



CURRENCY NEWS™

THE CONFIDENTIAL NEWSLETTER FOR CURRENCY | VOLUME 22 – NO 11 / NOVEMBER 2024

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IHMA Embraces New Security Features Ecosystem

The International Hologram Manufacturers Association (IHMA) has a new name – the International Optical Technologies Association (IOTA). The change is part of the industry body's strategic plan to broaden its scope to better serve evolving markets and new technology frontiers, particularly in optical security.

The implementation of this plan began in early 2024, with the launch of the Security Image Register (SIR), a replacement to the Hologram Image Register and the only system for the secure document community to safeguard copyright by recording and tracking all designs and manufacturing details for optical security features.



International Optical Technologies Association

New research and development collaborations, leadership changes with the appointment of new board members, and the expansion of membership to all security OVD suppliers have also taken place.

The renaming of the industry association itself is the next logical step.

The IHMA was founded in 1993 and, since then, holograms and their derivatives have become one of the most successful and ubiquitous anti-counterfeiting features for banknotes, as well as identity, secure documents and brand protection – both on their own and, increasingly, in combination with other technologies. Many of the current members produce features with these other technologies, and the new name and focus of the association reflects and supports this.

Moreover, no other sector of the industry that supplies anti-counterfeiting technologies has its own trade body, and the importance of all optically variable features – and not just holography – to the security and integrity of fiduciary and ID documents is what has prompted the expansion of the association.

IOTA membership now embraces all developers and suppliers of security features based on technologies that, in addition to holography, include micro-lens arrays, micro-mirrors, plasmonics, nano-gratings, colour change, caustics, polarisation, photonic crystals, special print-generated effects, or a combination of these.

Accompanying the relaunch, IOTA will be holding a series of user-focused webinars during 2025 that target key sectors for optical security, and will also be presenting at a number of industry conferences.

According to IOTA Chair Mark Deakes, 'I am honoured to be part of this transformative moment, where we build on our legacy while embracing a modern identity that reflects our vision for the future.'

'This rebranding and expanded focus is a recognition of the importance of the role of all optically variable technologies in advancing the security of documents and products, and it will position the association to better support the needs of our longstanding and new members'.

Change of Ownership at Currency Research

In a management earnout of up to 100%, Currency Research's CEO and President Jens Seidl and Vice President Shaun Ferrari will become majority shareholders of the company. The founder, and current sole shareholder, Richard Haycock will sell all his shares and resign from the Chairman position, effective 1 January 2025.

Jens Seidl will be Chairman and CEO, and Shaun Ferrari will be Chief Commercial Officer. The Advisory Board will continue without change, providing strategic advice to the business.

Currency Research is a leading provider of premium events for the cash and payments sectors. It also offers training, webinars, publications and consultancy, and is a co-founder of Universal Access to Payments (UA2P) Summits, a not-for-profit initiative focused on financial inclusion.

The company was founded by Richard Haycock in 2002, shortly after he sold the CSI business that he had also founded to De La Rue. As part of CSI, he established the Currency Conference, the first of which was held in 1992. At the time, it was one of a kind, and over the past 40 years has retained its position as the cash industry's pre-eminent conference, and the only global independent event for the sector.

The company also runs the Banknote Conference, the regional Cash Cycle & Payments Seminar series, the Central Bank Payment Conference, the Global Payments Summit and the Digital Currency Conference.

Jens Seidl joined Currency Research in 2018 after a 30 year career in financial services. Shaun Ferrari joined in 2017, having previously spent 16 years with the US Federal Reserve Board.

'We are grateful for Rick's support and belief in the strategic direction we have developed for the company, and the trust he is putting into this management team. Rick is a true entrepreneur who has built a great business over decades, providing us with a fantastic team and brand to further build on. We are very excited for future possibilities,' said Jens and Shaun.

To which Richard added: 'I am glad to have agreed with Jens and Shaun a way forward for Currency Research that will provide the right mix of continuity and renewal for a business that is changing with the industry it connects'.

From Banknotes to Brand Protection – Not for the Faint Hearted

Not content with being a leader in banknote substrates, features and print, Crane NXT is certainly gunning for the brand protection market, having acquired three companies in this area since the start of the year – OpSec, De La Rue's authentication business and the smart packaging assets of TruTag. Presumably, it is hoping to secure the sort of success in this field as it has in currency.

But a word of caution for any company looking to extend from banknotes into brand protection – it's not for the faint hearted.

Brand protection as we know it today became a 'thing' in the early 1990s, with Microsoft and Glaxo SmithKline Beecham among the early adopters of advanced (by the standards of the day) labels to protect their products against the growing problem of counterfeiting.

By the late 1990s / early 2000s a number of high security printers and suppliers, sensing an opportunity for diversification and seeking to leverage their credentials in banknotes, piled into the market. Disappointed that their expertise and experience didn't secure them easy entry, several just as quickly piled out again.

One of the issues then, and now, is the assumption that brand protection is a 'market'. In reality, it is an umbrella term for just about every product with brand value, all with differing challenges regarding the impact of illicit trade on their assets. There is, in other words, no such market.

Related to the non-homogeneous nature of brand protection is a fragmented supplier landscape.

A recent analysis of the number of players of both components and complete solutions put this at around 600, which is probably on the conservative side. By contrast, the number of suppliers for banknotes (in terms of substrates, features, inks and print) is a quarter of this.

Then there is the nature of the protection itself. For brands, it's not just the product that needs protection, it's the increasingly complex, convoluted, extended and porous supply chains. And the need to protect the brand from various forms of illicit trade – not just counterfeiting, but over-production, simulation, diversion, dilution, tampering etc.

The security device – the label, film, packaging, blister pack, seal – is only a small part of the overall solution,

central to which is data, coding, track and trace.

And there is the culture too. In currency, security is all. For brand owners, it's a tiresome necessity. As a result, their willingness to pay for premium protection is limited. There is perhaps one exception – which is where products and documents intersect, namely tax stamps or labels for excisable products (primarily tobacco and alcohol). But that's about it.

Those aforementioned companies that jumped in then jumped out again found this out all too quickly.

But there are notable examples of companies in our sector that have made a success of it – generally in specific niche markets. De La Rue was early to market, and stayed the course, with a number of prestigious contracts including Microsoft and several revenue authorities, based on its core holographic labels and track and trace programmes.

SICPA is the undisputed market leader in tax stamps, having recognised early on that production monitoring, track and trace is fundamental to the success of excise recovery programmes, and developed solutions accordingly, even if its security inks still lie at the heart of these solutions. It has also secured a leading position in fuel marking programmes, as has Authentix, which also has a number of tax stamp programmes under its belt as well.

Crane has made a smart move, both literally and figuratively, in enhancing its portfolio of PROFOUND micro-optics security labels with the coding, tracking and digital management assets of its acquisitions. Not to mention some of the prestigious contracts.

For any company in the banknote sector to succeed in brand protection, the prestige of their name only goes so far, if at all. It's all about the technology solution.

'Helsinki Calling': RDM to Produce Finnish Coins

The Royal Dutch Mint (RDM) has signed a multi-year agreement with Finland's Ministry of Finance for the production, marketing and distribution of circulation and commemorative euro coins. The announcement follows the Mint of Finland's announcement last month that it would cease operations in 2025, following the completion of its existing commitments to customers and suppliers – which it expects to fulfil early next year.



Although the total market for circulating coins is relatively small – at least in comparison to the growing commemoratives sector – the RDM is taking note of new opportunities as mints either shift their operating focus (eg. The Royal Mint) or announce their closure (as is the case here).

The Mint of Finland ceased commemorative coin production in 2019, in tandem with the Ministry of Finance awarding the tender for these products to Nordic Moneta, part of the Samlerhuset Group. The RDM has seen the opportunity to produce commemoratives in the region, particularly offering a mint-based service in Finland to replace that left by the Mint of Finland's withdrawal from the market.

Under the agreement, the RDM's key aim is to provide a 'complete package' for coin orders, including customer support, e-commerce, and localisation of services. This includes collaboration with Mixtra Oy as its localisation partner, providing

support in local languages (Finnish and Swedish) as required, methods of payment and a local address – rather than requiring shipments back to the Netherlands, customers can instead utilise a local return address.

The first products for the Finnish market are expected to be released early next year. The RDM has said that these products will be operated and owned by themselves, but will fall under the newly-launched brand of Helsinki Mint.

In the meantime, the RDM is in the process of finalising and launching a temporary e-commerce site to invite customers to sign up and receive a free special gift, which is currently being minted at the RDM and will ship before the end of the year.

The Royal Dutch Mint emphasised its commitment to being a single source provider, with the new Finnish agreement underlining its development and expansion in this area.

Production Up at SPMCIL

Security Printing & Minting Corporation of India Ltd (SPMCIL) recently released its 2023/24 Annual Report, registering a rise in production, but a small drop (4%) to Rs 47.14 billion (US\$555 million). Costs were up 7.7% to Rs 36.95 billion.

During the year, SPMCIL, which is owned by the Ministry of Finance, produced 9.7 billion banknotes, up by just over 8% compared with the previous year. Its facilities include two banknote printworks – Currency Note Press (CNP) in Nashik and Bank Note Press (BNP) in Dewas, an ink factory (also in Dewas), the Security Paper Mill (SPM) in Narmadapuram, and four mints (Mumbai, Kolkata, Hyderabad, and Noida). Currently, it produces approximately 40% of India's banknotes (the rest is produced by Bharatiya Reserve Bank Note Mudran Pvt Ltd, BRBNMPL, owned by the Reserve Bank of India).

For coins, SPMCIL is India's sole supplier. During the year it produced 1.2 billion circulation coins, 21% more than the previous year. Even so, this only represented 15% of its total annual production capacity, and is a far cry from the peak years of production of 2015/16 and 2016/17, when over 9 billion coins were produced.

Security paper production increased by 6.47%, reaching 7,113.75 tonnes, while the production of security inks nearly doubled to 519 tonnes.

During the year, SPMCIL developed a Colour Shift Intaglio (CSI) ink, which the RBI has approved for bulk production. It has also partnered with NCL Pune to optimise overprint varnishes for banknotes.

SWOT analysis

The Annual Report provided a SWOT analysis, which states that although it has a strong foundation, SPMCIL faces challenges from changing consumer trends, ageing infrastructure, limited diversification, etc. And whilst it has a diverse product portfolio within the realm of security printing, it has limited diversification beyond these core areas, which could limit its growth potential.

According to the report, SPMCIL will undertake several initiatives to strengthen and maintain its competitive position in the banknote, coin, and security products sectors. Further attention will be paid to R&D, machinery modernisation, and capacity building. Infrastructure enlargements will be carried out at various mints and presses to boost expansion and diversification. Additionally, there will be a stronger emphasis on enhancing overall productivity.

News in Brief

■ Crane NXT Acquires TruTag Assets

Continuing on its acquisition trail to penetrate the brand protection market, Crane NXT has now bought the smart packaging assets of TruTag Technologies, which will be incorporated into its OpSec business.

TruTag provides secure digitisation of physical products through proprietary secure marking and smartphone authentication. Terms of the acquisition were not disclosed, and the transaction will not have a material impact on Crane NXT in 2024.

This acquisition marks Crane NXT's third purchase this year, following the acquisitions of OpSec Security (\$270 million) and the De La Rue Authentication Division (£300 million), both leading providers of government revenue and brand protection solutions.

According to Crane NXT, this strategic move strengthens its position in the growing c. \$3 billion authentication technologies market as it diversifies its portfolio and enhances its expertise in product security and authentication technologies.

Aaron W Saak, Crane NXT's President and CEO, said, 'TruTag's Smart Packaging technology will also expand our capability for direct-to-product marking in consumer and industrial applications, further driving profitable growth.'

■ Most Secure Banknotes in the World

According to BestBroker, which ranks financial trading platforms, the world's most secure banknote is the 100 Swiss franc, followed by the Indonesian 50,000 rupiah, with the €50 and the A\$50 ranked equal third.

The team at BestBroker analysed the 39 most traded currencies by value as of 2022, and identified the most commonly used banknotes in each country, ranking them on the number of anti-counterfeiting features they have. The team also calculated the number of counterfeits per million in circulation, as well as the average cash value per person in each nation.

The findings reveal that while the US dollar is the most widely traded currency in the world, the top spot for the most secure banknote goes to Switzerland's 100 franc note, with 18 advanced security features.

The Indonesian 50,000 rupiah has 17, and the €50 and A\$50 16 each.

Intaglio is the most common security feature, appearing on all 78 of the highest-value and most frequently circulated banknotes examined, followed by watermarks (72), tactile elements for the visually impaired (71) and microprinting (69 notes).

According to BestBrokers' estimates, the US dollar saw the highest number of counterfeit notes seized in 2023, with approximately 904,700 fake bills. The euro ranked second at 467,000 counterfeit notes. The country with highest ratio of counterfeits was Mexico, at 32 ppm, whilst South Korea had the lowest at 0.04 ppm.

■ GardaWorld Becomes Canada's Largest Private Buyout

The senior management of GardaWorld, the world's largest privately-owned security services company, have reached an agreement with its largest investor BC Capital to acquire its majority equity interest. The transaction values the Quebec-based company at C\$13.5 billion, making it the largest private buyout in Canadian history.

GardaWorld was founded in 1995 and offers security services, AI-enabled security technologies, CIT and cash management services, and – through its subsidiary Sesami – cash automation solutions. It employs over 130,000 people; last year, sales were c. C\$5.9 billion and EBITDA just under C\$1 billion.

The transaction is expected to be completed early next year, giving Stephan Cretier, the company's founder, Chairman, and CEO, and the top management 70% of the equity.

■ Ukraine to De-Russify Coins

The National Bank of Ukraine (NBU) has announced its intention to rename the country's 'kopiyyka' coins to 'shah', as part of a broader 'de-russification' strategy. 'Shah' dates back to the 16th and 17th centuries, when it was first used in Ukraine and its coin-counting practices. It's a Ukraine-specific coin name that no other linguistic cultures have, and has been widely used in classical Ukrainian literature. The word kopiyyka, by contrast, is rooted in Russian tradition, and by replacing it, Ukraine is seeking to cleanse its currency of Russian and imperial associations.

Proposals are underway for the necessary legislative changes, after which – if approved – the design and development of the new coins will start. The two coins will co-circulate to avoid the costs of replacement.

■ Travelex Switches to NextGen ATMs

The foreign exchange specialist Travelex has undertaken a major refresh of its international ATM estate, with the replacement of the hardware and software of its portfolio of 600 ATMs across eight countries with NCR Atleos' SelfServ ATM range and software.

In addition to the SelfServ ATMs, Travelex is installing NCR Atleos' software and the SaaS monitoring tool Vision across the UK, Netherlands, Switzerland, Germany, Italy, Czech Republic, Australia and New Zealand. The company has already deployed NCR Atleos ATMs in other markets at high volume airports and travel hubs.

Further to supporting FX and domestic currency transactions, the NCR Atleos SelfServ ATMs will offer Travelex customers a range of enhanced capabilities, including touch screens, barcode readers, and contactless readers (in certain territories), which enable customers to withdraw cash by tapping a card or any other NFC enabled device (such as a phone or smartwatch).

The NCR Atleos SelfServ ATM also supports Travelex's Click and Collect function, which enables UK customers to pre-order foreign cash online at Travelex's best possible rate before collecting it from more than 50 key airport ATM locations in the UK.

■ Save the Dates for Banknote 2026

Currency Research has revealed the dates and location for the 2026 Banknote Conference. Described as the cash industry's premier technology-focused event, the next Banknote Conference will take place 11-14 May 2026 in Washington, DC.

Held every two years and traditionally in the US, the Banknote Conference brings together central banks, printworks, and industry suppliers to explore emerging trends, technologies, and innovation in banknote production and design.

The 2026 edition will look to build on the high turnout of the 2024 Banknote Conference, held earlier this year in Fort Worth, Texas. 63 central banks and over 20 printworks were represented at that event, says Currency Research, and they are expecting a similar turnout when this event returns to Washington, DC.

Registration for the 2026 Banknote Conference will open in the next few weeks.

<https://currencyresearch.com/the-banknote-conference/>

Central Banks and Cash Round-Up

In this periodic series of articles covering cash information in central bank annual reports, this month we take a look Down Under, with a review of the reports from Australia and New Zealand.

■ Reserve Bank of Australia (RBA)

Cash in circulation: with more banknotes being returned to RBA (\$4.2 billion) than purchased by the four main commercial banks (\$3.6 billion) under the Banknote Distribution Framework, the value of banknotes in circulation declined by 0.5% over 2023/24. This largely reflected a decline in the circulation of \$50 banknotes.

Nonetheless, the value of banknotes in circulation remained high – A\$100.8 billion at the end of June 2024, equivalent to around 4% of GDP. There are currently almost 2 billion banknotes in circulation.

The proportion of all banknotes in circulation that are part of the Next Generation Banknote (NGB) series (the saturation rate) increased modestly over 2023/24. NGB \$20 and \$50 banknote saturation increased by around 5% and 3% from the previous year to represent just under half of these banknotes on issue.

The saturation of NGB \$100 banknotes increased by a similar amount, to 16%. The two lower denominations, on the other hand, saw little change. The saturation of NGB \$5 and \$10 banknotes is unlikely to rise substantially from their current rates since many of the earlier series banknotes are stored, lost, or held abroad and so are unlikely to be returned in the near term.

Banknote quality: the R&D project portfolio included ongoing projects to develop and test security features for future Australian banknotes, including the forthcoming redesign of the \$5 banknote, which will see the portrait of the late Queen Elizabeth II replaced with images of indigenous culture.

RBA is encouraging the major commercial banks and CIT companies to sort the banknotes they handle to agreed quality standards. In 2023/24, RBA received \$3.2 billion worth of banknotes deemed unfit for recirculation and paid over \$14 million to commercial banks under the quality-sorting framework.

RBA also began a project to commission two new banknote processing machines at the National Banknote Site to replace four machines that have reached the end of their lives.

RBA also removes banknotes from circulation through its Damaged Banknotes Facility. In 2023/24, the facility processed around 8,500 claims and made \$3.5 million in payments. This was a significant reduction from the previous two financial years.

Counterfeiting: just over 10,000 counterfeits were detected in circulation, with a nominal value of around \$820,000. This corresponds to a counterfeiting rate of around 5 ppm, although this is likely to end up closer to 7 ppm seven once the analysis of all counterfeits detected in 2023/24 has been completed.

This would be the first time the counterfeiting rate has not decreased since 2019/20, but it remains much lower than the 20-year average of nearly 13 ppm.

Counterfeiting rates remain highest for the \$100 denomination, notably the older series. However, counterfeiting rates for the NGB series remain very low. Only 512 counterfeits have been detected since the first NGB banknote was released in 2016.

In 2023/24, the counterfeiting ratio for the NGB series was just 0.44 ppm, compared with 11 ppm for the previous banknote series.

Distribution: the decline in the use of cash for transactions has contributed to significant excess capacity within the cash distribution network. In June 2023, the Australian Competition and Consumer Commission (ACCC) approved the merger between the two largest CIT companies in Australia – Armaguard and Prosegur Australia, subject to a three-year undertaking regarding pricing and service levels. In June 2024, Armaguard's major banking and retail customers agreed to provide approximately \$50 million of additional funding support in 2024/25, allowing more time for Armaguard to embed efficiency gains and improve its financial sustainability.

In response to challenges in the CIT industry, the RBA convened a number of Wholesale Banknote Distribution Roundtables in late 2023 and early 2024 and formed a number of working groups to consider actions to support the sustainability of cash distribution and business continuity arrangements in the event of a disruption to the supply of cash. Another focus has been on the

longer-term sustainability of the cash distribution system.

Note Printing Australia: NPA, a wholly owned subsidiary of the RBA, delivered 178 million Australian banknotes to the RBA in 2023/24 and was paid A\$47 million.

It also delivered around 323 million banknotes to Singapore, Papua New Guinea, and the Philippines, dealing directly with the central banks in those countries.

■ Reserve Bank of New Zealand (RBNZ)

Currency in circulation: as of 30 June 2024, the value of banknotes and coins in circulation was NZ\$8.9 billion, down slightly (NZ\$0.02 billion) from the previous year.

Counterfeiting: the number of counterfeits rose to a peak ratio of 17.4 ppm, during the year – which was above the tolerance threshold range. Through targeted communications, stakeholder engagement and education, and more proactive withdrawal of old series banknotes, this had dropped to 14.34 ppm by the end of June 2024. Even so, the ratio was still considerably higher than the previous year (9.22 ppm).

Access and resilience: the resilience of the cash system remains a key concern for RBNZ, reinforced by recent severe weather events, like Cyclone Gabrielle, when EFTPOS and ATM machines were out of action because of widespread power outages.

Access to cash is another concern. RBNZ has focused on connecting with stakeholders through public surveys, community cash service trials and industry forums to recognise and address the changing money needs of the public and ways that those needs are met now and into the future.

It is also progressing solutions that will ensure cash continues to be available to those who need it (for more information on these solutions, such as its proposed community cash services, see CN July 2024).

Another initiative is the development of its Cash System Monitoring capability to better inform its understanding of cash system risk and enable it to plan better for emergencies.

It has also undertaken a review of its vaulting and processing infrastructure, to be completed by October 2024.

Finally, RBNZ has communicated its carbon and environmental objectives with core cash system participants and publicised the upcoming changes to the New Zealand cash system, which it anticipates will reduce carbon emissions.

Denmark's Currency Evolution: Balancing Innovation with Protection in the Modern Era

In a comprehensive modernisation of its currency system, Denmark is undertaking an ambitious series of changes that reflect its unique position as both a digital payment pioneer and a steadfast protector of cash rights. The central bank, Danmarks Nationalbank, has launched multiple initiatives that will reshape the country's physical currency landscape while maintaining strong protections for cash usage in an increasingly digital society.

Currency News™ spoke to Chief Cashier Niels Kass about these changes and Denmark's payments landscape.



Q: First, can you tell us a little about yourself and your career – both before and since joining Danmarks Nationalbank?

A: I spent several years in commercial banking at Nordea Bank, the largest bank in the Nordics, first on the business side and then in risk management, before joining the central bank in 2018 as the Chief Operational Risk Officer.

Two years ago, I was asked to take on the role of heading the cash department, a position that has become increasingly significant in light of the changing payment landscape in Denmark, and I was more than happy to accept.

Q: And now to this payment landscape; can you describe it in terms of cash usage versus other forms of payment? And what are the trends?

A: Denmark's journey toward digital payments has been remarkable, with cash usage dropping to approximately 10% of physical point-of-sale transactions – a sharp decline from over 20% in recent years. However, even this figure may overstate actual cash usage, as it relates only to transactions at the point of sale, ie. it doesn't account for the significant volume of digital and app-based payments that occur outside traditional point-of-sale environments.

We feel that this number could drop even further, but that there will come a point when it might stabilise – and we do not expect that cash payments will go away completely. There remain many groups that continue to use cash, for a variety of

reasons, and it also plays a role in minor as well as ad-hoc payments.

Meanwhile, the Bank carries out a biennial household payments survey among citizens and companies to see how they pay for things and with what payment methods, with a particular focus on cash. The latest survey, that was concluded just before we announced our strategic initiatives for the future of cash, revealed that when cash is used, it's primarily for smaller transactions, with 90% of cash payments being for amounts less than 500 krone (approximately €67).

All of this is generating some interesting challenges for cash in Denmark. Which is why we are taking some of the steps that we are, under the heading of the future of cash in Denmark. We see the need to make some adjustments in our cash in order to meet not only the demand today, but the demand in the future too, and to ensure that cash efficiently plays a role in that future.

Q: What are those steps?

A: It's a three-pronged modernisation strategy involving the withdrawal of all old series banknotes, eliminating the highest denomination note, and introducing a completely new banknote series.

Q: Why the importance of withdrawing historic notes?

A: All Danish banknotes issued since World War II currently maintain legal tender status. This means that, theoretically, a shopper could use a 1945 banknote in today's transactions, but cashiers in supermarkets probably wouldn't be able to recognise them. And bear in mind that some clerks are perhaps 16 years old, and they could have a hard time even recognising our current 500 krone notes, let alone an old one from the 40s or 50s or 70s.

So the reason for withdrawing those notes is to streamline our currency system and ensure only current, readily recognisable notes have legal tender status.

Q: And next – the logic for the elimination of the 1,000 krone note?

A: The decision to withdraw the highest denomination note reflects changing payment patterns and practical considerations. With a legal limit of Kr15,000 for cash transactions and most cash payments being for relatively small

amounts, we determined that maintaining the high-denomination note was no longer necessary, or efficient.

Q: What steps are you taking to inform the public about the withdrawals, both of old series notes and the current 1,000 krone?

A: We made the announcement last November and both old notes and the 1,000 krone note will cease to be legal tender by 31 May 2025, with an additional year provided for redemption until 31 May 2026.

By now we have received close to 80% of the notes so we are quite far along in terms of their collection and redemption. There will, of course, be some banknotes – particularly from the older series – that won't come back as people will hold onto them as collectors' items. And some, because of their age, that don't exist any more.

We have done a lot of publicity around the withdrawal. We've been in the news, on various talk shows and have sent out letters to all Danish citizens drawing their attention to the programme. Most recently we announced the opening of new exchange points, where the redeemed notes can be handed in. This was also covered by several news outlets. Basically, if you open a newsletter in Denmark today, it's difficult to not find something in there that has to do with cash.

Q: Whilst the 1,000 krone isn't being used enough for payments to justify its existence, what about its use as a store of value? And more to the point, will there be any issues with people returning large quantities of the note?

A: Any large-scale redemption of notes will be subject to our AML (anti-money laundering) procedures, but provided there is a reasonable justification for having a large amount of the 1,000 krone notes – for example, if they've been accumulated for savings purposes over a long period of time – then there shouldn't be a problem in depositing them.

And that is one of the reasons we have a time frame of three years – which is ample time for those with larger volumes of redeemed notes, including the 1,000 krone, to figure out what to do with them.

Q: We'll come onto the new series in a minute. But in the meantime you have just updated your existing series. Why, if new designs are on the way?

A: That's a good question. Our current series was issued in 2009 and we started the security upgrade in 2020 with the 500 krone note. Updated versions of the 100 and 200 krone were issued earlier this year, and a new 50 kroner will follow next year.

The principal reason is that, with the closure of our printworks, we switched from printing the notes internally to using an external printer – Oberthur Fiduciaire.

This change involved adaptations to the notes anyway and, given the fact that our series will be 20 years old by the time the new one comes out, we used the opportunity to make some security upgrades at the same time.

Q: *So, now to the new series. Is this being driven by cost, by security, by the environment, or by a combination of all of the above?*

A: The main reason is security. We see a future for cash in Denmark, and by definition therefore, a future that needs a secure series of banknotes.

Q: *Can you give some details on the process, and progress to date?*

A: We have already selected the themes, which will feature major Danish achievements ranging from the stars to the inner core of the earth, and the personalities behind them, on the front. Motifs relating to the sea will feature on the reverse. The notes will also include motifs linked to Greenland, which uses the Danish banknotes too.

We undertook an inclusive process for selecting motifs, consulting with museums, cultural institutions, and universities, and conducting public hearings in Danish, English, and Greenlandic, to arrive at these themes. We had a creative group in-house that worked on the themes, and a panel of internal and external experts, chaired by our Governor, who made the final decision.

Q: *Do you have a favourite among them?*

A: The politically correct and safe answer to that question is no. All I will say is that I am very happy with the outcome of the final decision, and I look very much forward to seeing the result of the design process.

Q: *So, what next? We see that you have appointed Crane Currency as your partner?*

A: Yes, we had a tender and they provided the best bid in that process. We will be working with them now on the full design and security specifications of the notes, which will be smaller than the current ones to minimise material usage and the environmental impact. We will then move into production.

Q: *Once complete, how are you going about introducing the new notes. One at a time, or altogether?*

A: We haven't decided yet. In the past, we have had notes from different series co-circulating, so when the new notes came out the issue schedule wasn't so important. But, in line with having just one legal tender series, we will be looking to replace the old with new in a fairly short period. We will look at other countries and how they did it before deciding on our issue programme, and whether it's one at a time, two at a time, or all at the same time.

Q: *What about your coins? Are you making any changes there too?*

A: Yes, although we weren't initially planning to. However, the abdication of Queen Margrethe II at the beginning of the year and the accession of King Frederik X came as something of a surprise, and so we had to shift gear fairly quickly.

We have now issued a 20 krone coin that follows the tradition of featuring the effigy of the new monarch on the front and the old monarch on the reverse. Next year, we will issue circulation coins in denominations of not just the 20 krone, but also 10, 5, 2 and 1 krone with the effigy or the monogram of the King.

The introduction of these coins will be gradual and they will co-circulate with the Queen Margrethe versions, some of which have been in use since the early 1990s. Coins last a long time in circulation and recalling them all at once would be costly both to the environment and financially, so it will be a phased process.

Q: *You closed your mint a decade ago and outsourced coin production to the Mint of Finland, which is now itself closing. Who will produce your coins going forward?*

A: We are in the middle of a tender process at the moment to find a new supplier, and we expect fairly soon to be able to announce the winner of the tender.

Q: *You mentioned Greenland earlier in the context of your new banknote series. What about the Faroe Islands, for which Denmark also has central bank responsibility?*

A: Greenland uses Danish banknotes, and so they will be impacted by the same changes as Danes. And in fact, one of the motifs on the new notes is specifically Greenlandic, as it will feature Arnaralunnguaq, who was a key member of Knud Rasmussen's Fifth Thule Expedition which crossed the Northwest Passage by dog sled.

The Faroe Islands use Danish coins but have their own banknotes, which aren't legal tender in Denmark, so they won't be affected.

But in both Greenland and the Faroe Islands, we have conducted extensive outreach, with officials making multiple visits in 2024 to promote awareness of the upcoming changes.

Q: *Can you describe briefly the cash cycle in Denmark in terms of issue, distribution and end of life. It is a centralised or a decentralised model and how active a role does the commercial sector have?*

A: Denmark maintains a decentralised cash distribution model, working with two main commercial banks, who operate cash depots in collaboration with cash-in-transit companies (Loomis and Nokas).

This infrastructure ensures efficient cash distribution while adapting to changing demand patterns. The system allows for both the distribution of new notes and the collection of those ready for destruction or demonetisation.

Q: *Your fellow Scandinavian countries Norway and Sweden are now legislating to protect cash. Do you think this might be necessary in Denmark?*

A: We do not expect further legislation currently in Denmark. This is partly due to the fact, that we already, in my view, have one of the firmest cash acceptance regimes in the world by international standards.

This dates back to 1984, when Denmark introduced a national debit card system (Dankort). The aim of legislation was to ensure that cash would not be pushed out. Therefore a cash acceptance legislation was introduced that requires virtually all retailers to accept cash payments, regardless of the amount (within the Kr15,000 limit due to AML considerations). This requirement has only limited exceptions, such as between 10 pm and 6 am and for certain temporary markets or fairs.

The consumer ombudsman actively enforces these requirements, with businesses facing fines for refusing cash payments. Despite occasional debates about reducing these requirements to cover only essential services like food, pharmacies, and fuel, the comprehensive cash acceptance legislation remains intact, making Denmark's cash acceptance requirements among the most robust globally.

Q: *Other European countries are actively pursuing Central Bank Digital Currency (CBDC) initiatives. Is Denmark?*

A: We have a more cautious approach. We closely monitor developments, particularly the Eurozone's digital euro project, but have no immediate plans for a Danish CBDC. If we were to consider a CBDC, we would in any case see it as something that would supplement cash rather than replacing it.

This stance reflects both Denmark's already highly digitalised payment landscape and the strong existing framework for financial inclusion, including universal rights to bank account access.

Q: *Does the Bank have a stance on cash payments – supportive, anti or neutral?*

A: The Bank maintains a notably neutral position on the cash versus digital debate, focusing instead on ensuring efficient payment systems rather than promoting specific payment methods.

This balanced approach has helped Denmark navigate the transition toward digital payments while maintaining robust protection for cash users.

Tenders, Contracts and MOUs

■ The Reserve Bank of India (RBI) has extended the deadline for responses to its Expression of Interest (EOI) for services related to the modernisation of India's currency management infrastructure 4 December 2024.

■ Further to the news that Bangko Sentral ng Pilipinas (BSP) had signed an MOU with German state printer Bundesdruckerei, it has announced another MOU, this time with Banque de France on currency management and other areas of central banking.

Under the five-year MOU, BSP and Banque de France will collaborate on strengthening currency and security management and production, currency demand forecasting, digital payments governance, and research and development on digital payments, banknote substrates, and high durability solutions.

BSP Governor Eli M Remolona, Jr noted that even with electronic money taking over from cash, issuing banknotes and coins remains an important part of a central bank's responsibilities. The BSP hopes that the partnership will aid the central bank in 'enhanc[ing] the quality of our currency', he said.

■ An MOU has been signed between Malaysian security print solutions provider Ultimate Print and the Turkish state mint Darphane to explore the potential of security printing in Malaysia, including banknotes, tax stamps, e-visa and other high security documents.

■ Bangko Sentral ng Pilipinas (BSP) issued a tender for the supply of new 1,000, 500 and 100 piso banknotes. The deadline has now passed.

■ The Central Bank of Bolivia has published an international tender for 966.8 million banknotes in all denominations, as well as 1 million bicentennial commemorative banknotes. The deadline is 5 December 2024 and the tender is divided into three lots, with a total referential value of just under \$77 million.

The Bank has also published an international tender for circulation and commemorative coins – just over 115 million in total with a referential price of \$8.7 million. The lot includes 12 million Bs 5, 30 million Bs 2 and 60 million Bs 1 coins. Additionally, 13 million pieces of Bs 2 bicentennial coins is included in the tender and 36,000 further pieces for six commemorative coins in gold, silver and other metals.

New Technology for CBPM's Plate Making

Many countries and regions are strengthening regulations to control environmental pollutants, chromium being a case in point as its emissions significantly impact the environment and human health. As a result, numerous countries have implemented strict standards and control measures to reduce chromium pollution.

These countries include China, where the government has enacted relevant regulations and standards to limit chromium emissions and usage while encouraging enterprises to adopt more environmentally friendly production processes and technologies.

This is the context for the introduction of the PVD plate equipment CBDE-Neochro, developed by China Banknote Designing and Engraving Co (CBDE), a subsidiary of China Banknote Printing and Minting (CBPM).

The technology utilises environmentally friendly PVD chromium plating techniques, which prevent the potential pollution issues associated with chromium-containing wastewater and acid mist that arise from traditional chromium electroplating processes. The PVD technology also enhances product lifespan as well as contributing to environmental protection and human health.

CBDE's chromium plating equipment employs vacuum plasma magnetron sputtering coating technology, allowing chromium layers to be applied to various products, including intaglio plates, cylinders, and moulds of different specifications. The resulting coating exhibits higher printing resistance, says CBDE, aided by a high-power pulse power supply and intelligent baffles to ensure product quality.

The equipment features a larger chamber that can coat three full-size plates in a single operation, eliminating the need for frequent chamber switching during production and enhancing user-friendliness for operators.

Moreover, the equipment is modular, enabling customisation and expansion based on customer requirements. This flexibility allows customers greater options for upgrading existing technologies and optimising processes in the future.

Since introducing CBDE-Neochro, CBDE has rapidly implemented the equipment and processes across all products supplied to CBPM, successfully replacing traditional chromium electroplating technology by the end of 2023. Results indicate that the chrome-plated plates produced using CBDE-Neochro equipment have led to stable quality and superior wear resistance compared to electroplated plates.

Conducting PVD chromium plating in a clean room setting transforms the process into one that is no longer highly polluting or high-risk, in contrast to traditional chromium electroplating., says CBPM. Thus 'green, high-quality, and flexible' will become its new standard for plate making, representing the future direction of a more modern, people-oriented, and environmentally friendly approach in production.



How to Improve Cash Logistics Efficiency

■ **By Wolfgang Kneilmann, Head of Currency Management Solutions, Giesecke+Devrient Currency Technology**

A functioning cash supply is a stabilising factor in our society, both in normal times and especially in times of crisis. At the same time, the demands for a robust and efficient cash circulation system are increasing. Standardised trays could help to streamline banknote transportation processes, leading to a significant increase in the efficiency of cash logistics.



According to a recent study by the German Bundesbank, cash remains the most widely used payment method in Germany. There are tangible reasons for this popularity: cash remains a universal, crisis-proof, inclusive and unconditional means of payment. As a public good, it is also a crucial factor for the economy and trade.

Maintaining a vital cash circulation system requires a certain amount of effort, as the underlying process chain involves a number of steps — from issuance by commercial banks to widespread distribution, which requires significant transportation and logistics efforts, to inspection and counting at cash centres, and finally to sorting at the end of its lifecycle. Given that cost efficiency is critical to the cash cycle, approaches that reduce costs within the process chain are of great value.

Improving the efficiency of cash logistics

One of the most promising areas for improvement is logistics. Whether banks handle their cash processing in regional cash centres or outsource it to specialised cash-in-transit (CIT) companies, there is substantial potential to make the process chain faster and more cost-effective in transportation, cash centre operations and banknote handling.

In cash logistics, as in many other areas, two approaches are typically effective: standardisation and automation. The focus is on identifying and eliminating redundant process steps to streamline operations, reduce complexity and save costs. At the same time, the key requirements for a functioning cash circulation system must not be neglected: security and minimising manual cash handling, reliable cash supply, scalability based on current demand, and stability and resilience during crises. In addition, sustainability issues such as waste reduction and resource conservation must be addressed.

A prime example and model for logistics optimisation is the shipping container, millions of which are stored in ports or freight centres and transported by truck, train, or ship. The key factor in this success story is standardisation. Because of their uniform size and shape, containers can be loaded efficiently and moved easily between modes. This results in shorter handling times, lower transportation costs, better utilisation of transport vehicles, lower fuel consumption and reduced CO2 emissions.

Off to the container

With this efficiency profile, containers can serve as a model for banknote transportation. Instead of bundling,

banding and packaging banknotes in separate steps, mini-containers – called trays – can be filled with loose banknotes. These trays are secured with lockable lids and seals, allowing cash centres to store them securely. Within a cash centre, repackaging is no longer necessary when preparing banknotes for ATM cassettes, for example. The trays are reusable, saving costs and resources while significantly reducing packaging waste. By reducing the amount of paper and plastic waste, they also contribute to banks' sustainability goals.

The greatest efficiency potential of the trays could be realised if they were used throughout the entire cash circulation process – from central banks, branch banks and CIT companies to storage in cash centres.

Standardisation of the process chain is a prerequisite for the next logical optimisation step: automation. Once again, shipping containers – with their globally standardised ports and transportation systems – serve as an ideal model.

Mechanically, it is possible to fully automate the filling and emptying of trays with appropriate banknote processing systems, eliminating manual intervention. Equally beneficial is the creation of a digital twin for each physical tray. This digital support provides modern cash management software with the necessary data to secure the entire logistics chain and track the location of each tray in real time, further automating settlement and accounting processes.

Standalone, integrated or ecosystem?

Trays can be used throughout the entire banknote transportation and processing logistics chain, but they can also be used as a stand-alone solution. They provide an elegant means of optimising and automating key parts of the logistics chain without requiring adjustments elsewhere.

They also enable 'peaceful coexistence' with traditional forms of cash provision in mixed operations. For example, a supermarket ordering change from a bank will likely continue to prefer to receive it in bundles and packets for quick verification. However, many other logistical tasks can benefit from the advantages of standardised trays. Their versatility and independence make them particularly flexible for cash logistics and processing. This opens up the possibility of developing a differentiated ecosystem for standardised and automated banknote distribution logistics. Such a transformation would require the cooperation of many stakeholders.

If successful, this approach could not only significantly improve the efficiency of the cash distribution system but also contribute to greater sustainability.

SICPA Flows Up Stream with Latest Version of SPARK®

SICPA unveiled the latest version of its SPARK® technology – SPARK Flow® STREAM – at the recent Global Currency Forum in Oman.

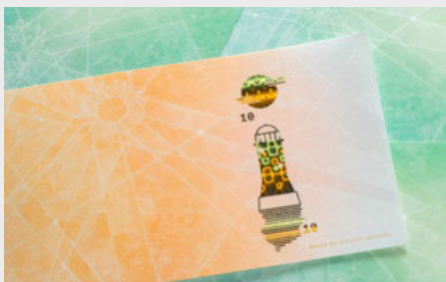
The basis of SPARK® technology is the alignment of the magnetic pigments within the colour-shifting magnetic ink known as OVMI®. The magnetic orientation of these pigments during the silkscreen process allows the creation of dynamic effects that are instantly sealed by UV-curing.

Since its launch in 2006, the SPARK® technology platform developed by SICPA, in partnership with VIAVI and Koenig & Bauer Banknote Solutions, has set a new trend for banknote authentication and continues to innovate to enhance banknote security. The latest generation of overt security, achieved using an extra level of control over pigment alignment, creates a printed security feature with increased brightness that is easy to authenticate and highly resistant to counterfeiting.

SPARK Flow® is manufactured with high-performance nickel-free magnetic material/unique components and is extremely durable thanks to its chemical and physical resistance, which maintains its clear visibility, movement effects even on heavily circulated banknotes.

SPARK Flow® STREAM is now available, enabling multiple effects to be combined across the full height of the note, thereby increasing not only the security barrier but also expanding design opportunities for a captivating visual experience.

SICPA partnered with the Reserve Bank of Australia to develop and industrialise the SPARK Flow® STREAM concept, which is fully compatible with cotton paper and polymer windows, and can be printed using existing printing equipment.



Chameleon Shows His True Colours

As described in last month's issue of Currency News™, at the recent Global Currency Forum (GCF) in Oman, industry players showcased house notes with new security features on themes ranging from butterflies, meadows and the ocean to Venus. To that can be added chameleons.



As viewers of the classic animated Pixar movie Monsters Inc will recall, a central character was a purple, eight-legged, salamander-headed, chameleon-like monster who worked as a scarer of children, helped by his ability to not only change colour and blend into the background, but to disappear completely.

The chameleon that takes centre stage in the eponymous new house note from Hueck Folien and IQ Structures is an altogether more friendly character. And an appropriate one, given the colour change technology that underpins the Nanoswitch® stripe on the note.

It is the second note to feature a Nanoswitch stripe, following the Moonlanding note that launched the combined technologies of both companies under the umbrella brand of Nanovista at the Banknote Conference in Fort Worth, TX (see CN May 2024).

According to the Hueck Folien and IQ Structures, Nanoswitch addresses the two most distinctive human senses – sight and touch – by combining the former's ColorSwitch™ technology with the latter's nano-fabricated optical

security elements that create 3D effects, among others.

'Meeting a chameleon is an extraordinary experience', they said. 'In a fraction of a second, they shine in the brightest colours. Inspired by the vibrant atmosphere, colours and patterns of the jungle, the second design of the new state-of-the-art security feature Nanoswitch represents the symbiosis of creative realisations inspired by nature'.

The chameleon that features in the Nanoswitch foil stripe demonstrates a vivid and unmistakable colour shift (six variations are possible), along with the appearance of 3D with depth and colour that provides an unexpected haptic experience (the feature is in reality smooth to the touch). Other elements of the stripe include a swap parallax effect in the denomination numeral, a dragonfly with kinetic colour effect and a white 3D effect.

The note itself features a detailed image of a chameleon on the front, and the same chameleon on the reverse in a jungle setting about to eat a dragonfly.

So perhaps not so friendly after all.

How the RCM Manages Canada's Circulation Coins in Real-Time

Last month, the International Association of Currency Affairs (IACA) held a webinar titled 'Cash Visibility: How the Royal Canadian Mint Manages Canada's Circulation Coins in Real-Time'. As the hosts of the webinar, the Royal Canadian Mint (RCM) detailed their strategies and systems for managing cash visibility for coin in Canada.

The same topic was also covered at the recent Coin Conference in Lisbon by the RCM's CEO, Marie Lemay.

In Canada, the RCM, unlike many other mints, is not only the manufacturer of circulating coin, but also the country's end-to-end coin lifecycle manager. On behalf of the Department of Finance of the Government of Canada, the RCM has taken on a much broader role across the coin ecosystem. In addition to coin design and production, it also engages in coin forecasting, distribution, recirculation, recycling and monitoring to ensure an efficient and sustainable coin supply chain. Earlier difficulties included inefficient coin circulation, which included no clear view of the cash ecosystem, periodic shortages or excessive inventories, lack of commercial stakeholder collaboration, and the RCM's own challenges of under- or over-production.

Moreover, the geography and size of Canada create a not-insignificant challenge, with 40 million people spread across a nation measuring 9.9 million km². Faced with these difficulties, the RCM set out to work with the commercial sector to design a more efficient and sustainable solution for coin management.

Developed and continuously refined over the past 20 years, the resulting system and associated activities of the RCM to engage and collaborate with the industry have transformed the Canadian coin ecosystem, resolved these earlier supply chain challenges, and now provide a blueprint for coin circulation elsewhere in the world.

Use of data

To overcome the geographic challenges, the RCM established 12 regions supported by 23 armoured car companies.

In collaboration with financial institutions and the armoured car companies, it developed a proprietary system to capture coin stock holdings across the country. With sight of all coin stocks, the RCM can produce weekly automated forecasts to identify surplus coin holdings.

Forecasts are produced to a very granular level, with some 26,000 individual forecasts created each year, identifying coin requirements at an institution, location and coin denomination level. The armoured car organisations are provided with instructions not only on how much inventory they need, but also what they do not need. Extra coins that they don't need can be allocated

to surplus inventory for other financial institutions to buy.

The efficiency of the system has achieved a significant reduction in excess coin manufacturing and in 2023 total new coin production by the RCM of 249 million coins represented just 12% of that year's overall coin demand of more than two billion pieces. The rest was met by recirculated coin.

The system's flexibility, and trust in it by its participants, has also ensured that Canadian coin distribution challenges in times of adversity, such as during the Global Financial Crisis or COVID-19 pandemic, have been kept to a minimum.

Not only does the RCM produce the forecasts, but – as noted – it instigates the trades and oversees the efficient movement of surplus stock to meet demand. As it is the trusted manager of the system, competitive financial institutions and armoured car companies are happy to closely collaborate with one another to ensure effective coin distribution and recirculation.

Working through the auspices of the National Coin Committee (NCC), the RCM, together with the NCC, financial institutions and armoured car company members, has developed – and over time continues to refine – a series of guidelines, procedures, processes and rules to ensure efficient coin trading and recirculation. The RCM oversees and audits adherence to the scheme and also provides regular score cards to report on member performance – for example, the timeliness of the transfer of coins following trading.

The NCC meets twice a year to discuss issues, developments and trends that are impacting coin and cash use. The RCM also engages closely with the Canadian public and businesses to ensure it keeps abreast of changing attitudes and behaviours toward coin use.

In summary, the end-to-end oversight of the system has created a strong and resilient network that is able to handle spikes in demand in addition to unforeseen circumstances. The focus on continual improvements becomes increasingly important as consumer payment preferences evolve, with RCM ensuring that no one is left behind and that Canadians who choose or need to use coin are supported.

According to 2023 research by Payments Canada, most Canadians (55%) say they have no desire to go cashless. The research concluded that 'cash is seen as a reliable, widely accepted, safe and secure payment option that Canadians do not want to live without.'

This reliability is in no small part due to the efficiency of the Royal Canadian Mint's coin management system.



The Coin Conference – Optimism in the Face of Dislocation

The Coin Conference 2024 – which focuses on the future of circulating coinage and its challenges – took place in 28-30 October in Lisbon, Portugal. Organised by the publishers of Currency News™, the conference hosted more than 200 delegates, from 102 organisations across 42 countries, with 40% from central banks, monetary authorities and treasury departments.



It is fair to say that the coin world is in something of a state of dislocation at the moment, and concerns about falling demand, along with the closures of the Mint of Finland and the export business of the Royal Mint, were top of people's minds. Even so, the overall sense from the conference was one of optimism and determination to overcome such challenges in the context of an oft-overlooked part of the payments ecosystem that is nevertheless central to its effective functioning.

The fact that so many attendees were from coin issuers (central banks or treasury departments) bore out how important coins remain to payments.

What should coin issuers focus on?

Two workshops opened the conference.

The first – 'That was Then, This is Now – the New Priorities for Coin Issuers' – was attended by central banks and coin issuers, who identified their priorities in 2024 in terms of attractiveness, innovation, obligation, public perception, security, seigniorage (cost/profit), and trust compared with the results of a similar workshop in 2017.

The second workshop – 'Commemorative Coins for an International and a Domestic

Market' – looked at themes for successful commemorative coins series and why they are important for central bank revenues and national pride.

This was followed by an opening cocktail reception hosted by Imprensa Nacional Casa da Moeda (INCM) at its facility in Lisbon.

Setting the scene

The main conference programme was opened the following day by Helena Adegas, member of the Board of Directors of Banco de Portugal, with an overview of the cash and coin landscape in Portugal and the Eurosystem.

This was followed by a more general overview of the circulating coin landscape by Astrid Mitchell of Currency Publications, including key factors driving or slowing coin circulation over the last five years.

In addition to detailing the numerous changes to coins over the past five years, she provided an analysis of annual coin production volumes from a shortlist of countries that publish them (16, between them comprising over half of the world population-wise). This showed that there is an even spread between countries where coin production is falling (in some cases sharply and mainly in Asia), remaining

stable, and actually increasing (mainly in Latin America). In other words, in spite of general predictions of the decline of cash in general, and coins in particular, there is still plenty of activity in the market.

Session 1 continued to focus on 'Setting the Scene – Cash and Coins' with presentations from Monnaie de Paris' Marc Schwartz on cash, cryptos, CBDCs, and the question of 'what is money' and the European Commission's Irina Stoicescu on the organisation's perspective on euro coin issuance and protection and the legal tender of euro cash. The IMIA's Martina Horakova closed the first session's presentations by detailing its analysis of European legislation and proposals in favour of cash access and acceptance.

Sessions 2 and 3 focused on coin circulation from the issuer and market perspectives, respectively. Delegates heard from the Federal Reserve Financial Services – FedCash Services' Turner Angell on ongoing issues with and solutions to US coin circulation and from Banco de Portugal's Rui Manuel Monteiro and the Economic and Financial Committee's Antra Trenko on coin circulation in the eurozone.

Rosabel B Gurrero and Marie Lemay detailed the Bangko Sentral ng Pilipinas (BSP) and Royal Canadian Mint (RCM)'s approaches to ensure efficient coin circulation respectively, including the BSP's award-winning coin deposit machine programme and RCM's coin management system, which has resulted in nearly 90% of Canada's annual requirements being met from recirculated coin (see page 11).

The market perspective included presentations from Crane Payment Innovations' Keith Williamson and Brink's Anne Richard Schaafsma on improving coin circulation and from Global Coin Solutions' Scott Hutchings and Leftover Currency's Mario Van Poppel on coin repatriation. Proditec's Eric Sanquer closed the session with an insight into the potential use for robotics and AI in coin recirculation.

The final session of the day focused on sustainability. Currency Publications' John Winchcombe opened the session with a review of the environmental impact of friction in coin circulation. This was followed by the presentation of a continuing research study by the Mint Directors Working Group's Pascal Rencker,



focusing on the sustainability of cash vs digital payments and conducted in partnership with the International Currency Association.

The topic was continued with a focus on unfit coin and recycling. Arrandene's Simon Billingham provided examples of coin recycling to optimise sustainability and financial outcomes, M.One's Daniel Sheffer emphasised responsibility in decoining operations, and the Austrian Mint's Claus Fischer detailed the withdrawal of mutilated and unfit coins from circulation according to Austrian and EU regulations.

Production, inspection, authentication, and innovation

Wednesday morning opened with two sessions focusing on production, inspection, authentication, and innovation.

In the first session, topics included Mennica Polska's flying coin, the INCM's UniqueMark® hallmarking technique for precious metals, a world premiere of ACSYS Lasertechnik's Ultra Short Pulse Technology for finishing, and Schuler's vision of combining minting with digital solutions for cost reduction, process and continuous improvement.

The second session covered Spaleck's all round inspection using optical validation technology, how IQ Structures integrates holograms into coins, Inorcoat's new process to de-coat chromium-coated circulation dies and subsequently re-coat them with a PVD coating, and a jaw-dropping presentation from Carveco on how to use AI for coin design and analysis, with a remarkable real-time demonstration of its possibilities.

The final session of the conference took delegates on a global trip of coin circulation. FMA Secure's Francisco Mandiola presented on coin usage in countries with high inflation, such as Argentina, India, USA, Mexico, Venezuela and Zimbabwe. Aftab Baloch, formerly of Pakistan's Ministry of Finance and Federal Board of Revenue, expanded on the country's coin distribution process, noting

the impact of digital payments and modernisation requirements for Pakistan's Mint.

FNMT's José Luis Orozco then discussed the Spanish Mint's collaborations with other mints and issuing authorities, including INCM, the Royal Australian Mint, the Europa programme, and the recent XIII Iberian-American Series. This was followed by the Central Bank of Eswatini's Zodwa Nkambule detailing its award-winning Coin Management Efficiencies Project (for which it won an award).

RCM's Marie Lemay ended the conference presentations by introducing the new Mint Directors Association, including its ethos, 18 member mints and eight associate members, and upcoming new virtual hub.

Looking to the Future

A panel discussion titled 'Coins in 2035 – What Will the Industry Look Like' brought the conference to a close by considering the future of the industry.

Led by Simon Lake, formerly of The Royal Mint and now Senior Advisor to the Board of Mennica Polska, the panel included the RCM's Marie Lemay, Mennica Polska's Siemowit Kalukiewicz, Royal Australian Mint's Leigh Gordon, Monnaie de Paris' Nicolas Dumont, and the Thai Treasury Department's Prapop Anantakoon.

Topics included recent changes (including The Royal Mint's transformation and complete closure of the Mint of Finland), diversification of mints (opportunities available and programmes already in place), denominational structure including the impact of negative seigniorage and considerations of the note-coin boundary, the changing role of coins amidst digital payment transformations, and how mints will continue to meet the challenges of ensuring efficient coin production and circulation.

The M One Cup Football Match then concluded the conference social events.

The next Coin Conference will take place in 2026, with the location to be announced in due course.

New Work Sheds Light on German Influences on Finland's Banknote History

Banknote expert and author Antti Heinonen has written a new book on the history of Finnish money, focusing on international and particularly German influences in the early development of Finnish means of payment.

Starting with Johannes Gutenberg, the central role of Germans in the development of printing technology is well known. What is less well-known is their role in the design, engraving and printing of banknotes outside of Germany. Even though the then Grand Duchy of Finland was part of the Russian Empire, Germans had a role in every series of Finnish banknotes during the Russian period, including banknotes printed in St Petersburg, since all those contracted by the Bank of Finland in the printing process were of German origin.

The Bank of Finland and the German banknote foundation Giesecke+Devrient Stiftung Geldscheinsammlung (see CN July 2024) have jointly published 'Vom Zettel zum Geldschein: Deutsche Einflüsse auf das Design und den Druck von Banknoten im Großfürstentum Finnland' (From Piece of Paper to Banknote: German Influence on the Design and Printing of the Banknotes of the Grand Duchy of Finland).

The foundation funded the German-language translation from Heinonen's English-language manuscript. The work, which is richly illustrated, is published on the respective websites of the Bank of Finland and the foundation. An English-language summary of the book and a Finnish-language presentation of the themes of the work have also been published.

Heinonen, former Chief Cashier at the Bank of Finland, has had a long international career in the field of banknotes and is well known in the industry, including as the first Director, Banknotes at the European Central Bank, where he was responsible for the adoption of the euro as a cash currency.

He has previously authored books on a number of banknote-related topics, including the history of Finland's currency in four volumes, and the First Euros.

geldscheinsammlung.de/aktuelles-und-interessantes/vom-zettel-zum-geldschein-neue-publikation-von-antti-heinonen-veroeffentlicht/



Counterfeit Corner

■ **By Kerre Corbin, Currency Counterfeit Specialist**

Most central banks will classify their counterfeit banknotes to determine the types of threats presented by the counterfeiters. This may be as simple as identifying the printing processes on the counterfeit as digital or traditional. Or it could be an in-depth analysis of the individual characteristics of the printed image along with the security feature simulations.

But why is this important?

Examining and classifying counterfeit banknotes helps expose the methods and materials that the counterfeiters are using to produce the fakes. This data can reveal what type of counterfeiter has created the banknote and possibly the severity of the counterfeiting threat.

For example, 100 counterfeit banknotes are received for the month of November. 60 of those counterfeits are simple inkjet without any security feature simulations. 20 are toner with hand drawn simulations of one or two of the security features and 20 are high-quality offset printed (CMYK) counterfeits with most of the public security features simulated.

This data shows that the overall counterfeiting threat is low, as 80% are digital with low quality security features. However, there is a much bigger threat from the high-quality offset counterfeits, as these could be Organised Crime Groups producing high quantities of fakes to fund their criminal activities. If the examiners have been misclassifying these offset counterfeits as toner (because they saw CMYK dots and believed it was a digital printing process) then the central bank will fail to notice significant information about the true counterfeiting threat.

When is the last time your examiners received counterfeit training? A counterfeit examiner should be confident in rendering their opinion about how a counterfeit banknote was made, which includes using the proper equipment and having the expertise to differentiate between the different type of printing processes. As printing technology evolves, it is essential to know what is available in the commercial market for the counterfeiters to improve their product.

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New Banknotes: A Game Changer for Pakistan's Economy?

■ **By Aftab Baloch**

The introduction of a new series of banknotes in Pakistan next year, enhanced with advanced security features and modern designs, has the potential to play a transformative role in the country's economic landscape. Pakistan is a predominantly cash driven economy and banknotes play an important role due to the country's lower literacy rate, cultural boundaries, customs and traditions.

The introduction of new paper banknotes is a normal feature of the State Bank of Pakistan (SBP) every 10 years, with the current series first introduced in 2016 and so due for replacement in 2026. The new series will include updated denominations, enhanced security features, and a shift towards polymer.

New denomination and designs

A new high denomination 10,000 rupee note is set to be introduced. Redesigned versions of the existing banknotes – in denominations of 10, 50, 100, 500, 1,000, and 5,000 rupees – are scheduled for introduction in December 2024 although this may stretch next year. The currently circulating older notes will remain in circulation simultaneously for five years before being phased out.

The winning designs selected by the SBP capture Pakistan's cultural heritage and natural beauty¹. This effort reflects the SBP's goal to modernise the currency's aesthetics while maintaining national identity.

Compared to previous series, the new banknotes are printed with higher-resolution imagery, brighter colours, and more prominent national symbols. They also include state-of-the-art and increased security features such as holographic stripes, colour-shifting inks, micro printing, watermarks, and embedded RFID chips. Outdated notes with less sophisticated security features have been increasingly targeted by counterfeiters. The new notes aim to eliminate this problem by making replication virtually impossible.

They are also designed to integrate seamlessly with modern technologies such as digital wallets and ATMs, and will be properly accounted for, traced, and tracked on a real time monitoring basis.

A shift towards polymer

A polymer banknote will be introduced in one denomination (which is yet to be confirmed) in order to see its acceptability by the general public and relevant stakeholders, as well as its

durability in Pakistan's humid climate. If successful, more polymer notes will follow gradually.

The adoption of polymer, as well as extending note life, would also impact the import of polypropylene granules, which are brought into Pakistan to produce polypropylene sheets used in the creation of polymer products. However, the change would increase the transfer of technology and foreign direct investment in the form of local manufacturing of polypropylene granules via the establishment of factories in Pakistan, increasing economic activity and generating employment.

Although there has been widespread support from banks, businesses, and consumers for the adoption of polymer notes, some concerns remain about their feel and texture compared to traditional paper notes. The SBP has initiated public awareness campaigns to educate the public about the benefits of polymer notes, and should further this by explaining the economic and security rationale behind the shift to new notes.

Why introduce new banknotes?

The introduction of new banknotes offers several macro-economic benefits, including a reduction in counterfeiting through enhanced security features, controlling inflation by removing old notes and tightening control over the money supply, and formalisation of the economy by encouraging cash transactions to move into formal banking channels which would increase tax revenues and reduce black market activities. Modernised and secure banknotes would also boost investor confidence in Pakistan's economy.



1 <https://mettisglobal.news/sbp-announces-winning-art-for-new-banknote-series>

Note and Coin News

Bermuda Launches Same Look, Smarter Design Banknotes

The Bermuda Monetary Authority (BMA) is introducing new polymer \$2 and \$5 banknotes on the theme of 'Same Look, Smarter Design'.

Designed and printed by De La Rue on SAFEGUARD®, the banknotes incorporate a number of new security features including ARGENTUM™, a special silver ink that creates a highly reflective and visually striking image, and Enhanced GEMINI™, a level 2 feature that appears under UV light.

The front left corner of the new \$2 and \$5 notes features the portrait of King Charles III. The \$2 note includes triangular embossed dots to aid the visually impaired, while the \$5 note features a circular pattern. On the front, a reflective, mirror-

like tuna appears in ARGENTUM, with its shadow visible on the back. Opposite the silver tuna, a coloured tuna embedded in the substrate becomes clearer when held to light.

The notes also feature a clear window with fully and partially transparent areas displaying a cloudy sky and an underwater scene visible from both sides. In this window, the abbreviation BMA is printed on the front, and a hibiscus flower appears on the reverse, both becoming see-through when backlit. Additional security features

ILLUMINATE™ and ROTATE™ are fully integrated into the iridescent ink design of waves, multiple fish, and a sun, that appear when the notes are tilted. Under UV light, hidden elements in two colours emerge. Each note has a unique serial number and a 'security thread' with BMA microtext.

The new \$2 and \$5 polymer banknotes will co-circulate with their paper counterparts.



In Other News...

■ The Swiss National Bank (SNB) has announced that it is to begin developing the country's 10th banknote series in order to ensure that Swiss banknotes continue to meet the latest standards for functionality and security.

The theme of the new banknote series will be 'Switzerland and its altitudes', paying homage to the country's unique mountainous topography, from the Jura and the Central Plateau to the Alps, and depicts Switzerland from its deepest valleys to its highest peaks.

As a first step in the process of developing the new banknotes, the SNB is launching a design competition, to which any designer working in Switzerland can apply. 12 designers will be selected, with the competition starting next February. The draft designs will be presented to the public in autumn next year.

Switzerland's 9th series, already regarded as one of the, if not the, most secure banknote families in the world, was introduced between 2015 and 2017. With its theme of 'The many facets of Switzerland', it was the first to be produced on the composite substrate Durasafe® and contains a number of security features developed specifically for the substrate and the series.

■ Banco Central de la República Argentina (BRCA) has now introduced a new high denomination 20,000 peso note, worth US\$19 at the official exchange rate. The note features Juan Bautista Alberdi (1810-1884), a politician and intellectual who influenced Argentina's original 1853



Constitution. Security features include a watermark with the portrait of Alberdi and his initials, a 4mm wide RollingStar® i+ (Moon) thread, and a rendering of the National Constitution with SICPA's SPARK Flow® that changes from magenta-to-green at certain angles.

The notes were printed by China Banknote Printing and Minting (CBPM) and, according to BRCA, production costs have decreased from the US\$126 per 1,000 notes charged by Casa de Moneda Argentina (who were not invited to bid for this latest contract and whose banknote production has now ceased) to US\$48 per 1,000.

Argentina's history of devaluation and persistent inflation has continually led to peso banknotes losing their value. Until September 2023, when the 2,000 peso was put into circulation, the highest denomination bill in Argentina was the 1,000 peso. The lowest denomination banknote still in use, issued for the first time in 1991, is the 10 peso, worth less than 1 US cent at the official rate. A high denomination 10,000 peso note was introduced earlier this year.

■ The Central Bank of Sudan (CBoS) has issued a new version of the 1,000 Sudanese pound (SDG) to enhance public confidence in the war-torn country's currency.

As part of the ongoing civil war, rebel militia looted the Bank's headquarters and the printworks of Sudan Currency Printing Company. This, says the CBoS, 'resulted in the spread of large quantities of banknotes of unknown origin and not conforming to technical specifications in the SDG 1,000 and SDG 500 denominations, which has led to a clear increase in the level of cash liquidity and a negative impact on the stability of the general price level'.



The new SDG 1,000 is markedly different from its predecessor, which was introduced in 2022. The predominant colours are yellow and green (versus the blue of the previous version). The front depicts an image of Port Sudan, along with a grain silo, gold bullion and the denomination in true Arabic numerals. The reverse depicts an image of the CBoS headquarters, the denomination in English text, and the amount in standardised Arabic numerals.

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... Note and Coin News

Security features include what appears to be a diffractive thread, along with a colour shifting patch and a watermark in the shape of a Falcon eagle. The notes were produced by the Russian state printer Goznak.

CBoS has confirmed that the old banknotes will remain valid, and the process of replacing them will be carried out gradually according to a timetable that will be announced at a later date.

■ Danmarks Nationalbank has issued 1 million 20 kroner coins, the first of its updated coins featuring the effigy of King Frederik X following the abdication of Queen Margrethe II earlier this year. The

'Passing of the Crown' coin depicts a portrait of King Frederick in profile facing right on the obverse and a similar portrait of Queen Margrethe in profile on the reverse, also facing right.



In addition to the 20 kroner, Danish coins are also denominated in 10, 5, 2 and 1 kroner, and 50 ore. The 10 kroner also features the effigy of the monarch, and

the lower denominations the monarch's monogram. Regular versions of the coins with the new king's effigy or monogram are expected to start going into circulation in 2025, with the exception of the 50 ore, which won't be changed.

■ The Central Bank of Kenya has announced the roll-out of updated banknotes in denominations of 50, 100, 200, and 500 Kenyan shillings (KSh). A revised KSh 1,000 note was released earlier this year. The notes are the same design as the 2019 series, but De La Rue has been replaced by Giesecke+Devrient as the printer and they feature new dates and security threads. The KES 1,000, for example, includes a RollingStar i+ thread.

Events

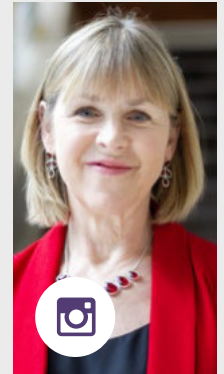
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 EDITION 4 / 2024
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Publisher: Currency Publications Ltd (a Reconnaissance/Currency Research company).
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ISSN 2516-6336

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