

CURRENCY NEWS™

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Aligning Euro Banknote Policies with Paris Agreement Targets

The European Central Bank (ECB) has been working to reduce the environmental impact of euro banknotes and the Eurosystem cash cycle since the introduction of the euro in 2002. Although it has made progress, it has further goals to reduce the environmental footprint of current and future euro banknotes.

In this context, it has conducted a Product Environmental Footprint (PEF) study to establish a baseline and gain a granular understanding of the impact of the environmental impact of banknotes as a payment. The study, and results, were presented at the recent HSP EMEA conference in Sofia, Bulgaria by Bernadette O'Brien of the ECB.

PEF Methodology

The European Commission (EC) has adopted a Product Environmental Footprint (PEF) methodology that measures all the potential environmental impact over the entire life cycle of products. The approach comes with clear guidance, technical detail, limited choices to create a reproducible, comparable and robust harmonised score.

The ECB used the PEF methodology to help identify aspects of the life

cycle that the ECB can target to further reduce the environmental footprint of banknotes.

Caveats: The PEF was based on pre-pandemic cash usage levels. It focused on cash as a payment instrument rather than its store of value function. Other payment instruments, such as coins and digital payments, were not included. It did not look at usage outside of the euro area.

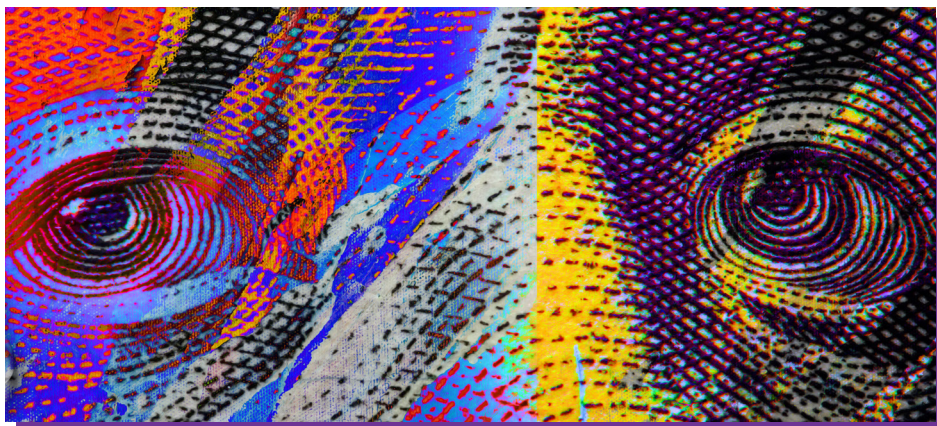
Categories measured: The PEF methodology measures environmental impact across 16 categories, for example climate change due to GHG emissions, ozone depletion, land and water use, resource depletion etc.

Data sources: Data was collected from 19 National Central Banks (NCBs) and 36 accredited

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New Banknote Series – Challenging the Convention

Industry custom and practice dictates that a new series of banknotes should be issued every 7-10 years. That span fluctuates depending on who is saying it (some say 5-7, others 10-12). We don't know who established that nor how was it determined. As we couldn't answer these questions, we set out to see whether this convention was being followed by the industry. And to determine if it is still appropriate.



But where to start? We needed data! Purely by coincidence, we happened to have virtually ready for release a new industry database on all circulating banknotes in the world, including year and reason for issue. What better time to test than now to see if the industry conventions were being followed.

We researched three periods – 1) 1995-2004, 2) 2005-2014, and 3) 2015-2024, for both new series introductions and banknote upgrades (individual banknote changes within the series) to determine to what extent notes are being redesigned, or upgraded, in line with the so-called convention.

We also examined the other 'industry-accepted norm' that countries with their own (state) printing works (SPWs) change their series less frequently than countries who import their banknotes.

96 out of the 167 countries issuing banknotes introduced one or more complete new series in the last three decades, just over half. 11 of those were before 2005, 31 between 2005 and 2014, and 52 from 2015 to 2024. Had all countries followed the norm, then all 167 countries would have changed their series at least once and some twice.

In the period 2015-2024, 61% of new series were issued by countries with SPWs compared with 55% for countries without, which also is contrary to the perceived industry norm.

A review of upgrades showed that 70 out of 167 countries upgraded their banknotes in the three decades, changing 298 out of the 1,044 denominations. This again

is below the number expected using the current industry norm.

Overall, 25% of countries neither upgraded nor redesigned any of their banknotes in the periods reviewed.

From the data extracted, the general conclusion can be drawn that the introduction of a new series is now mostly determined independently from the industry frequency convention.

There are number of different reasons for introducing a new series. They range from the death of a monarch or head of state whose portrait appears on the currency, redenomination (generally the result of hyperinflation), a change in substrate (notably from paper to polymer) to extend the lifetime of notes, adopting a more logical and cost-effective currency structure (adjusting the note/coin boundary and/or introducing new denominations), or simply the desire for a more modern appearance that better reflects the country's circumstances, aspirations and the image it wants to project to the world.

Or a combination of these.

But the main, overriding reason for changing notes – whether upgrades or a complete redesign – is security. And this is where the original convention probably came in – almost certainly during the 1990s when counterfeiting started becoming a major issue thanks, largely, to the arrival of digital reproduction technology that put the tools for creating counterfeits into the hands of the many.

A number of counter-strategies were deployed – clean note policies, greater involvement of law enforcement and public

education all being key. But central to all was the development and introduction of new security features – predominantly overt features with effects that change according to the viewing angle and can be explained to the public with minimal education or special tools.

The fact that redesigned notes could also be smaller (ie. cheaper), fresher in appearance, incorporate features for the visually impaired, etc., were all opportunities on the back of enhanced security, rather than the rationale for a series makeover.

Needless to say, there have been major advances in banknote technologies in the past two decades – substrates (not just polymer, but more durable paper and composites), security features (overt, covert, machine-readable and forensic), digitisation in design, pre-press, print and finishing technology – all of which have reduced lead times and speeded up the process of producing new series, enhanced security, improved quality, extended lifetime, and reduced costs.

But just as there are compelling reasons to keep ahead of the counterfeiters by regular upgrades or redesigns, there are some compelling reasons against.

Longer series life can enhance public education on counterfeit detection, is better for sustainability, and reduces the overall cost of new note issue for the private and public sector.

These counter-arguments are predicated, however, on the basis that the notes are secure, durable and, increasingly, sustainable in the first place. So, it is a little surprising that only 298 out of 1,044 denominations were upgraded or redesigned in the three decades.

As for the question of whether the 7-10 years is still appropriate, it certainly was. Notes didn't last as long so either the quality was poor or the replacement costs were high, and counterfeiting used to be a major problem. In the 2000s, some major economies were reporting counterfeit ratios in excess of 400 ppm (they have subsequently tumbled and it's rare now for a country to have a ratio into three digits).

But that was then, and this is now – as the saying goes. So, the answer – these days – is probably not.

But what is appropriate is vigilance by the banknote issuer within their country, as well as regionally and globally, to monitor threats and developments, and to act based on this knowledge to ensure their banknote series is secure, durable, cost effective, and presents their country positively to its people and the world.

If the population likes, respects, uses, and has confidence in the currency, they will have succeeded.

Royal Mint Pulls Out of Export Business for Circulating Coins

The Royal Mint (TRM), the UK's oldest company, has announced that it is to pull out of the market for producing foreign circulating coins and blanks, bringing to an end a 700-year old business in producing coins for overseas countries.

The rationale is that TRM is losing money from circulating coins, and will transfer its focus (and 200 staff involved) to its newer business ventures, in which it has invested £17 million – notably the reclamation of gold and precious metals from e-waste and the new jewellery line 886 (the year of its foundation).

The decision, although coming as a surprise to many, was widely trailed in TRM's year-end statement for 2022/23. In this, the organisation referred to the start of a five-year transformation plan in the context of losses in the currency business (UK and overseas circulating coins and blanks) and the need to be realistic.

For 2022/23, TRM announced record sales (up 34% to £1.877 billion) and profits (up 27% to £17.7 million), but these came primarily from the precious metals and commemorative coin businesses. Sales from circulating coins grew by 16% to £74.4 million, but the losses also grew, from £4.5 million to £13.1 million. The last time the division made a profit was in 2019/20.

A spokesperson for The Royal Mint, said: 'the decline of cash use globally has been a catalyst for change at The Royal Mint, spurring innovation and a portfolio of new businesses. The success of these growing businesses means we can stop taking overseas currency orders and transfer all employees into alternative roles. This ushers in a new chapter for The Royal Mint, safeguarding our long-term employment and profitability.'

'We remain fully committed to making UK coins, which has been at the heart of The Royal Mint for 1,100 years. Our expertise in coin making has enabled our growth into areas such as precious metals investment and luxury jewellery. We have made a significant investment into new businesses, including a world-first plant to recover precious metals from electronic waste opening this year.'

TRM's decision has been seized upon as yet another example of the world going cashless. While the volumes of overseas coins and blanks have been in slow decline (1.34 billion for 28

countries, compared with 1.55 billion for 22 countries the previous year), the production of UK coins fell off a cliff (down to 56 million from 339 million from the previous year).

But there are other deep-rooted issues at play too.

One is the huge overcapacity in minting. An analysis in 2018 put the ratio of coins produced per annum per mint at 0.8 billion (compared with 2.83 billion for banknotes).

Another is a growing trend for dropping the lowest value coins. This hasn't happened (yet) in the UK but is gathering steam in the eurozone and other countries around the world. The lowest denomination coins typically account for around 50% of the production of circulating coins in any given year.

Another trend is the introduction by central banks in some countries (eg. India, Hong Kong, Singapore, Estonia, Poland) of programmes to get coins back from the public (hoarding) and out into circulation. More coins returning to circulation means fewer need to be produced to replace them each year.

Put these factors together, add in the volatility and rising costs of inputs (mainly metals), the growing number of mints that are pivoting to export to utilise excess capacity, and the result is a fiercely competitive market with low margins caused by too many companies chasing too little business.

This is nevertheless an opportunity for other mints that export. The main ones are those of Finland, France, the Netherlands, Australia, Canada, Poland and South Africa. Not to mention China, which is going further and faster to cashless payments than any other country. It has a huge infrastructure for coin production and has made no secret of its ambition to become a major exporter too.

As the proverb goes, one man's loss is another man's fortune. If we work on the assumption that coins won't be going away in their entirety, then someone still needs to produce them. Going forward, that someone won't be TRM.

Record Year for G+D

Giesecke+Devrient (G+D) has announced that it achieved the strongest growth in its history in 2023, setting new records for sales, growth and earnings in line with its strategy as a leading global secure technology company to help to shape the digital transformation of society.

The company generated revenues of €3 billion, 18% higher than in 2022. Earnings before interest, taxes, depreciation and amortisation (EBITDA) rose by 17% to €347 million. Annual net income increased by 14% to €92 million.

G+D is now divided into three segments, or pillars – Digital Security, Financial Platforms and Currency Technology. According to the company, its future-proof portfolio proved a strong driver for growth, with revenue split more or less equally between the three.

Whilst specific figures for the different segments haven't been provided, in 2022 the Currency Technology business generated sales of just over €1 billion, much the same as in 2023, implying that growth has come from its digital security activities.

The Currency Technology business includes not just banknotes (substrates, features, print, automation and software), but also digital currencies. To date, G+D has secured CBDC development contracts with countries including Ghana, Eswatini, Hong Kong, Thailand, Brazil and, most recently, Mauritania.

G+D also announced that important sustainability milestones were achieved in 2023. For example, it reduced its emissions by more than 60% and, since the end of 2023, has also been using almost 100% green electricity at all locations. The company's green transformation is also reflected in its product portfolio, with a wide range of green products and environmentally friendly production processes.

Investment increased by 44% to a record €490 million. Approximately half was in R&D and the company's own technology, and the other half for mergers and acquisition projects.

G+D has said that it has entered the new financial year with a high volume of incoming orders, €3.2 billion, pointing to continued future success.

It is also implementing a generational management change, with the owner – Verena von Mitschke-Collande – handing over to her son Marian, Jan Thyen replacing Peter Zattler as Group Chief Financial Officer, and the appointment of a new Chief Digital Officer, Gabriel von Mitschke-Collande.

News in Brief

■ K&B and GSSC Partner for New Print Security Features

Koenig & Bauer and Graphic Security Systems Corporation (GSSC) have formed a partnership to jointly develop and deliver advanced anti-counterfeiting solutions to customers worldwide.

US-based GSSC offers a range of anti-counterfeiting technologies based on steganography, the art of hiding data within an ordinary design or artwork to evade detection, replication, and modification.

By combining its steganographic technologies with the printing press and quality control capabilities of Koenig & Bauer, the two companies say that a 'dynamic and unparalleled level of protection, detection and authentication is achieved'.

The technology is a cost-effective way of incorporating security into documents and products, and can be integrated in almost any available printing process from Koenig & Bauer – flexo, offset and digital.

The launch of the Koenig & Bauer STEGANO technology family represents the initial efforts of both organisations to introduce the concept to the brand and high-security printing industries.

According to Koenig & Bauer, the partnership with GSSC strengthens its portfolio in the field of authentication solutions of different technology types for various end markets.



From left to right, Marc Hunsänger, Technology Manager, and Julian Schubert, Vice President of Data, Vision and Authentication Solutions (both Koenig & Bauer), seal the partnership with Dominic Painter, Vice President of Global Sales and Business Development, and Cary Quin, Technology Manager (both GSSC).

■ De La Rue Update on Trading and ASSURE

De La Rue has provided a trading update for the financial year ended 30 March 2024, in which it states that it expects adjusted operating profit to be in line with guidance previously given, in the low £20 million

range. Net debt is expected to be around £90 million, which is marginally better than previous guidance.

The results for the year will be announced on 18 June.

Separately, De la Rue has given an update on its new covert machine-readable feature for polymer, ASSURE™ (see CN February 2024). The feature has now been integrated into two series of circulating banknotes, with zero impact on the design, production or processing of these. The notes are being delivered to the issuing authorities and should in circulation shortly.

■ Estonia Extends Coin Exchange Pilot

The central bank of Estonia, Eesti Pank, has extended its coin collection campaign into 2024, a three month pilot at the end of last year having resulted in some 3.3 million coins being returned, against a target of 1 million, 65% of which were 1 and 2 cent coins.

The campaign is being run in collaboration with the Estonian-based postal service and logistics company Omniva, with people able to exchange their accumulated coins at selected post offices. The exchange was free until the 1 million target was reached; thereafter, a 5% service fee was introduced. In spite of this, according to the Bank, public engagement has continued.

An important motivation behind the campaign has been the reduction of production costs and the environmental footprint around the smaller denomination coins specifically. Eesti Pank noted that enough coins had been collected during the campaign to enable it to cover the average demand for coins for three months.

Separately, Estonia is currently exploring the coin rounding option, which would discontinue the issue of 1 and 2 cent coins. Eesti Pank has noted that rounding would be a 'lasting solution' for efficient coin circulation and has proposed its introduction to the country's Ministry of Finance.

■ New Service from Clip Money

Clip Money, the Canadian-based CashTech company in which both GLORY and NCR Atleos have invested, has announced the addition of a new service to its product suite.

Clip Money offers an app and network of self-service smart drops that enable businesses to deposit money in universal devices in convenient locations such as shopping malls, regardless of with whom they bank and without having to visit the bank.

The addition to the suite, ClipChange, is a delivery service that allows Clip's business

partners to select from pre-packaged values of coins and banknotes and track packages through insured delivery, eliminating the need for branch visits and armoured carriers.

ClipChange is the third major initiative for the company after the ClipDrop deposit channel, currently available at hundreds of shopping mall locations throughout North America, and ClipATM, which has expanded deposit access to thousands of existing NCR Atleos cash-deposit ATMs.

■ GLORY Merger in US

GLORY Ltd – the Japanese cash automation specialist – has announced the merger between its consolidated subsidiaries in the US: Glory Global Solutions Inc (GGSI) and Revolution Retail Systems (RRS). It acquired the latter – which offers closed loop cash recycling solutions for retailers – in 2021.

The purpose of the merger, said GLORY, is to integrate the management structures of the two companies for efficient operations in the Americas region. It is an absorption-type merger, in which GGSI will be the surviving company and RRS the dissolving company. Sales for each company in 2023 were \$43 million and \$17.7 million, respectively.

In February, GLORY announced a similar merger among three Japanese subsidiaries – the software company GLORY System Create and two hardware companies, GLORY AZ System and GLORY Mechatronics – under the name GLORY Technical Solutions.

■ CMS Info Systems Expands Services

Indian cash management services company CMS Info Systems is planning to expand by diversifying into gold logistics and collection of retail loan repayments. It has already piloted two business lines – bullion logistics and debt collections – and is expected to launch the businesses commercially shortly.

'Bullion is a large and growing sector in India and is rapidly formalising due to government reforms such as GST and BIS Hallmark,' said CEO Rajiv Kaul. 'Our network, risk management framework and operational efficiency offer an integrated solution to the goods logistics segment'.

The move into debt collection, meanwhile, has been prompted by a retail credit boom in India.

CMS Info Systems was listed on the Mumbai and National Stock Exchanges in 2021. 'Since listing ... our revenue growth has been 20%,' said Kaul. The company expects to deliver in the upper half of its revenue target range of INR 2.5-2.7 billion in fiscal 2025.

A New Force in Vietnam for Polymer Production

In recent years Vietnam has been a go-to country for many of the world players in the technology, automotive, and fashion industries. It is now stepping into a new field – polymer banknote substrates and security features.

Behind this move is Vietnam's Q&T Hi-Tech Polymer Company. Founded in 2016 and based in Hanoi, this 100% Vietnamese-owned company is the brainchild of Mr Anh Luong Ngoc, a local entrepreneur with a background in chemistry, infrastructure and security, having represented most of the leading banknote suppliers in the industry over the years in Vietnam.

Q&T (which stands for Quality and Technology) Hi-Tech Polymer has recently launched POLYSECURE®, a polymer substrate for banknotes, to which it has dedicated extensive research, development, and manufacturing resources and which it claims is unique. POLY SECURE is not just a banknote substrate, says the company; it is a testament to its ingenuity and expertise.

With it, the company has stated its intention to become a formidable player in the manufacturing and global supply of polymer banknote substrates with a product that is 'set to redefine the concept of banknote security and durability'.



The company is located in Hanoi's Hoa Lac Hi-Tech Industrial Park, near the State Bank of Vietnam's new printworks. The Q&T facility measures 18,000m² and currently employs 100 people, all Vietnamese. The initial investment was VND 1.1 trillion (US\$46.4 million), and all the technology has been developed from the ground-up, with local suppliers of raw materials, films, and coatings. The technology is mostly proprietary, with three patents granted to date.

According to the company, it is committed to sustainable practices,

both in the products and in their production. It claims its state-of-the-art manufacturing facilities offer efficient energy consumption, minimal wastage, and responsible waste management.

The product itself – POLYSECURE – is said to possess unique attributes that make it superior to traditional paper-based banknotes, such as enhanced durability, increased counterfeit resistance, and improved longevity. Moreover, says Q&T, it offers better performance than other polymer substrates on the market.

The company has already secured a foothold by winning and delivering its first contract for the 20,000 Vietnamese dong. Vietnam was an early adopter of polymer, being one of the first countries to use the substrate for its new series in 2003. Its current series comprises six denominations, ranging from the 10,000 to the 500,000 dong. The contracts for the substrate are put out to global tender, but to date, it has always been supplied by CCL Secure. This is the first time that a second supplier has been approved by the State Bank of Vietnam.

In addition to the substrate, Q&T is also setting its sights on security features. Last year it signed an agreement with Crane Currency targeted at launching the latter's MOTION SURFACE™ micro-optics stripe on POLYSECURE. But it is also focusing on the development of its own portfolio of features.

Vietnam is one of the world's fastest-growing economies and, says Q&T Hi-Tech Polymer Company, it is positioning itself as a compelling alternative to international competitors with a product that competes on the global stage.

'In Q&T Hi-Tech Polymer Company's emergence in the polymer banknote substrate manufacturing business is nothing short of remarkable. With our groundbreaking product POLYSECURE and unwavering commitment to quality and sustainability, we are set to revolutionise the industry in Vietnam and beyond,' it says.

More information about Q&T Hi-Tech Polymer Company and POLYSECURE will be available at the Banknote Conference, where the company will be making a presentation on its technology.

World's First Certified Circular Polymer Substrate

Spectra Systems has developed its own print-ready machine-readable banknote polymer substrate, FUSION™, working exclusively with Toray Plastics America. It has recently announced the certification of FUSION by the International Sustainability and Carbon Certification (ISCC) PLUS process as part of a mass-balanced recycling supply chain, marking a world first for polymer substrates.

The ISCC PLUS certification was obtained through Cartor Security Printers in the UK, which Spectra acquired last year (see CN December 2023). Cartor undertakes the conductive treatment and opacification of the BOPP film, which is supplied by Toray.

The ISCC PLUS certification allows Spectra Systems to maintain a fully audited mass-balance supply chain from Toray Plastics America. For every kilogram of Certified Circular polymer utilised in the substrate, an equal amount of polymer has been recycled and repurposed as part of a sustainable supply chain.

Spectra claims this will provide the following environmental benefits:

- Using plastic waste as an alternative to fossil fuels
- Additional end of life options for plastic waste
- Diversion of significant amounts of plastic waste from landfills or incineration
- Expanding the range of plastic waste that can be recycled.

'Spectra Systems, as an engaged corporate citizen supporting a sustainable global environment, is proud to bring this product to the banknote industry,' said Spectra's CEO, Dr Nabil Lawandy.

'This undertaking is yet another demonstration of how Spectra Systems is always innovating and bringing new technology and capabilities to our customers to meet their needs.'

Spectra Systems will be showcasing FUSION and its environmental impact at the 2024 Banknote Conference in Fort Worth, Texas, from 13-16 May.

Fed Deep Dives into Data to Report on Demand for US Banknotes Post-COVID

Last month, the Board of Governors of the Federal Reserve System published an International Finance Discussion Paper on the demand for US banknotes at home and abroad. It was authored by Ruth Judson, a staff economist.

The article examined in detail the question that no one has the absolute answer to – what is happening and will happen, to cash? Given that the US dollar is the world’s foremost international currency, and it is used as a medium of exchange and store of value outside its own borders far more than any other currency, an in-depth study of its past and current trends, both nationally and abroad, should give an interesting perspective on the matter.



The author begins by noting that in principle, physical currency should be disappearing given that payments are increasingly digital, with new technologies emerging rapidly and governments increasingly restricting the use of large denomination notes to reduce crime and tax evasion.

But it is not disappearing. Demand for US banknotes is increasing, particularly at times of crisis both within and outside the US. The conclusion must be that US banknotes remain a desirable store of value and medium of exchange, the recent COVID crisis proving this point. However, the report found that the growth rate of demand for smaller denominations is slowing, perhaps indicating the first signs of declining domestic cash demand.

The paper covers several methods for estimating stocks and flows of US currency abroad from the early 1990s to end 2022.

Several trends indicated

The data consistently indicate several trends – first demand for US currency increased steadily in the 1990s and early 2000s, coinciding with the fall of Berlin Wall, the collapse of Soviet Union and crises in several Latin American countries. However, demand stabilised or declined around 2002 with the introduction of the euro banknotes. This continued until 2008, when the global financial crisis created renewed demand for US banknotes that

has continued to the present time.

The total currency in circulation in the US, reported weekly by the Treasury and Federal Reserve, is described in detail, and noted as generally accurate.

In comparison, movements of currency across US borders cannot be precisely measured, for several reasons.

First there is no legal requirement or mechanism to monitor movements of \$10,000 or less, and many individuals cross US borders each year. Consequently, such movements are potentially significant. And, where there is a legal requirement to report currency flows, mechanisms are not always in place to do so, and reporters might not comply with requirements.

What is not fully covered are US banknote flows between countries and these can be substantial, but while not all banks that ship banknotes internationally report shipments, the vast majority that cross US borders are captured. As a result of these shortcomings and complications, the country level data must be interpreted with care.

Taking all data into account, overall currency growth has been strong. US currency in circulation has grown by an average rate of about 7% annually over the past few decades, about 2% more rapidly than US nominal GDP. Since 2008, the gap has been greater – annual currency growth has remained around 7% even though GDP growth has averaged less than 3%.

Demand by denomination

Not surprisingly, the US currency movements by denomination have been dominated by \$100s. At the end of 2022, US currency in circulation totalled about \$2.2 trillion, of which \$1.8 trillion, 82%, was in the \$100 denomination.

The patterns of currency demand between the US and Canada were compared to try to see what US currency demand would look like without a foreign component, given the similarities between the countries.

Not surprisingly, overall currency growth rates in Canada are driven less strongly by \$100s and more strongly by \$20s and \$50s, the primary transaction notes in Canada. It was also found that Canadian growth relative to income diverged at

the beginning of the 1980s. US currency growth had been strong even relative to nominal GDP.

By comparing the ratios of the total currency to nominal GDP for the US and Canada for the last half century, it would be expected that the ratio of income to currency, or velocity, should vary positively with the opportunity cost of holding money. The upturn in the US ratio of currency to nominal GDP beginning in 1989 is anomalous, but consistent with substantial and growing external use of US currency.

Ruth Judson then explored various methods of estimating the share or value of \$100 notes held abroad. Given it was difficult to assign relative weights or probabilities to the different estimates, the results were that they centre in the 50%-60% range for all denominations and 65% for \$100s.

COVID - the US experience

Although there was a vast increase in the options for and use of electronic payments during COVID, demand for cash increased sharply in the second quarter of 2020 and remained unusually strong through 2021 in the US as well as in other countries.

Over the 11 years prior to 2020, ie. from 2009-2019, total increases in US currency in circulation per year were around \$80 billion. In 2020 it increased by \$280 billion, three time the amount seen over the prior decade. Cash demand remained unusually strong in 2021, returning to a typical range only in 2022. Notably, cash demand in the first three quarters of 2023 was substantially lower even than 2009-2019, perhaps suggesting a reduction in precautionary cash holdings.

This US experience was not unique. Increases in currency in circulation were highest for Japan, Canada, and Australia and on a par with the increases seen since 2003 in the UK, Sweden and for the euro area. However, only Australia experienced an increase of the magnitude of that of the US. All countries saw a pullback in demand over the first three quarters of 2023.

End of cash not imminent

The conclusion of this aspect of the study was that the path for total currency closely tracked the \$100 in a steady upward path. However, a close examination suggests that the domestic use of, and demand for cash, is trending down, albeit slowly, and that cash remains a popular choice in crises.

Thus, cash use seems to be diminishing relative to the size of the economy, but the end of cash in the US is probably still not imminent.

The full report can be found at www.federalreserve.gov/econres/ifdp/demand-for-us-banknotes-at-home-and-abroad-a-post-covid-update.htm

... Aligning Euro Banknote Policies with Paris Agreement Targets

manufacturers – five paper mills, 11 print works, eight foil and thread suppliers, nine ink suppliers, CIT companies, cash centres, commercial banks, retailers and banknote equipment manufacturers.

Functional unit: The Functional Unit of the methodology (FUnit) measures the qualitative and quantitative aspects of the function and/or services provided by the product being evaluated. It looks at what, how much, how well and how long the product does. The FUnit expresses the quantity of products in a given product system required to fulfil the function of the product.

It was defined as the annual average value of payments made with banknotes per European Area Citizen (EAC) in 2019 for those aged 18 or over in the 19 Eurosystem countries.

Over a year, €7,176 were spent on day-to-day purchases¹ per EAC. The equivalent to an average of 11.7 banknotes per EAC were worn out and needed to be replaced.

Total impact

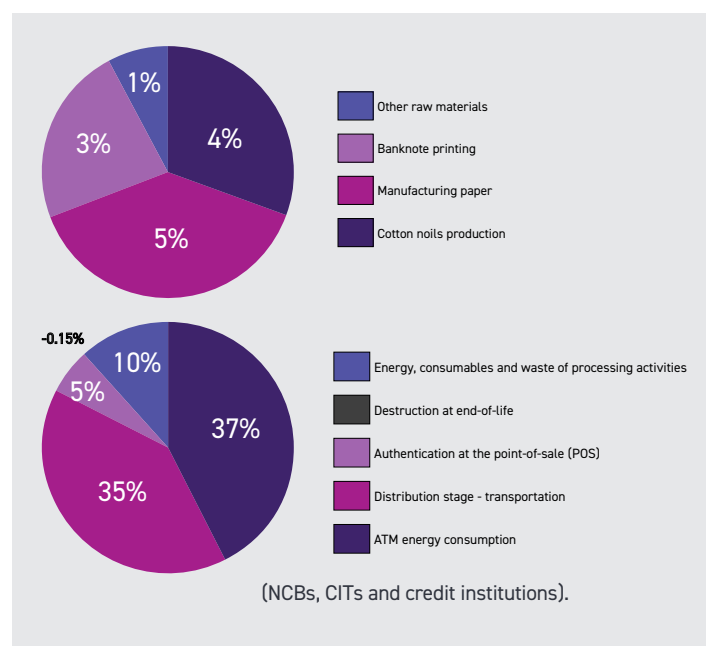
The methodology has been used to produce a single overall score for the average annual value of cash payments per EAC in 2019, 101 micro points (µPt). To make this number more accessible for non-specialists, 101 µPt is the same as driving a standard car 8km. It is 0.01% of the total environmental impact of a European's annual consumption of activities.

Is that a lot? No! It's very low when compared to other everyday products or activities by European citizens. For example, producing a cotton T shirt and then washing it once a week for a year has the same environmental impact as driving 55km. The impact of manufacturing the number of plastic bottles consumed by one European in a year (71 bottles of 1.5l) is the same as driving 272km.

The two main contributing impact categories were climate change (1.43kg CO₂e), 40% of the total, and resource use, energy carriers, 28% (22.4 MJ).

Impact by activity

Broken down by activity across the entire cash cycle, manufacturing banknotes only accounts for 13% of the impact end-to-end.



FUnit µPt	Average number of banknotes consumed by an EAC for cash payments in 2019
€5	2.20
€10	2.93
€20	3.85
€50	2.15
€100	0.44
€200	0.06

Targets set

The EC has established a 2030 Climate Target Plan. Green House Gas (GHG) emissions must be reduced by 55% by 2030 relative to 1990. This is in line with the 2015 Paris Agreement. The European Union (EU) is working to be climate neutral by 2050.

The ECB as an institution aims to reduce its operational carbon footprint in line with available pathways to limit global warming to 1.5°C. Taking pathways to achieve science-based emission reduction targets as a reference, this commitment requires a carbon footprint reduction by 46.2% by 2030 from a 2019 baseline.

It has already been working to reduce the environmental impact of banknotes for some time. For example, it carried out its first Life Cycle Assessment in 2004 using the ISO 14040 methodology based on the first euro series. Based on this, it added a protective varnish to low denomination banknotes to extend their life, has banned the disposal of unfit banknotes in landfill and burning without energy recovery as of 2022 and introduced a sustainable cotton programme to replace conventional cotton by 100% as of 2023.

Meanwhile, in the cash cycle between 2004 and 2019, ATM manufacturers and credit institutions have reduced the impact of ATMs by 35%. Progress has also been made on transport optimisation and the use of sustainable fuels.

Euro Series Three

Work on the third euro series is at an early stage with no key decisions made. However, preparatory work is starting with the environmental impact as one of the starting bases for a possible new series. Three key approaches are being pursued:

- **Designing for durability:** These are actions to increase note life in circulation such as developing new raw materials, evaluating alternative raw materials and looking to extend existing raw materials.
- **Designing for recycling:** at the end of a banknote's life, are there new upcycling treatments? Can existing treatments be adapted?
- **Life cycle design:** in order to assess the overall life cycle impact, the ECB developed a methodology to calculate the environmental impact of all design variations.

On the basis that you can't control what you don't measure, the ECB's PEF work is crucial to its ability to reduce the environmental impact of the euro and the Eurosystem cash cycle. Not every central bank has the resources to conduct such a piece of work, and so this PEF is valuable in pointing out where the big impacts are, and so what needs to be managed.

¹ The ECB's Study on the Payment Attitudes of Consumers in the Euro area (SPACE) found that EACs made on average 1.6 POS and person-to-person (P2P) transactions per day with an average value of €25.60. Cash was used for 48% of POS and P2P payments. $1.6 \times 365 \times €25.60 \times 0.48 = €7,176$.

Counterfeit Corner

■ By Kerre Corbin, Currency Counterfeit Specialist

Possession of counterfeit versus intent to defraud. What's the difference?

The challenge lies in whether the individual holding the counterfeit banknote knows whether it is counterfeit or not. This is one of the first things a law enforcement officer will ask a person that has tried to use a counterfeit in a transaction. If the person innocently tried to use the counterfeit, then they will probably not face prosecution and just lose the value of the banknote. They will probably be more observant of their currency in the future after losing money!

However, criminals know this and will try to use this reasoning to pass a counterfeit banknote. So, how does the officer know when the individual is telling the truth? You cannot open someone's brain to determine what they were thinking!

The best way is for the officer to determine if the person has any other counterfeit banknotes in their possession, such as in their pockets, wallet, or vehicle. If other counterfeits are found, it is a good indication that they are in the business of distributing counterfeits. Their criminal history may also be an indication that they are aware that the banknotes are not genuine.

As you can see, possession vs intention can be difficult to prove. How do you know a person's intentions? What about currency collectors who obtain counterfeit banknotes for their collections? They clearly have no intent to defraud another individual, but they are in possession of counterfeits. Should their counterfeits be confiscated?

In some countries, they would be. The laws will vary from country to country. Some will conclude that possession of a counterfeit banknote is a criminal offence, whereas other countries only consider it an offence to knowingly pass a counterfeit note in order to deceive.

Luckily, most countries utilise sound judgement to determine if a criminal act was carried out. This usually includes evaluating the individual's character to decide whether they should be punished for their actions. In some cases, a guilty person will not be held accountable for their criminal behaviour, but the fact that they were caught may discourage them from future criminal activity.

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Around the World - Counterfeiting Update

In this periodic series summarising counterfeit currency around the world, we focus on the latest news from Switzerland, Ukraine, Spain and Bulgaria.

Two individuals charged in Switzerland

The Office of the Attorney General of Switzerland (OAG) has filed an indictment in the Federal Criminal Court against two Swiss nationals, who are alleged to have built and operated a highly professional counterfeiting workshop in the canton of Zurich, with the aim of producing and circulating forged US\$50 banknotes with a face value of at least \$5 million.

The workshop was discovered by chance when the police were looking into the suspected production and possession of narcotics. During a search, the two suspects were caught in the act of producing the forged \$50 bills and were arrested.

They have been charged with acting in concert from mid-November 2021. In addition to the finished notes, printed sheets were seized in various stages of production, to a value of around \$8 million.

Levels remain low in Ukraine

According to the National Bank of Ukraine (NBU), the level of banknote counterfeiting remained low in 2023, with a ratio of 2.1 counterfeits per million notes in circulation (versus 2.2 in 2022 and 7.1 in 2021).

Counterfeiting was primarily of the old-style hryvnia (UAH) banknotes, spread across three denominations – the UAH 200 (61%), UAH 500 (24%) and UAH 100 (8%). Together they accounted for 93% of all old-style banknote counterfeits withdrawn.

Just 18% of the counterfeits were of the new-style banknotes, which were put into circulation between 2015 and 2020.

The number of counterfeit foreign currency banknotes was also small. In 2023, banks and financial institutions across Ukraine withdrew from circulation fewer than 700 foreign currency counterfeits (about 600 in 2022). US dollar prevailed (97%). The remaining 3% were euro banknotes.

Spain scores two successes against coin and banknote counterfeit rings

After years of investigation, and with the help of the pan-EU police organisation Europol, Spanish police have arrested 10 individuals allegedly responsible for

bringing forged €2 coins into circulation throughout the EU.

The counterfeit workshop, in the city of Toledo, was described as the most 'the most important in Europe over the past 10 years'.

The ring reportedly brought nearly 500,000 coins 'of high quality' onto the European market. 10 individuals, all Chinese nationals, were reportedly arrested. Spain's National Police said they had been investigating the case for six years, culminating in a search of the premises in Toledo which revealed a well-equipped facility with hydraulic presses, manual and electromechanical machines, and numerous components used in coin production.

This is the second major action against counterfeiting by the Spanish police in as many months. In March, they arrested 14 people in connection with €1 million worth of counterfeit €100 banknotes, which had passed undetected through cash machines and other devices.

The counterfeiting gang, mainly of Pakistan descent, were based out of Naples, Rome and Barcelona. The police operation involved forces in Spain, Italy and Greece and began last November after large numbers of counterfeit notes were discovered in Barcelona.

Counterfeits surge in Bulgaria

Currency counterfeiting has surged in Bulgaria in the first quarter of 2024, the Bulgarian National Bank (BNB) has reported, particular of the 100 lev (BGN). The first three months of this year saw the discovery of 50 counterfeit BGN 100s, compared with just seven for the whole of last year.

In total, for the first quarter, 225 counterfeit banknotes were identified. In addition to the BGN 100s, there was a noticeable increase in counterfeit BGN 50s (83), BGN 20s (77) and BGN 10 coins (14). In total, 30 fake coins were found in the country in the first three months.

This surge in counterfeit currency is the most pronounced since 2007, although BNB data also reported a notable peak in the first quarter of 2021, when 42 counterfeit BGN 100 notes were identified.

IACA – Celebrating 20 Years as the Only Global Association for All Cash Stakeholders

This year the International Association of Currency Affairs (IACA) celebrates its 20th anniversary. It was the first industry-wide association and remains the only one that encompasses all stakeholders in the cash cycle on a global basis.

Currency News™ spoke to Marci Chavez, who has worked in the industry for nearly 30 years and who was appointed Executive Director of IACA in 2022, about the foundations of IACA, its current purpose and activities, and how it is fulfilling its mission to make cash the best that it can be.



Q: First of all, can you provide some background to yourself and your career to date?

A: I earned my bachelors degree in Accounting from Texas A&M University, and worked in public accounting while working towards my license to be a Certified Public Accountant. In 1996 I joined Currency Systems International (CSI – a manufacturer of high-speed sorting equipment) as a Senior Accountant and grew with the company to be CFO at the time the owner, Rick Haycock, sold the company to De La Rue in 2001.

After that, I worked as a consultant and helped Rick set up Currency Research (CR) in 2003 and then we founded the International Association of Currency Affairs

(IACA) in 2004. I initially served as CFO & Sponsor Coordinator for CR and then later as President, all the while also serving as IACA's Treasurer until I also became an IACA Board Member in 2015.

I left Currency Research and my Board Position at IACA at the end of 2020, then took Eugenie Foster's position as Executive Director for IACA in January 2022.

Q: And some background to IACA – when it was founded, and why.

A: Well, this is IACA's 20th anniversary year—so it was founded in 2004. Rick Haycock tells the story of walking around Washington DC with Larry Felix, then the Deputy Director of the US Bureau of Engraving & Printing (BEP), discussing the need for an association for currency that would bring all the stakeholders (central banks, printers, feature/substrate/ink providers, mints, banknote equipment suppliers, cash management companies) together to promote best practice and excellence in the industry. And after a year or so of Rick and Adrian Baxter (also of CR at the time) talking to different industry colleagues and organizations, Rick formed the Association.

It is a US non-profit corporation and its initial directors were Rick (also Chairman), Adrian and Geoff Young (previously with CSI); David Atkinson (previously CSI) was its first Executive Director. I was Treasurer and Sybil Baxter, was Secretary – and still is!

Q: At some point, IACA became independent of CR. When, and why?

A: Actually, there has been some confusion around CR's role in IACA from the beginning. IACA has always been an independent and separate company. It was just that Rick started IACA and served as its first Chairman. Added to that, IACA has always had a presence at the Currency Research key conferences, as it was the most logical way and place to meet with the IACA members. So, I suppose there was overlap which was not very clear to the industry.

But from the year following its organization, IACA had a strong board made up of leaders from central banks and industry suppliers that helped steer the development of the association – very independently from Currency Research.

Rick served as Co-Chairman with Tom Ferguson (former Director of the BEP) until 2015, when he stepped down to let Tom and Eugenie Foster (as Executive Director) leading the organization. Rick's stepping down helped to eliminate the blurred lines, as he wanted IACA to have the appearance of independence that it had all along.

Q: Have previous served as IACA's Treasurer, what attracted you to rejoin IACA?

A: When I left the industry back in 2021, I had thought that I might consider getting into a new industry as it might be a nice idea to learn about something different. But during my year sabbatical I realized that this industry is still so fascinating and I've obviously learned so much over the last almost 30 years – and I missed my interactions with the many people across the world. So, why leave?

About the time of that realization, I had learned that Genie was retiring and they were looking for a new Executive Director. Everything really lined up and now I've come full circle, having helped set up the association back in 2004 to now running it 20 years later.

Richard Wall is a great and supportive Chairman; Brian Lang, former RBNZ Head of Currency and IACA's EVP, of course Sybil and our excellent Board were all key factors in my decision to join as Executive Director.

Also, Genie had done a great job over the last 10 years bringing visibility and exposure to IACA through the Global Payments Study project she championed. So, IACA was in a great position for growth and next steps into what we can offer our members.

Q: What are the core activities/services offered by IACA?

A: Our mission is to promote and encourage excellence in the cash cycle and provide a platform for knowledge sharing and collaboration for our members on matters of strategic importance.

Besides organizing the Industry's first and longest-running awards program and founding the Currency Hall of Fame, where legends of our industry are honored and memorialized (18 inductees to date), we also provide our members on-line/web-site resources (including our e-library – the industry's only repository for publications, conference presentations, research papers, etc), opportunities to participate in educational forums such as our webinars and the possibility to participate in discussions via our in-person member discussion meetings (held in conjunction with key international conferences) and our virtual round table discussions. These are our platforms for discussing the industry's top matters of interest.

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... IACA – Celebrating 20 Years as the Only Global Association

Q: *What do you think IACA has brought to the currency industry? What are its major achievements to date?*

A: IACA has brought the industry a platform which brings together ALL stakeholders of cash. We have central banks, industry suppliers and even cash management companies as members. The industry needs an association where all involved in cash can be at the table to discuss these key matters of interest and work together to advance our industry and make cash the best it can be.

As for achievements, besides our Awards program and Currency Hall of Fame, IACA – through the work of Eugenie Foster – facilitated the standardization of Central Bank Payment Studies. When central banks first embarked on conducting payments studies, they were all doing it their own way which meant there could be no comparison between countries. IACA was central to bringing our central bank members together (literally – there were many meetings), creating a standard glossary of terms and methodologies. IACA, for a time, collected these payments studies and reported the results at various conferences, providing the industry with a glimpse of how people paid around the world and identifying the trends.

Q: *The cash industry is notoriously ‘inert’. How do you go about engaging and motivating members to get involved?*

A: We are lucky to have such engaged members. Sybil Baxter, our Member Services Administrator, does a great job keeping in touch and engaging with our members on an individual basis.

Also, the topics we focus on are ones that are of great interest and importance, so that attracts participation. Our events and resources provided are available to everyone in the member organization’s company, and this allows those who can’t travel to conferences to stay engaged and informed through their participation.

One other note – we are forming a planning committee of representatives of our member organizations this year. This will allow us to obtain member input in shaping the initiatives and the association’s key topics for discussion going forward, which will further enhance member involvement.

Q: *What are the areas of activity that are either coming up at the moment or which you expect to see discussed in the near future?*

A: This year we are focusing on Cash Visibility and Collaboration as key solutions that will bring efficiency, resiliency and sustainability to the cash infrastructure. We plan to continue drilling down into this topic

to eventually get to some best practices for cash visibility and collaboration which we plan to share with the membership in report form.

This is all part of a focus that started last year when we discussed the challenges facing cash infrastructure. Now we are focusing on some of the solutions to these challenges... and we’ll continue this focus, likely next discussing Innovation and Technology as two other key solutions for resiliency, sustainability and collaboration.

Q: *The context for advanced economies, emerging market economies and developing market economies is very different. How do you meet their different needs?*

A: Yes, this is a challenge in an international association and we address this for instance, by holding regional member meetings at regional industry conferences and holding regional virtual round table discussions. In this way, we are still able to address universal themes while tailoring discussions to regional interests.

Q: *What were your priorities when joining IACA? To what extent have they been realised? And what are your priorities going forward?*

A: My priorities were to grow the membership, programs and initiatives. Over the last two years we have added almost 25 new organizations; and this has not been without the help and support from Richard Wall, our Chairman, Brian Lang, our EVP, Sybil and even our Board. We all make a great team.

We have also organized our yearly activity around key themes so that the topics can be progressed. We have had webinars for many years but we have enhanced the in-person Discussion Meetings and added the Round-table format for discussion.

Our priority will always be to bring forward topics of strategic importance to the membership for learning, discussion and advancement.

Q: *What separates/differentiates IACA from other cash-related associations? What is the ‘gap’ that IACA is filling and why does that exist?*

A: I like to describe IACA as THE association for the Industry – we represent ALL of the industry. We are unique in that we bring both the central banks and industry suppliers together to help make cash the best it can be.

Many of the other associations now are focused ‘externally’ – lobbying and bringing awareness and exposure to the benefits of cash; and there is certainly a need for that. However, it has never been our mandate to lobby for cash – instead we focus internally

on our industry, serving and supporting the organizations of this industry; the people that work for them; and helping bring strength and resiliency to cash.

Q: *The cash industry now has a multitude of industry bodies from coins to CITs, some regional, some global. Has IACA ever thought about being the connector between them and central banks?*

A: That idea is interesting but being a connector between associations is not a focus for us, nor is it in our mandate.

Having said that though, having such a diversified membership and representation from these other associations means that we are getting their feedback and ideas. So in a way, I believe we are already doing this for the industry.

Q: *You are something of a veteran in the currency business – what do you see as the key differences between now and, say, 20 years ago when IACA was founded?*

A: Geez, when you say it that way, it makes me feel old. But it has been a long time and I would say in my early years, I remember counterfeit deterrence being top of mind and the industry was focused on new features, inks and substrates that would restore and maintain trust in the world’s currencies.

I also remember the early discussions of clean note policies that would help keep good quality notes in circulation so that counterfeits could be more easily detected.

Cash was the predominant payment option and the industry was flourishing. But the world has obviously changed a lot, and now with the proliferation of payment options, discussions are focused on keeping cash relevant, efficient and resilient – and rightly so.

Simply put, I would say we’ve gone from ‘thriving’ in my early years in the industry to ‘surviving’. I believe cash will survive – at least through my lifetime. But our industry must work together to keep cash as a viable payment option – and IACA is helping in this effort by providing this platform for knowledge-sharing and collaboration.

Q: *Should central bank digital currencies (CBDCs) take off, will IACA embrace them and act as a forum for them? Or will a new, separate equivalent be needed?*

A: IACA is focused on cash and making it the best it can be. We will continue to keep our members informed on the growth of CBDC as it influences the use of cash, as we have for instance with our Update on CBDCs webinar hosted by CR.

But as long as cash is in use – that will be IACA’s focus.

From Secrecy to Transparency - The Evolution of Banknote Communications

■ **By Antti Heinonen, former Chairman of the Banknote Ethics Initiative (BnEI) and former Director, Banknotes of the ECB**

In looking at the evolution of central bank engagement with the public on banknotes, and what lessons can be learned, I will start with a few personal notes.

In 1981 the Board of the Bank of Finland (BoF) established a Theme Selection Committee with the mandate to propose a theme for the new Finnish note series scheduled to be issued in the mid-1980s. This committee consisted mainly of external academic historians and art experts, and I was requested to prepare background material for it. I was working in the Bank's monetary policy department at that time but was considered a sort of an expert in the history of money. The preparatory work led to my appointment as the Secretary of the Theme Selection and later Design Committee. Moreover, I became involved with many other tasks related to the introduction of the new series, including its communications, which was back then a new subject.

There is only one central bank per country. Hence, they often look to advice from abroad. That was what I did. The Assistant Director Erich Heini, responsible for the Press Relations department at the Swiss National Bank (SNB) was invited to visit the BoF in May 1983. He gave an extensive report on the communications measures used in introduction of the new Swiss note series. The SNB distributed leaflets via banks to citizens in connection with the issuance of each denomination, starting in 1976. In addition, the public were informed by service announcements on television.

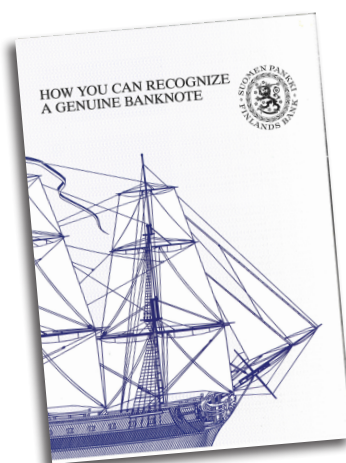
Moreover, in 1984, when the BoF together with the Riksbank organized a central banker's personnel conference in Stockholm and Helsinki, I was fortunate to become acquainted with Willibald Kranister, an Executive Director of the Austrian National Bank (OeNB), which, besides the SNB, was an early pioneer of the communication of banknote security features.

Willi invited me to attend the festivities related to 60 years of the Austrian schilling in December 1984, where I had the opportunity to obtain a thorough introduction to the Austrian banknote communications philosophy under his guidance and attended educational and training events in Austria. OeNB didn't focus communications only around the issuance of a new note, but kept citizens continuously aware of the

importance of the security features through various campaigns.

These visits and attendance at the Riksbank press conference in Stockholm in 1985 in connection with the introduction of the new 500 krona note led to many new ideas. These were used in communications about the new Finnish note series issued in two phases in 1986 and 1987. For example, an A4 brochure on the main security features of the new notes (watermark, security thread and intaglio printing) was distributed to every household in Finland. In addition, we conducted several surveys related to the new banknotes, which improved our understanding of the requirements of banknote communications.

An illustration of the rapid change in the thinking at the BoF is provided by the following example. The first brochure describing the security features of Finnish notes, published in 1981, was a limited edition targeted exclusively bank cashiers. The brochure was so confidential that, since I didn't belong to the target group at the Bank, even I had great difficulty in obtaining a copy.



The front page of an A4 brochure of the Bank of Finland in 1991.

History of banknote communications

Since the introduction of paper money, its imitation has been a major concern for issuers. Despite that, communications on banknotes and their security features were not seen practical. Any relevant

messages were printed on the notes themselves. Examples of this can be found on early Chinese paper money ('The user of counterfeits will be beheaded...'), Swedish banknotes ('Whoever imitates or counterfeits this banknote shall be hanged'), Danish notes ('... will be punished by honour, life and property'), North American paper money ('To counterfeit is death'), French assignats ('The law will sentence the counterfeiter to death').

Before the 1970s, communications on notes were limited to monetary reforms, and keeping the restricted circle of law enforcement and banks informed on new notes and their security. Formal international cooperation in that respect began in Vienna in 1923 at the second International Criminal Police Congress, which agreed to establish the International Criminal Police Commission. Information on genuine and counterfeited banknotes was at first distributed in specific newsletters by the Commission, and the first book was published in 1937, including the currencies of 45 states, colonies, and regions.

Moreover, central banks informed other central banks and, through them, the local banks about the visual details of their new notes. Only in case of a serious new counterfeit could the central bank refer to the difference of the feel of paper or missing intaglio printing.

As regards the general public, however, the secrecy surrounding the banknote features was considered part of their security. There was no need to increase people's trust in and acceptance of banknotes by making their security features known. Wide communications were seen only to aid potential counterfeiters.

This thinking began to change in the 1970s, due first to the introduction of photocopiers and, later, colour copiers and innovations in digital imaging and printing technology. The new technology made it possible for the man on the street to produce counterfeits of a reasonable quality instead of requiring knowhow in plate making and lithography. Hence it became important to publish information on the security features to wider audiences to enable them to differentiate a forgery from a genuine note.

Besides the pioneers, the Swiss and Austrians, several central banks joined the club from the mid-1980s onwards, and today all note issuers see such communications as important. Many central banks have already launched several campaigns, and best practices have been evolving, also in line with the general transparency expected from central banks. Therefore, no justifications are needed here to explain 'Why to tell'.

[Continued on page 12 >](#)

How to tell: Step 1: Raise awareness

The real challenge of banknote communications is to get citizens as interested in checking the notes when receiving them as a professional cash handler or a consumer. This is highlighted by the wide counterfeit use of ‘movie’ or ‘prop’ money, which normally have no imitations of the security features. Therefore, the first phase in communications is to raise awareness. The main communications media at first were leaflets, posters and public service announcements on television, as well as the distribution of VHS-cassettes to professional cash handlers and their training.

The internet, the use of social media and central bank websites have fully changed the media landscape, both as channels of information and platforms for the downloading of educational and training material. Now the printed material is provided mainly, if at all, in connection with the launch of a new banknote, but is available in digital form. Furthermore, central bank websites and social media enable tailor-made information to be provided to different stakeholders, be they the general public, financial institutions, retailers, law enforcement, schools etc. and to create partnership programs.

The best way to raise awareness is to have an interesting story, whether it is related to a new note series, an upgrade or a change in the substrate. The story of a new note series starts with its design phase and its naming.

The current euro series is called the ‘Europa series’ with a portrait of the mythological Princess Europa depicted in the watermark and hologram stripe. Similarly, the current Swiss series is inspired by ‘the many facets of Switzerland’ and the Norwegian series by the sea, each denomination reflecting the multifaceted importance of sea to the country. Correspondingly, the South African series portraying Nelson Mandela and named accordingly, provides as such the story like the Canadian 10 dollar note portraying Viola Desmond, a civil rights activist.

There are also other good examples of stories connected to the cultural history or nature of a country, like the new series of Kazakhstan (see CN February 2024) based on elements of the ‘Saka style’ that capture the heritage of the country.

Awareness can be raised even earlier by engaging the public in the selection of the theme or person to be portrayed on the note. The Bank of Canada and Bank of England have performed successfully in this respect. Also, the decision on the design of the third euro note series was based on surveys of the European public and their preferences (see CN November 2023).

Central banks have also found humour in their storytelling. Humour hasn’t traditionally belonged to the toolkit of central banks, but there are currently excellent videos on websites. As an example, ‘The Cod is Coming’ (www.youtube.com/watch?v=J2CKHH_KKGE&t=1s), related to the campaign launching the new Norwegian 200 krone note (the main theme of which is cod) has gained more than 385,000 views in YouTube. Another example is the Bank of Jamaica’s reggae videos (www.youtube.com/watch?v=Qlyfh0pkD0Y), which have been great in accessing and raising awareness among new audiences.



Besides naming the new note series, slogans, in particular three-part slogans, have become popular in raising awareness about the change. When new security features were introduced to US dollar notes in the 1990s, the campaign slogan was ‘Your

money matters’ and later ‘Know your money’. A new slogan was introduced in the 2000s with the new colours of the dollar notes: ‘Safer. Smarter. More Secure.’

More recently, a number of countries changing from paper to polymer substrate have used similar three-part slogans like ‘Cleaner-Safer (Smarter)-Stronger’ (eg. Eastern Caribbean Central Bank and Bangko Sentral de Pilipinas).

When the story or slogan has been created, the next step in raising awareness is to make the message easily conveyed. The use of social media is excellent for that purpose.

However, central bank websites should preferably have ‘Currency’ or ‘Notes and Coin’ or similar wording on the navigation bar or the campaign material to be found on a specific webpage. This is not always the case and information on new banknotes is to be found under ‘Operations’, ‘Payment (and settlement) systems’, ‘Financial stability’ or ‘Financial system’. To find the information by googling is not a very user-friendly way.

What to tell: Step 2: Focus on security

After having raised sufficient awareness of the new series, upgrade or change in the substrate, the second communications phase will focus on the security features.

At the beginning, when banknote communications were a new subject, many central banks published leaflets which pointed to all elements, sometimes amounting to more than 20 features of the new notes. But according to perception studies, adoption of such amounts of information is very challenging even to the most enthusiastic recipient. Hence, it would be better to focus on only a very few features.

The OeNB focused on five features, one for each finger, from the beginning until the end of the Austrian schilling time. The Bank of England has taken this philosophy almost to the limit: all their current notes can be checked using only two features. Even though, the Bank provides further information under ‘Check more features’.

The notes of the Bank of England can be checked using the same two features.

Focusing the message on a very limited number of features has an added advantage: assuming that counterfeiters will concentrate their efforts on a few features highlighted in the central bank’s campaign, additional security features can be kept as sleeping features. They can be communicated in the event of a surge in counterfeiting in which the major security features used in the campaign have been imitated.

The three-part slogans, besides popular in raising awareness, are used even more extensively in communicating security features. The Eurosystem was probably the first one to use human senses in structuring the features with the slogan ‘Feel – Look – Tilt’. More than 60 central banks currently use similar slogan – mostly three-part slogans, but sometime even four or five parts, adding ‘Check’ or ‘Inspect’ or similar.

Cultures and habits differ and seem to have an impact in which order (first 'Look' or 'Feel') citizens are guided to authenticate the note. Anyway, even if central banks often do what other central banks do, more than 60 of them show quite a remarkable consensus. There are also other nice plays on words such as 'Take note' (Bank of England and Central Bank of Barbados) or 'It pays to check' (Bank of Canada).

Whatever slogan or instruction a central bank is using in encouraging citizens to check the note, continuity is important, as illustrated by big brands in this regard (eg. Nike with 'Just do it'). The message will have an impact when it is repeated consistently and over a long period. This is also an argument in favour of a certain degree of continuity when upgrading level 1 banknote security features.

Besides being good for storytelling, videos are very useful in explaining the security features. Particularly, education of three-dimensional features can be demanding with a two-dimensional leaflet or poster. More than 50 central banks are successfully using videos in this respect, and close to 20 central banks have developed apps on the security features.



Feel-Look-Tilt or similar.

Whom to tell

The first line of defence against counterfeiting is represented by a cashier in a kiosk, small shop or fuel station, where the counterfeiters attempt to buy small-ticket items with their fake notes. The key question in this regard is how central banks can provide the owners of these shops and kiosks enough incentives to provide staff training, which may not otherwise be justifiable given the often part-time or temporary nature of their employment. That's why the raising of awareness stories are important in targeting these people as members of the public.

In principle, if the public receive their high and middle denomination notes from the banks and ATMs and the low denominations as change in shops, the probability of receiving a counterfeit is quite low. This is the case assuming that the notes are machine authenticated regularly; if not, counterfeiters may regularly change hands (see Counterfeit Corner CN January 2024). Anyway, both professional cash handlers and public should be targeted. The justification for informing the public is that, if and when they come into possession of a counterfeit, they have been provided with the information necessary to differentiate a fake from a genuine one.

A fully fledged banknote information campaign requires extensive resources, and central banks therefore use partnership programs to spread their messages. Websites, where partners can download campaign material and add their own logos before printing, have proved to be useful.

Conclusions

Banknote communications have developed rapidly over the last few decades and best practices have been evolving. When planning communications campaigns, the following points are worth considering:

- **Simplify:** involve early on communications expertise
- **Raise awareness:** engage and tell a story
- **Focus:** limit the number of security features communicated
- **Market:** use slogans that are easy to recall and sustain your message
- **Spread:** involve all stakeholders.

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The Directory of Currency & Technology Suppliers

The latest edition of The Directory of Currency & Technology Suppliers will be launched at the Banknote Conference this May.

This sought-after directory is an essential resource for central banks and issuers, printers and mints, and everyone in the cash cycle to identify suppliers and partners, and the latest edition will be the seventh since its introduction in 2004.

The directory, which was last published in 2018, features seven dedicated sections covering all aspects of systems, solutions and services for the cash cycle, from specification to end of life, and all stages in between.

- **Components & Features:** including banknote substrates, coin materials, security inks and anti-counterfeiting features

- **Producers:** ie. banknote printers and mints
- **Production:** including design, production equipment, inspection and finishing
- **Processing & Management:** covering processing, handling and management.
- **Recycling & Destruction:** a new category covering destruction systems, recycling solutions and note and coin disposal.
- **Distribution & Circulation:** such as ATMs, cash handling and distribution, optimisation, CashTech.
- **Support Services:** including associations, counterfeit or data analysts, ESG consultants, training and more.

Over 500 suppliers are listed in the directory, which is available in print and pdf format. It is free of charge to central banks and issuing authorities, and available at a heavy discount to subscribers to Currency News™ and its sister publications, Coin & Mint News™ and Cash, Payment & CBDC News™.



Polymer Banknotes Outperform Paper on Strength and Security

■ By Dr Ahmed Goher, Egyptian Ministry of Justice

As an anti-forgery expert with the Egyptian Ministry of Justice, I have spent decades investigating the strength and security of various banknote substrates. My work has involved analysis of the technical specifications of banknotes, through extensive mechanical and chemical testing, as well as an assessment of data published by central banks. I'd like to share my findings here.



There is no longer any doubt that polymer banknotes offer superior security and durability when compared to those printed on cotton-paper substrate. They typically last four or more times longer, and consistently reduce counterfeit rates. This article will explore the main reasons why.

Data shows polymer banknotes reduce counterfeit rates

The superior security against counterfeits can be ascertained via data from central banks.

To take one example, El Banco Central de Costa Rica launched a new banknote family in 2011; they printed three denominations on paper, while a fourth, the 1,000 colones, was printed on polymer. It was revealed that between 2011 and 2021, for an entire decade no fake ₡1,000 was detected, despite being a very high volume of banknotes back in 2009 and 2010, immediately prior to polymerisation.

Clearly, polymer banknotes are more secure. To understand why, it's helpful to review the impetus behind this technology, as well as its evolution in the decades since then.

Polymer banknotes emerged specifically to combat counterfeit risk, in the late 1980s. Around the same time, advanced scanners, printers and copiers were starting to become more common and less expensive. This disproportionately diminished the security of cotton-paper banknotes.

Advances in computing and printing technology have meant, for example, that the signature security feature of cotton-paper, the watermark, can now

be replicated to a high standard of specification with relative ease. The same is not true for the hallmark security feature of polymer banknotes, the transparent window.

One key reason for this is that the materials and machinery required to produce convincing counterfeits of polymer banknotes are harder to obtain. Another is that polymer substrate tends to shrink and deform when exposed to the heat-generating elements in printing devices, as I discovered when testing Romanian polymer lieu and the old Egyptian cotton-paper pounds.

Furthermore, windows have evolved tremendously, from a relatively simple security feature into a platform for some of the most advanced security technologies in-market today.

Polymer provides the platform for evolution

As companies like CCL Secure continue to push the boundaries of banknote security, they are aided by a range of physical and chemical properties specific to polymer. To put it simply, polymer provides a 'three-dimensional' space within which it's possible to design increasingly complex security features.

What started out as solid white vignettes and bold intaglio embosses quickly evolved into tonal print, metallic and colour shifting inks, as well as spot colours. With the addition of Cameo Portraits, holographic features and SPARK, the complexity and counterfeit resilience offered by window features continues to grow.

This includes a range of optically variable devices that are embedded directly into the polymer substrate itself. Often these are located inside of windows, and that brings the added benefit of being visible from both sides of the banknote.

CINEMA is the most recent leap forward. It's a complex, micro-optic lens feature that provides groundbreaking movement and depth effects. These holograms can be seen with the naked eye, enabling the public to immediately and easily authenticate banknotes. The same is true of LATITUDE, which allows central banks to integrate complex and striking images within a window which change colour when viewed from different angles.

Other kinegraphic features are more covert. For example, ECLIPSE reveals a hidden image when a light source is shone through the window. Yet others have begun to offer the best of both worlds.

For example, the VIVID family incorporates design elements that are visible to the naked eye but fluoresce in white or even bright colours when illuminated by infrared light, due to proprietary inks embedded during the substrate production process. The benefit of this is that it provides multiple modes and levels of authentication, to support verification by the public and banks.

These are just some of the latest evolutions. The important point is that polymer provides the platform required for ongoing improvement and innovation, as we continuously seek to stay ahead of counterfeiters. This has been a core catalyst in the decision of more than 50 central banks to transition to polymer banknotes; the other main factor, of course, is their durability.

More durable banknotes save central banks money

I have analysed data from Australia, New Zealand, Chile, Nigeria and Mexico, among other countries, and the independent evidence consistently shows polymer banknotes last four or more times longer in circulation than their cotton-paper counterparts. My own research provides some insights into the 'how and why'.

Over the years, I have studied the technical specifications of banknotes including resistance to tensile stress, wear, tear, burst and bending forces, as well as the effects of exposure to light, washing, solvents and chemicals. Across every one of these stressors, polymer banknotes outperform those printed on cotton-paper substrate. Quite simply, it's a tougher material.

This durability provides a range of advantages, but perhaps the most consequential is that it reduces the costs of procurement, distribution and disposal at end-of-life. Indeed, research reveals that switching to polymer substrate can halve the cost of issuance for central banks.

Other benefits

Strength and security are the core benefits of polymer banknotes, but there are others too. For example, their durability means they are more sustainable, while enhanced barrier properties make them more hygienic. It's no exaggeration to say polymer outperforms cotton-paper on every front.

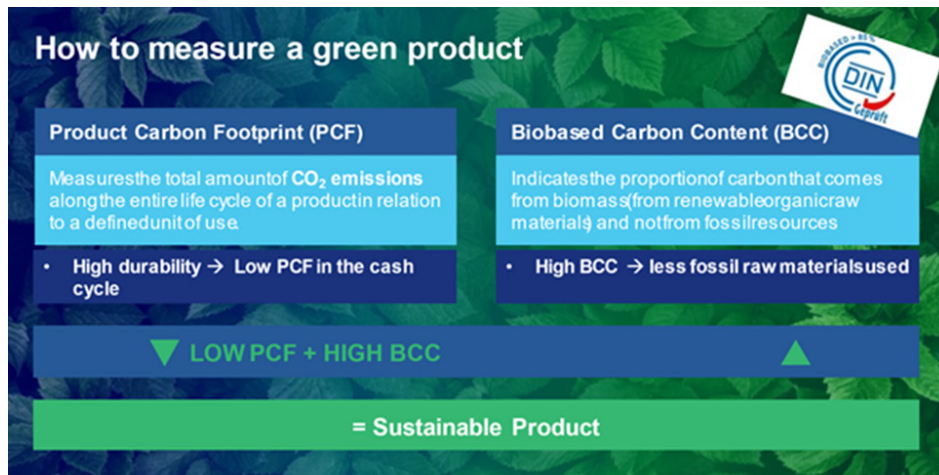
Those seeking to understand the benefits polymer may be interested in my book, *The Supremacy of Polymer Banknotes*, as well as other papers, accessible through Research Gate.

Biobased Carbon Content for Banknotes

■ **By Alexandra Peppmeier, Sustainability Engineer, Giesecke+Devrient**

The intensive focus on sustainability and greener solutions has been developing rapidly in the banknote industry. In the July 2023 edition of *Currency News™*, G+D described its rationale for sustainable products, and highlighted, firstly, the introduction of the Green Banknote initiative in 2022 and, subsequently, the introduction of Green Longlife™ in 2023.

Sustainability is much more than just the already well-established carbon footprint. G+D and Louisenthal point out that it is also important to take into account what kind of material is used. Renewable materials are as important as a low carbon footprint. As we know, the carbon footprint can be measured by the Product Carbon Footprint calculation (ISO 14067). But how can the amount of renewable materials be calculated, or validly proven? This is done by the certification of the biobased carbon content.



So, what is the biobased carbon content? It indicates the share of biogenic carbon compared to the total carbon in a product. It can be concluded that the higher this value is, the higher is the proportion of renewable raw materials. The biobased carbon content describes how much material of a product is made from substances derived from living organisms.

So what are the core differences between biobased and fossil?

1. Biobased:

- Available/ regrows within a very short time period= renewable raw material
- Reduces economic dependence on fossil raw materials
- Saving of limited raw material resources

2. Fossil:

- Available within millions of years= limited raw material
- Significant environmental risks in extraction
- Complex industrial processes for chemical processing of the crude oil with all its disadvantages.

This understanding has driven us to the development of more sustainable banknote solutions such as Green Banknote and Green Longlife, and their benefits to the cash cycle.

The certificates can be found at these links:

[DIN CERTCO - Papierfabrik Louisenthal GmbH \(tuv.com\)](#)

[DIN CERTCO - Giesecke+Devrient Currency Technology GmbH \(tuv.com\)](#)

Central Banking Awards Recognise Currency Management and Initiative

Central Banking Publications runs an award scheme each year, with 18 different categories, two of which relate specifically to currency.

The winner of this year's Currency Manager of the Year award is the Central Bank of the United Arab Emirates (CBUAE) for the upgrade of its banknotes, resulting in the issue of five new denominations to date on polymer.

The new banknotes were issued following comprehensive benchmarking studies with other central banks, including with those in Australia and the UK, which pioneered polymer notes.

The new 50 dirham polymer banknote was released as part of the UAE's golden jubilee celebrations in December 2021, the 5 and 10 dirham notes in April 2022 during Eid, and a 1,000 dirham was released in December 2022 to coincide with the UAE's 51st national day. Then, in 2023, coinciding with the UAE's hosting of COP 28, a 500 dirham banknote was issued with the design encapsulating the UAE's journey on sustainability.

The CBUAE has yet to finish its journey to polymer, with a 100 dirham polymer note still to come. Meanwhile, it is collecting data to determine accurate measurements of the new banknotes' carbon footprint to better inform its sustainability efforts.

Best Currency Initiative

The winner of the Best New Currency Initiative was Bank Indonesia (BI) for its Sovereign Rupiah scheme, in which the central bank and the navy have joined forces to supply currency to more than 100 'low access to cash' islands.

Indonesia is an archipelago, with more than 14,000 separate islands. Though most of the country's 280 million inhabitants live on the central island of Java, BI must provide banknotes to everyone, from Supiori in the east to the Banyak islands in the west.

Indonesia's human geography is also immensely complicated. Although Indonesia has an official national language,

Bahasa Indonesia, more than 700 languages are spoken in the country. There are more than 1,300 ethnic groups in its borders. BI operates a network of 46 regional offices and provided IDR 1,101 trillion rupiah (\$70.3 billion) in circulating cash last year. But even with such a large network, it struggles to reach Indonesia's further corners.

To extend its operation, BI partnered with another institution concerned with the country's sovereignty, ie. the Indonesian navy. By joining naval vessels on patrols, the central bank can serve some remote island areas, reinforcing their ties to the national economy and state. It can also save on unnecessary duplication, so reducing its carbon footprint.

The Sovereign Rupiah (or 'ekspedisi rupiah berdaulat') scheme has operated for several years. BI coordinates with the navy to arrange to transport cash and BI personnel to the targeted islands. In total, it provides 380 staff for the programme. 'In 2023, BI visited 110 islands in collaboration with the navy, exchanging 52 billion rupiah in worn banknotes. By using naval vessels, rather than chartering its own, BI estimates it saves more than 400,000 kilograms of CO₂ annually'.

2024 Banknote Conference: Final Call

The final details for the upcoming Banknote Conference, taking place 13-16 May, have come together.

Building upon the success of previous years, the 2024 Banknote Conference promises to be an unparalleled gathering of industry leaders, innovators, and experts, say organisers Currency Research. Currently, the delegation consists of nearly 80 central banks and printworks, along with 50+ speakers, 31 sponsors and more than 150 organisations in total.

As mentioned previously, the conference will begin with a keynote address delivered by Chief Lynn Malerba, the Treasurer of the United States. Her insights will set the tone for the event, offering attendees invaluable perspectives on the future of currency and payments.

Attendees can expect a diverse range of sessions and workshops covering topics such as cash trends, counterfeit threats, currency production developments, sustainability, and more. New additions to this year's program include a special session for banknote designers, providing a unique opportunity for focused discussion and collaboration.

Workshops include:

- Circulating Coins – Intrinsic, Essential, Social
- State Printworks Summit
- Designers Convening @ Banknote Conference.

In addition to engaging sessions, the conference program offers attendees the opportunity to participate in tours of the Bureau of Engraving & Printing (BEP) Facility and the Dallas Federal Reserve, which have been met with overwhelming enthusiasm, and are sold out, making them a highly anticipated highlight of the Banknote Conference.

Additionally, there are numerous networking opportunities including a welcome reception at the Ft Worth Stockyards and a Networking & Awards Dinner at the Omni Hotel.

For registration details and more information, please visit banknoteconference.com.

CBPM's New Integrated Process and Packaging Line - Less Manual, More Intelligent

China Banknote Printing & Minting (CBPM) has developed and is now using a new integrated processing and packaging production line for post-press operations.

In operation since the third quarter of 2022, it integrates a number of different processes – including paper feeding, cutting, sorting and finishing, packaging and shredding.

As a result, it has achieved full post-production automation, from the finished product through to storage, at the rate of 50,000 sheets per shift.



The line consists of different modules, including automatic paper feeding, cutting, quality inspection, counting and transferring, and smart boxes. It is supported by an information tracking system, also developed by CBPM.

The automated paper feeding module has achieved automatic per-hundred-sheet sorting, stacking, counting and delivery. The cutting module has achieved the maximum use of two single-note inspection machines through the smart distribution system. The compact design of the robotic hand not only saves space but meets safety requirements, says CBPM.



The serial numbers and positions of products which go through the quality inspection module are simultaneously registered. This information is incorporated with other data collected to monitor the

real-time status of production. As a result, the final position of any specific note can be searched if needed. It also reduces manufacturing risks by quantity checking based on logical calculus.

The shredding of defective banknotes and collection is conducted online, freeing up operators from a previously labour-intensive task.



The automatic stacking control technology and air bearing platform support the counting and transferring module, along with the smart boxing module to stack banknotes efficiently and keep them intact. With the visual positioning system, a mechanical robotic hand, which can deal with different sizes of banknotes and packaging, can precisely grab and drop products, lids and boxes.



According to CBPM, the integrated line has many ground-breaking innovations which significantly improve the level of automation, informatics and intelligence in banknote production.

The result is optimisation of personnel allocation, a reduction in quality issues, and an exemplification of green and energy effective manufacturing.



Cash Sustainability Forum Takes Shape

Highlights of the second Cash Sustainability Forum (CSF), which takes place 24-26 June in Frankfurt, are now available.

The CSF is the only event that brings together all the stakeholder in the cash cycle, and beyond, to work towards sustainability in the production, circulation and destruction of one of the world's most enduring and widely used products.

The Forum starts with a half workshop on Cash Cycle Recycling and Recirculation. It will be based on a new white paper that organisers Reconnaissance International (co-publishers of Currency News™) will be publishing at the conference, and will consider the key activities, principles and options open to a central bank to ensure cash recycling and recirculation delivers fit and genuine banknotes and coins for the public.

The workshop will hear from central banks (Philippines, ECB and South Africa), NatWest, Diebold Nixdorf, Brinks, CashInfraPro and Oberthur Cash Protection as they present and discuss how to reduce the impact of cash post-issue. The ECB's Product Environment Footprint study found that 87% of the impact of cash occurred post issue (see page 1), so this is an important topic. The workshop is open to all delegates. There will be two discussion panels and the chance to compare notes with colleagues.

The main Forum programme starts the following day with keynote speakers from the Bundesbank, ECB, Rewired Earth and Giesecke+Devrient giving an overview of the sustainability challenges facing cash, and the planet, and some of the actions they are taking.

MyCarbon, EcoVadis, Verco and De La Rue will then talk about measurement and metrics. On the basis that you can only change what you measure, this session starts a discussion about what goals to set, how to establish comparable metrics, living with Europe's new environmental reporting regulations (CSRD) and measuring scope 3 emissions for real.

The focus then moves to Sustainability in Tendering, with a panel discussion on how to build sustainability into tenders.

In a session on Manufacturing Excellence, the ECB, Oberthur Fiduciaire, CCL Secure and Npower will talk about their work to design for sustainability, who is responsible for what in the life of a banknote, helping central banks reduce their environmental impact and how to source renewable energy with confidence.

The following day the focus moves to the Cash Cycle.

In the first session, CashInfraPro, Bangko Sentral Ng Pilipinas, NatWest and the Reserve Bank of New Zealand (RBNZ) will cover practical steps to manage the cash cycle better. Topics include coin recirculation in the Philippines, how NatWest and the UK's Cash Industry Environmental Charter group are moving forward on reducing cash cycle impacts, and a first report from RBNZ on their trial to recycle cash through retail outlets in remote areas without input from commercial banks, a new way of providing access to cash.

The session on Cash Management will hear from South African Reserve Bank (SARB), Royal Canadian Mint (RCM) and Leftover Currency describing their work to manage cash differently. While Leftover Currency will explain how central banks can help make coin repatriation easier, SARB and RCM will address different aspects of banknote and coin management, as well as RCM's wider ESG reporting and initiatives.

The penultimate session on Repurposing and Recycling will hear from Louisenthal, Blendpaper/Casa da Moeda do Brasil and Landqart on new ways to recycle and repurpose unfit cotton and hybrid banknotes at end-of-life.

The programme concludes with an Oxford-style debate – This House Believes That Central Banks Need to Lead on Cash Cycle Sustainability – that will discuss what has been heard, the key points and challenges raised and where the ultimate responsibility for sustainability in the cash cycle lies.

cashsustainability.com

HSP Latin America Heads to Chile

All arrangements are now in place for this year's High Security Printing (HSP) Latin America, which returns to Santiago, Chile – taking place from 3-5 June. The last time the event was held in Santiago was 2014.

Attendance is likely to be a capacity for the three day event, which includes pre-conference seminars and two days of plenary sessions split into two tracks covering currency and identification.

The pre-conference seminar relating to cash is a full-day event run by Guillaume Lepecq of CashEssentials on The Future of Cash. It is a regional variant of the biennial conference of the same name, and will focus on understanding the changing cash environment and what stakeholders are doing to optimise the cash ecosystem and ensure the future viability and sustainability of cash.

The welcome address will be given by Sergio Henríquez of Casa de Moneda de Chile (CdM). The first session will also hear about CdM's new house note, along with the Brazilian ID card and Chile's ID programme.

There will be four sessions dedicated to banknotes – Regional Developments, Sustainability and the Environment, Substrates and Features, and Production and Print, with presentations from central banks, printworks and suppliers.

The agenda will conclude with a session on technology and Innovation covering the whole spectrum of banknotes and secure documents.

As is customary, the HSP Regional Banknote and ID Document of the Year awards will be announced and presented at the conference dinner on 4 June, which takes place at Viña Santa Carolina, one of Chile's most celebrate wineries.

As is also customary, the conference will conclude with the HSP Football Match, to which all delegates are invited – as players or supporters.

The day following the conference, ie. 6 June, CdM is hosting a tour of its printworks. The oldest company in Chile, CdM was founded in 1743 as a mint, and has since diversified into all government documents, including license plates, passports, ID documents, stamps and, of course, banknotes. Attendance is limited to central banks, government issuing authorities and state printworks.

hsp-latinamerica.com



Commemorative Banknote Celebrates Year of the Dragon



2024 heralds the Year of the Loong (or Chinese Dragon) in the traditional Chinese zodiac calendar. In December 2023, the People's Bank of China issued a commemorative 20 yuan banknote for the 2024 Chinese Zodiac New Year, crafted from polymer substrate and manufactured by the Beijing Banknote Printing Co, a subsidiary of China Banknote Printing and Minting Corporation.

Loong is one of the fictitious creatures in ancient Chinese mythology. Its image combines the forms of various animals, and has evolved with the development of Chinese civilization. Ultimately, it takes on the form of a deer's antlers, camel's head, rabbit's eyes, snake's neck, shen's abdomen (shen is a sea monster in Chinese mythology), fish scales, eagle's claws, tiger's paws, and ox's ears.

The image of the dragon has a long history in China, with the pictograph for the loong appearing in oracle bone inscriptions from the Shang Dynasty (approximately 1600-1046 BCE). Unlike the Western concept of a dragon, the Chinese dragon symbolises nobility and auspiciousness, holding significant status and influence in the hearts of the Chinese people.



Loong on the front of the commemorative banknote (left) and the bas-relief of the Ascending Dragon on the Nine-dragon Wall in Beihai Park, Beijing (right).

The front of the banknote showcases an image of the dragon, inspired from an ascending dragon bas-relief on the Nine-dragon Wall – a renowned historical monument in Beijing. Additionally, its artistry incorporates influences from traditional Chinese glazed tile craftsmanship, featuring patterns of the

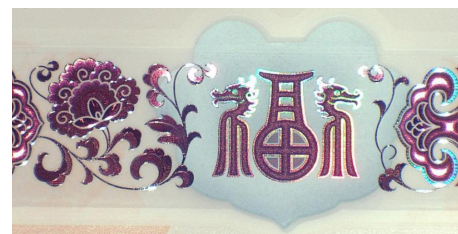
rising sun and auspicious clouds. The Chinese dragon depicted on the banknote is adorned with a vibrant array of colours, mirroring the traditional Chinese glazed tile firing technique.



The seal engraved with the character 龍 (loong) in seal script (left) and the seal script style (right).

At the top right of the central loong motif is a seal engraved with the Chinese character 龍 (loong) in seal script. Seal engraving is an art form in China which holds significant cultural importance. The character on the seal is crafted in the small seal script style of Chinese calligraphy, presented as Baiwen (where white script is set against a vivid red background). The visual representation of the character has undergone a transformative journey through various stages of Chinese civilization, contributing to the development of five distinct script styles: seal script, clerical script, regular script, running script, and cursive script.

Below the motif of the Chinese dragon is a holographic colour shift LiveColor® security stripe and transparent window with the motif of the Chinese character 福 (fu, meaning good fortune) combined with floral elements in traditional Chinese culture.



LiveColor® security stripe and transparent window.

The character 福, incorporating the stylised depiction of the Chinese dragon, is positioned at the center of the transparent window, complemented on both sides by intertwined peony flower patterns and cloud motifs, symbolising wealth and good fortune in traditional Chinese culture. The stripe displays dynamic features of red, gold and turquoise alternately changing when the note is tilted.

The outline pattern of the transparent window is derived from the artistic form of a ruyi-shaped frame window in classical Chinese garden art. Ruyi was a widely popular artistic motif in ancient China, symbolising auspiciousness, good fortune, and prayers for peace and success. The character on the reverse of the window appears gold.

The reverse of the banknote features a scene of children performing a dragon dance to welcome the spring, inspired by the Chinese Lunar New Year dance tradition and the traditional Chinese painting theme of 'Bai Zi He Chun' (Hundred Children Celebrating Spring). They perform against a backdrop of a Siheyuan (or Beijing courtyard), depicting the folk custom of performing dragon dances to pray for favourable weather and a bountiful harvest.

The Chinese dragon dance, also known as 'Shualongdeng' or 'Longdengwu', is a traditional Chinese custom that is believed to have originated from the ritual of 'worshiping the heaven' during the Shang and Zhou dynasties (1046–256 BCE). Over the millennia, during festive occasions or celebrations, the dance has been employed to enhance the atmosphere of joy and celebration, becoming a classic form for the Chinese people to express good wishes.

The People's Bank of China issued a millennium loong banknote with a face value of 100 yuan (about \$14) in 2000. Starting in 2012, the Bank of China Macau Branch and Banco Nacional Ultramarino have released a Macau Zodiac commemorative banknote each year, featuring one of the 12 Chinese zodiac signs. By 2023, all 12 had been issued.

This style of loong banknotes released to celebrate 2024 has a circulation of 100 million, and was available via online reservations and offline exchanges.

Note and Coin News

Another New Currency for Zimbabwe

The Reserve Bank of Zimbabwe (RBZ) has unveiled a new family of coins and banknotes denominated in Zimbabwe gold (expressed as ZiG), which replaces the preceding dollar notes at a rate of 1:2,498.7242. The RBZ asserts that Zimbabwe gold is a 'structured currency' pegged to and fully backed by a composite basket of foreign currencies and precious metals (mainly gold).

The current series – the new Zimbabwean dollar (ZWL, but originally called the RTGS dollar) – was introduced in 2019, replacing so-called bond notes, which in turn replaced notes of the 2009 series abandoned due to hyperinflation that had resulted in the short-term appearance of a Z\$100 trillion denomination.

For the next 10 years, a multi-currency system was adopted in which currencies including the South African rand, Botswana pula, pound sterling, Indian rupee, euro, Japanese yen, Australian dollar, Chinese yuan, and US dollar were used in place of the national currency. Following the introduction of the ZWL in 2019, it was the only official currency in the country for a year, after which multiple foreign currencies were allowed again.



The ZWL is reported to have lost three quarters of its value this year alone, and the introduction of the ZiG is expected to stabilise the currency situation, leveraging Zimbabwe's gold reserves to instil confidence in the new monetary initiative. Zimbabweans have 21 days to convert their old cash into new money. During this time, the US dollar, which accounts for 85% of transactions, will remain legal tender.

The banknotes will be available in denominations of 1, 2, 5, 10, 50, 100, and

200 ZiG, and coins backed by Zimbabwe's gold reserves will also be introduced at a later date in denominations of 1, 2 and 5 ZiG to overcome the shortage of US coins.

The design on the front of the new ZiG series is similar to that of the previous series, featuring the Chiremba balancing rocks. The image on the reverse, common to all the notes, is molten gold pouring from a crucible into an ingot mould atop a stack of gold bars. All the notes feature a QR code on the front, and a windowed security thread.

In Other News...

■ The National Bank of Poland (NBP) will issue a commemorative 20 zloty banknote in July to mark the 80th anniversary of the Warsaw uprising, a major World War II operation by the Polish underground resistance to liberate the city from German occupation. The issue will be limited to 80,000 pieces and will be sold at a premium via NBP branches and online.

■ The Reserve Bank of New Zealand (RBNZ) has announced that circulating and commemorative coins will bear the Commonwealth effigy of King Charles III. The first coin with the new effigy is likely to be the 10 cents, with an expected minting date of 2025. The other four denominations will have a minting date of 2027. None of the new coins are likely to enter circulation before 2027, since coins typically enter circulation some two years after production. The RBNZ has also confirmed that the \$20 banknote – the only one to feature the monarch – will also feature the King, but that it will take some time for these

to be issued due to the significant stocks of the \$20 notes with the image of the late Queen.

■ The Central Bank of Trinidad and Tobago will issue a new \$100 by the end of the year. The updated banknote will be similar to the 2019 series currently in circulation but will include an enhanced 'security strip' incorporating a Bird of Paradise, which also features in a vignette on the front of the current note. The \$100 was the first to be issued in the phased transition from cotton-based notes to the updated polymer series, which comes in six denominations.

■ The Saudi Central Bank has issued new versions of the 5 and 10 riyal banknotes, bearing its new name, which was changed from the Saudi Arabian Monetary Authority in 2020. The two notes complete the name change for the series, new versions of the 50 and 100 riyals having been issued in 2022, and the 500 riyal in 2023.

■ Falkland Islanders have responded to a consultation by the Treasury, in which the majority favour the removal of the 1p and 2p coins and a new set of designs for the banknotes.

The public consultation was run at the end of last year to gauge public opinion on preferred themes and designs. The need for a new series, which is in denominations of 1, 5, 10, 20 and 50 Falkland pounds, has been promoted by a decreasing stock of the current Falkland Islands £5 notes, the lack of an active contract with a note printer, and advances in printing technology. The design dates back to 1984 and the change of monarch was an opportune time to reconsider the designs overall.

The overall winner in terms of themes was native plants and animals (the islands are renowned for their wildlife, notably marine). Respondents also preferred having different designs for each denomination and the majority (over 70%) were in favour

Continued on page 20 >

... Note And Coin News

of keeping the monarch on the notes.

A consultation was also carried out on 1p and 2p coins, the two lowest denominations. Over 70% of respondents were in favour of their removal. 62% stated that they rarely or never use them.

The consultation also asked about peoples' payment methods. 87% use cash, of whom nearly 50% use it often or always, second only to 90% who use debit and credit cards.

Following the survey results, the Treasury Department will develop and present a

paper to the Executive Council looking to withdraw the 1p and 2p coins from circulation. It has also approached a banknote manufacturer to design and produce a new set of notes, in the expectation that a proposal can be put to the Council in the next couple of months.

■ HM King Charles III came face-to-face with the new banknotes bearing his portrait at a special presentation at Buckingham Palace earlier this month, describing them as 'very elegant and well-designed'. He is seen here with the Governor of the Bank of

England, Andrew Bailey, and Chief Cashier Sarah John. The new notes will go into circulation on 5 June.



Events

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

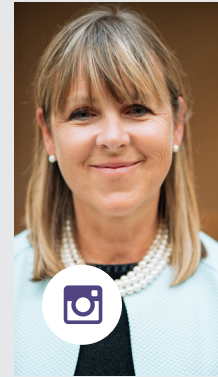
3–5 JUNE 2024
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24–26 JUNE 2024
CASH SUSTAINABILITY FORUM
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9–11 SEPTEMBER 2024
SECURITY DESIGNERS FORUM
 Warsaw, Poland
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30 SEPTEMBER–3 OCTOBER 2024
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