outside of Europe and North America) is rapidly increasing. For example, Indian tourists travelling abroad in 2022 totalled 27 million compared to 70 million projected for 2030. This increase is driving growth in secondary and exotic currencies and creating new, but complex, opportunities for wholesale banknote supply.
3. While mobile payment solutions (Alipay, M-Pesa, Touch 'n Go etc.) have traditionally created walled gardens for international travellers, interoperability is driving change. In October 2024, Alipay+ partnered with 30 international payment providers to allow travellers to make payments abroad using their local mobile wallets.
4. The demand for US dollar banknotes continues unabated against a changing landscape, indicating a continued global confidence in cash. According to the US Federal Reserve, \$38 billion was added to US dollar circulation in 2023, 67% of which was held abroad.

Doing away with strapping and bundling

On the sustainability front, Christian Hernaut of Giesecke+Devrient described a system for packing and transporting banknotes without the need to use strapping or single-use plastic wrapping.

The system consists of NotaTray®, a standardised, reusable tray that securely holds loose banknotes and carries them right through the cash cycle, from central bank vault to ATM. This approach not only reduces manual handling but also minimises environmental impact.

Universal Access to Payments initiative

The seminar organiser, Currency Research, is also co-founder of the Universal Access to Payments (UA2P) initiative, a not-for-profit organisation dedicated to ensuring that every individual, regardless of location or circumstance, has fair and convenient access to payment systems.

A key component of this initiative is the UA2P Index, the inaugural report of which was published in November 2024. During the Cash Cycle Seminar, Jens Seidl, Chair & CEO of Currency Research, presented

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... Cape Town Provides Backdrop

the Index, which provides an overview of the diverse payment landscapes of the 19 countries of the G20. For each country, a scorecard was produced outlining progress made towards achieving universal access to payments and highlighting areas that could be improved.

The country scores were allocated at three different levels: Essential, Progress and Pioneer.

- **Essential** – explores the capability of a country to deliver the essentials for universal access. This includes data about a country's population and availability of payment products.
- **Progress** – explores the progress made by a country to ensure citizens can access the benefits of universal access. This includes data on digital inclusion, internet access and access to banking services.
- **Pioneer** – explores the ability of a country to pioneer the infrastructure needed for universal access. This includes data on e-commerce, real-time payment use and the development of a central bank digital currency.

As an example, Canada scored well on Essentials (70%) and high on Progress (86%) but low on Pioneer (44%), reflecting a very solid base with great levels of financial and digital inclusion but room for improvement when introducing the next generation of digital payments.

This is in contrast to India, which scored well on Essentials (62%), and Pioneer (66%) but low on Progress (25%). This reflects India's incredible success at introducing digital payments but the challenges it faces on financial and digital inclusion.

Going forward, the UA2P founders intend to engage with experts and central banks to develop specific recommendations for each country, which will provide direction on how they can improve universal access to payments based on their Index scores. These recommendations will feature in future iterations of the UA2P Index.

The next Cash Cycle Seminar will be held for the Americas region, in Miami, Florida, from 3-6 November 2025. This will be followed, in 2026, by the EMEA Cash Cycle Seminar, the location and dates of which will be announced soon by Currency Research.

Fashion, Food and the Best of Security Printing as Intergraf Heads to Milan

The next edition of the Intergraf Currency+Identity conference, which has been connecting technological innovators and institutional end users since 1976, takes place in Milan from 5-7 March.

The event is open exclusively to security printers, suppliers to security printers, central banks, government authorities, law enforcement and industry-specific digital solution providers. Around 1,000 delegates are expected, and there will be more than 100 exhibitors, in what is understood to be a record.

The event will start off, as is customary, with two closed sessions on the preceding day (4 March) covering high security (ie. intaglio) printing of banknotes and passports. Attendance is confined to issuing authorities, printers, law enforcers, and other government authorities.

There will also be a full-day workshop on the preceding day on Intergraf certification, with a focus on enhancing security and compliance in a digital landscape.

What is not customary is the formal opening of the conference the following morning (5 March), which will feature a fashion show in celebration of Milan's heritage as an epicentre of the global fashion industry.

Students from NABA, one of Italy's leading fashion schools, have created a series of unique designs using materials including sample banknotes, security paper, threads and foils, many provided by the exhibitors. The show aims to demonstrate the intersection of fashion and security printing in a highly unusual way, focusing on innovation and the creative use of technical materials.

The show will be followed by a keynote speech from Eleanor Winton – expert, facilitator and speak from the UK innovation, futures and trends consultancy Foresightfully. The topic of her keynote is 'The Future is Not What it Used to Be'.

The remainder of the day will be a combination of future-focused presentations (on IT compliance, positioning the US Bureau of Engraving and Printing for the future, Ethiopia's new secure printing hub) and 15 ten-minute pitches from suppliers in the Industry Innovation Arena, offering a dynamic snapshot of today's industry innovations.

The day concludes with a presentation on tender tactics, and how to simplify procurement processes through Intergraf certification.

The next day, 6 March, the agenda splits into parallel sessions covering currency and ID.

There will be four currency sessions, on the topics of:

- 'The role of cash in present and future societies' (with speakers from the Federal Reserve, Bank of England and National Bank of Kazakhstan)
- 'Central bank digital currency: lessons learned and future implications', led by the Banque de France
- 'Economic growth and the role of currency: navigating the now and planning for the future' – chaired by the Bank of Portugal with speakers from Banque de France and the Central Bank of the Bahamas
- 'Evolution in banknote design' – chaired by the Bank of Israel with speakers from the central banks of Spain and Italy.

The following day, 7 March, will also hold parallel sessions, the currency one focusing on 'Reinventing currency: innovative raw materials and manufacturing processes'. Chaired by Bundesdruckerei, delegates will hear from Casa da Moeda do Brasil on the circular economy for cotton banknotes, smart factories from Valora, and challenges for chief cashiers in times of declining cash usage from the Bundesbank.

The final session of the conference concludes with a panel discussion entitled 'Use of banknotes and ID by future generations around the world'.

The panel will be moderated by Sarah John, Chief Cashier at the Bank of England, with panellists including Pearl Kgalegi, Head of Currency Management Department at the South African Reserve Bank, Michelle Müller, Head of Consulting at the Swiss-based GenZen specialists Zeam, and Julia Pitters, Professor of Business Psychology at the International University of Applied Sciences.

Alongside the conference will be a number of networking opportunities, including a welcome cocktail event, a drinks party in the exhibition area and, on the penultimate evening, the 'Fest con noi' ('come party with us') conference dinner at the Mercato Centrale, where delegates will have the opportunity to sample the other aspect of culture for which Milan is renowned, namely its food.

For more information, visit <https://intergrafconference.com/>

Note and Coin News

Macau Rolls out Next Banknotes x 2

The Bank of China and Banco Nacional Ultramarino (BNU) – Macau's two note issuing banks – have introduced new 50 and 100 pataca (MOP) banknotes. They are the third and fourth notes in the new Macau series, following the issue of new MOP 10 and 20 notes last year.

Both versions of the notes retain the same denominations, sizes and overall colour schemes as their predecessors, but include new images and notably more modern designs, along with more advanced security features.

Those features, which are common to the notes from both banks, include colour shifting micro-optics security threads on the front (replacing the holographic windowed threads on the reverse of the previous series), and SPARK. For the BNU notes, the SPARK image is in the shape of a lotus flower (Macau's national floral emblem) and for the Bank of China notes, a Southern Lion mask.

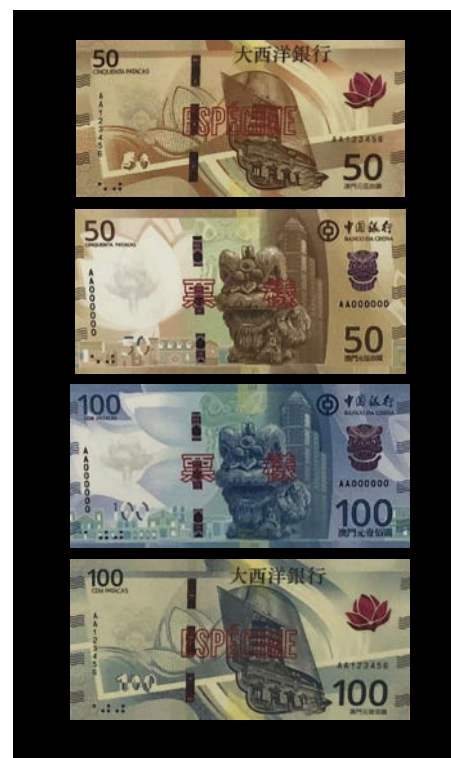
The design of the BNU versions of the banknotes, which was undertaken by De La Rue working closely with BNU and the Monetary Authority of Macau, is inspired by the history and evolution of Macau, showcasing the territory during different eras and generations. The iconic BNU building takes centre stage on the front. On

the reverse, the notes narrate the evolving geography of Macau through a series of historical maps, each accompanied by a vessel from the corresponding era, reflecting Macau's maritime history.

The Bank of China notes feature a portrait of the mythical Southern Lion on the front along with the Bank of China building in Macau. On the reverse, each note depicts an iconic building – in the case of the new MOP 50 the Kiang Wu History Museum, and the new MOP 100 the Sin Tong Historical Archive Exhibition Hall. The producer is China Banknote Printing and Minting.

The Bank of China and BNU are each authorised by the Monetary Authority of Macau to issue a maximum of 80 million 10 patacas, 120 million 20 patacas, 50 million 50 patacas, 80 million 100 patacas, 24 million 500 patacas and 12 million 1,000 patacas. BNU has issued Macau's banknotes since 1909, and Bank of China since 1995.

New banknotes in denominations of MOP 500 and 1,000 are expected to be issued later in 2025 or 2026 to complete the series.



In Other News...

■ The Central Bank of Belize has unveiled the designs of its new banknote series, which will go into circulation in June. Instead of the portrait of the late Queen Elizabeth II on the front, the new notes, described as a celebration of Belizean culture, will feature national heroes George Cadle Price and Philip Goldson, who were instrumental in achieving the country's independence from British rule.



The new notes – denominated in 2, 5, 10, 20, 50 and 100 Belizean dollars – have been designed and printed by De La Rue on paper. Security features include a PUREIMAGE™ holographic thread on the front of \$2 and \$5, and a holographic stripe on the \$10, \$20, \$50 & \$100, along with an IGNITE® thread on the reverse. Under

UV light Enhanced GEMINI® patterns will appear on all denominations.

■ The Government of the Falkland Islands will begin the release of a new family of banknotes on 14 August 2025 – Falklands Day – bearing the portrait of King Charles III in place of the late Queen Elizabeth II.

The new family of notes – comprising £5, £10 and £20 denominations – represent the first new design in more than four decades (the £50 is not being redesigned as there are sufficient stocks to last several decades) and will be printed on Safeguard® polymer.

Falklands banknotes were last printed in the 1980s and a shortage of £5 notes spurred a public consultation on the design of new notes last year. Native plants and animals were the favourite topic and the designer and printer, De La Rue was tasked with turning the theme into a reality. A working group made up of locals was also involved in the process.

The design for the new £5 features a black-browed albatrosses on the front, alongside the portrait of King Charles. The reverse shows the national flower of the Falklands, the pale maiden, Steeple Jason Island, and five species of penguin. The

same designs will feature on the new £10 and £20 notes.

Security features include a transparent window with iridescent ink featuring a king penguin, ultraviolet designs, and infrared inks.



■ The National Bank of Kazakhstan has issued a new 2,000 tenge banknote, the third in the new 'Saka' series following the introduction of new 5,000 and 10,000 tenge notes in March and July 2024 respectively. The design is based on

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... Note and Coin News

elements of the nomadic Saka culture, which is considered the precursor of traditional Kazakh ornamentation.



Security features include a RAPID® Vision micro-optics windowed thread from Crane Currency, a RollingStar® Patch from Louisenthal and, on the reverse, a SPARK® Flow Prime element which synchronises with the saiga antelope on the front.

The other denominations in the new series are the 1,000 tenge (which will be issued in early 2025), the 500 tenge (in the second half of 2025), and 20,000 tenge (in 2026).

■ The Bank of Namibia will issue a commemorative banknote next month to celebrate the late President Hage Geingob's legacy. He served as the third president of Namibia from 2015 until his death in February 2024, aged 82.

'The Hage Geingob commemorative banknote has been thoughtfully crafted to honour Geingob's unwavering leadership and lifelong dedication to peace, inclusivity, and resilience,' said the Bank's Governor, Johannes Gawaxab. 'This unique banknote

not only commemorates his remarkable achievements but also celebrates Namibia's progress as a nation shaped by his visionary leadership'.

More information on the note will be provided in the February issue of Currency News™.

■ The National Bank of the Republic of Belarus has announced the issue of two limited edition commemorative banknotes in 2025, which will be sold at a premium in special presentation folders. One will show 'slutsk' belts (decorative belts traditionally worn by noblemen) and the other will honour the 80th Anniversary of the Victory in the Great Patriotic War (World War II).

Events

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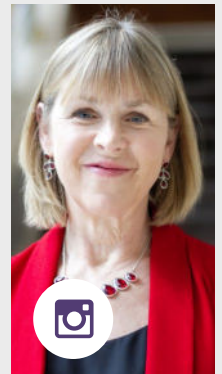
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